Proceeding Book

NEURORADIOLOGY HEAD AND NECK : CURRENT ISSUES IN EMERGENCY STATES

ANNUAL SCIENTIFIC MEETING
NEURORADIOLOGY HEAD AND NECK XXI

Makassar Indonesia

May, 22-24th 2025

Proceeding Book - Annual Scientific Meeting

Neuroradiology Head and Neck XXI

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FOREWORD

Assalamualaikum warahmatullahi wabarakatuh,

All praise and gratitude be to Allah SWT, the Almighty God, who continuously bestows His mercy and blessings upon us all. By His permission, the *Annual Scientific Meeting Neuroradiology Head and Neck XXI: Current Issues in Emergency States* was successfully held, and this *e-proceeding book* has been published.

This *e-proceeding book* contains abstracts from various scientific presentations delivered by speakers during the symposium and workshop sessions of the *Annual Scientific Meeting Neuroradiology Head and Neck XXI*. The abstracts are submitted by participants from various institutions and have been selected through a review process in accordance with the applicable guidelines. In addition, this publication also includes *e-poster* abstracts that have passed the selection by the organizing committee.

Well-realized of the symposium and workshop was made possible through the active participation and support of many parties. Therefore, we would like to extend our sincere appreciation to all individuals and organizations who contributed to the success of this event.

We acknowledge that there may still be shortcomings in the preparation of this *e-proceeding book*. Hence, we highly welcome constructive criticism and suggestions for future improvement. We hope that this *e-proceeding book* will serve as a valuable resource for readers and all interested parties.

Wassalamu'alaikum warahmatullahi wabarakatuh,

dr. Junus A. B. Baan, Sp.Rad, Subsp.NKL(K)

Chairman of PIT PSNKLI XXI

SPEAKERS & MODERATORS

SPEAKERS

1. Prof. dr. Arif Faisal, Sp.Rad. Subsp.NKL (K)
2. Prof. Dr. dr. Anggraini Dwi Sensusiati, Sp.Rad. Subsp.NKL (K)
3. Prof. Dr. dr. Yuyun Yueniawati, M.Kes., Sp.Rad. Subsp.NKL (K)
4. dr. Tan Siauw Koan, Sp.Rad. Subsp.NKL (K)
5. dr. H.Farhan Anwary, Sp.Rad. Subsp.NKL (K), MHKes
6. Dr. dr. Sri Andreani Utomo, Sp.Rad. Subsp.NKL (K)
7. dr. Melita, Sp.Rad. Subsp.NKL (K)
8. Dr. dr. Made Widhi Asih, Sp.Rad. Subsp.NKL (K)
9. Dr. dr. Widiana Ferriastuti, Sp.Rad. Subsp.NKL (K)
10. dr. Francisca Notopuro, Sp.Rad. Subsp.NKL (K)
11. dr. I Made Dwijaputra Ayusta, Sp.Rad. Subsp.NKL (K)
12. dr. Rachmi Fauziah Rahayu, Sp.Rad. Subsp.NKL (K)
13. dr. Robby Hermawan, Sp.Rad. Subsp.NKL (K), M. Kes
14. drg. Muhammad Novo Perwira Lubis, Sp.RKG, SubSp.RDP (K)
15. dr. Junus Baan, Sp.Rad. Subsp.NKL (K)

MODERATORS

1. Prof. Dr. dr. Anggraini Dwi Sensusiati, Sp.Rad. Subsp.NKL (K)
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3. Dr. dr. Sri Andreani Utomo, Sp.Rad. Subsp.NKL (K)
4. Dr. dr. Widiana Ferriastuti, Sp. Rad.Subsp.NKL (K)
5. dr. Rachmi Fauziah Rahayu, Sp.Rad. Subsp.NKL (K)

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10.00 – 12.00	**DRY WORKSHOP 1** **Imaging On Spinal Cord and Mimics** **Speaker:** Dr. dr. Sri Andreani Utomo, Sp. Rad. Subsp. NKL (K)	10.30 – 12.00	**DRY WORKSHOP 2** **CBCT** **Speaker:** drg. Muhammad Novo Perwira Lubis, Sp.RKG,Subsp.RDP (K)
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09.50 – 10.10	Radiological Perspectives on Emergency Head Trauma	Prof. dr. Arif Faisal, Sp. Rad. Subsp. NKL (K)
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14.10 – 14.30	The Role of Imaging in Seizure	Dr. dr. Sri Andreani Utomo, Sp. Rad. Subsp. NKL (K)
14.30 – 14.50	Emergency Neuroradiology in Toxic and Metabolic Disorders	dr. Robby Hermawan, M.Kes, Sp. Rad. Subsp. NKL (K)
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08.10 - 08.30	The Role of Imaging on Stroke	dr. Melita, Sp.Rad.Subsp.NKL(K)
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10.00 – 10.20	Imaging on Acute Myelopathy	dr. Francisca Notopuro, Sp.Rad.Subsp.NKL(K)
10.20 – 10.40	Role Imaging in Atraumatic Acute Neck and Back Pain	dr. I Made Dwijaputra Ayusta, Sp.Rad.Subsp.NKL(K)
10.40 – 11.00	Emergency on Temporal Imaging	dr. Junus Baan, Sp.Rad.Subsp.NKL(K)
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11.20 - 11.30	Coffee Break	MC
11.30 – 11.45	Winner Announcement of Poster and Free Paper Competitions; Doorprize	MC
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LECTURE ABSTRACTS

Radiological Perspectives on Emergency Head Trauma

Head trauma or head injury or traumatic brain injury (TBI) is any injury that results in trauma to the skull or brain.

Causes of head trauma:

1. Falls: Leading cause, especially in children and older adults.
2. Motor vehicle accidents: High-impact collisions causing rapid acceleration/deceleration injuries.
3. Assaults: Blunt-force trauma or shaking (e.g., shaken baby syndrome).
4. Sports injuries: Contact sports (football, boxing) and recreational activities (cycling, skateboarding).
5. Explosions: Blast waves causing diffuse axonal injury (DAI) or hemorrhage.

Types of head trauma:

1. Concussion: A mild form of TBI à cause temporary disruption in brain function.
2. Cerebral Contusion: Bruising of the brain tissue.
3. Penetrating Head Injury: An object pierces the skull and enters the brain.
4. Skull Fractures: Breaks in the skull bone, which can be linear or depressed.

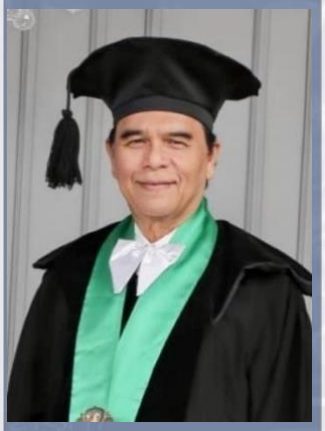
Imaging modalities:

CT Scan is the first-line for acute trauma; MRI is superior for subtle injuries but X-ray has limited utility, replaced by CT for skull fractures. Types of fractures in head trauma consist of linear, depressed, basilar and diastatic fractures.

Types of intracranial hematoma will be discussed: EDH, SDH, SAH, ICH, contusion and DAI.

Diffuse axonal injury (DAI), or traumatic axonal injury (TAI) is a severe form of traumatic brain injury due to shearing forces. Regarding the pathophysiology of DAI, the result of shearing forces with predilection at the grey-white matter junction. Complete tearing of the axons is only seen in severe cases associated with neurons degeneration. MRI is the best modality especially on T2-FLAIR, DWI, SWI and DTI.

The latest advancement in imaging: DAI High Definition Fiber Tracking (HDFT); AI-Driven Analysis; emerging technique 7T ultra-High-Field MRI and PET-MRI Hybrids.



Prof. dr. Arif Faisal, Sp.Rad(K), NKL, DHSM

Radiology Department of Gadjah Mada University

ariffais2002@yahoo.com

A Simplified Approach to Anatomy And Infection of Head and Neck

Despite the technical challenges and expertise necessary to be a skillful head and neck radiologist, most in discipline of neuroradiology have historically focused upon the central nervous system and not the head and neck, an anatomic region whose composition is both fascinating and complicated. The requirement for both radiologist and surgeon to be adapt at recognizing the best scan to order as well as interpreting them becomes increasingly important.

This topic offers a comprehensive exploration of the anatomy and infections of the head and neck, focusing on major anatomical components like the skull, facial muscles, cranial nerves, and vascular structures. It emphasizes the role of the lymphatic system in immune defense and infection control. The discussion then shifts to common infections like sinusitis, pharyngitis, cellulitis, and deep neck space infections, detailing their causes, symptoms, complications, and treatment options. The importance of early diagnosis and appropriate medical or surgical interventions is highlighted. The topic is valuable for medical students, healthcare providers, and anyone seeking to enhance their knowledge of head and neck anatomy and associated infections. It outlines essential structures like fascial planes, lymphatic drainage, and vascular pathways, and provides a framework for recognizing and managing infections in this critical area.

The head and neck are composed of several critical anatomical components, including bones, muscles, nerves, blood vessels, and soft tissue compartments. The major regions include:

- Skull and Facial Bones: Provide structural support and house sensory organs.
- Muscles: Facilitate movement, speech, and expression.
- Nerves: The cranial nerves play a crucial role in motor and sensory functions.
- Vasculature: The carotid arteries and jugular veins ensure blood supply and drainage.
- Lymphatic System: Lymph nodes in the neck filter pathogens and are often the first indicators of infection.
- Fascial Planes: Soft tissue compartments that influence how infections spread.

Infections in the head and neck can arise from various sources, including dental infections, sinusitis, trauma, or post-surgical complications. The spread of infection follows predictable anatomical pathways:

1. **Superficial and Deep Fascial Planes**: The neck is divided into superficial and deep compartments by fascial layers. Deep neck space infections can spread rapidly and lead to life-threatening conditions such as mediastinitis.
2. **Venous Drainage and Cavernous Sinus Thrombosis**: The veins of the face and head lack valves, allowing infections from the face (e.g., from the danger triangle) to travel retrogradely to the brain.
3. **Lymphatic Spread**: Infections in the oral cavity, pharynx, or scalp can drain into regional lymph nodes, leading to conditions like cervical lymphadenitis.

Common Infections of the Head and Neck

Infections in the head and neck can range from mild to life-threatening. Understanding their causes, symptoms, and treatment options is essential for effective management.

1. **Sinusitis**
   Cause: Inflammation of the paranasal sinuses due to viral, bacterial, or fungal infections. **Symptoms**: Facial pain, nasal congestion, headache, fever, and postnasal drip. **Treatment**: Supportive care (hydration, nasal saline irrigation, decongestants), antibiotics (for bacterial infections), and corticosteroids (for severe inflammation).
2. **Pharyngitis and Tonsillitis**
   Cause: Viral or bacterial infection (e.g., Streptococcus pyogenes causing strep throat). **Symptoms**: Sore throat, difficulty swallowing, fever, swollen tonsils, and white patches in the throat. **Treatment**: Symptomatic relief for viral cases; antibiotics (e.g., penicillin or amoxicillin) for bacterial infections.
3. **Otitis Media (Middle Ear Infection)**
   Cause: Bacterial or viral infection, often secondary to upper respiratory infections. **Symptoms**: Ear pain, hearing loss, fever, fluid drainage from the ear, and irritability (in children). **Treatment**: Pain relief (acetaminophen or ibuprofen), antibiotics (if bacterial), and in recurrent cases, tympanostomy tubes may be considered.
4. **Cellulitis and Abscesses**
   Cause: Bacterial infection (often Staphylococcus aureus or Streptococcus species) of the skin and soft tissues. **Symptoms**: Redness, swelling, warmth, pain, and pus-filled abscess formation. **Treatment**: Oral or IV antibiotics; drainage may be required for abscesses.
5. **Deep Neck Space Infections**
   Deep neck infections are serious conditions that can rapidly spread and lead to life threatening complications such as airway obstruction or sepsis.

Types of Deep Neck Infections:

- **Ludwig's Angina** – A rapidly spreading infection of the submandibular space, often arising from dental infections.
- **Retropharyngeal Abscess** – A collection of pus in the retropharyngeal space, common in children.
- **Symptoms:** High fever, difficulty swallowing, neck swelling, drooling, and respiratory distress.
- **Treatment:** IV antibiotics, airway management, and surgical drainage if necessary.

Diagnosis and Management

Early recognition and treatment of head and neck infections are essential to prevent severe complications. Key diagnostic approaches include:

- Clinical Examination: Swelling, pain, fever, and difficulty swallowing or breathing indicate infection.
- Imaging: CT scans and MRIs help identify deep infections and their extent.
- Microbiological Testing: Identifies causative organisms for targeted antibiotic therapy.

Prof. Dr. dr. Anggraini Dwi Sensusiati, Sp. Rad. Subsp. NKL(K)

Radiology Department of Universitas Airlangga Hospital, Airlangga University

Anggraini-d-s@fk.unair.ac.id
anggrainids.unair@gmail.com

Emergency of Brain Tumors: Role of Imaging

A brain tumor, an abnormal growth of cells in the brain, can be a life-threatening emergency. These emergencies are often caused by increased intracranial pressure (ICP) due to tumor mass, edema (swelling), or bleeding. In these situations, brain imaging plays a crucial role in rapid diagnosis and determining appropriate treatment.

The Role of Imaging in Brain Tumor Emergencies:

1. **Rapid Diagnosis**

Imaging, especially CT scans and MRIs, allows direct visualization of brain structures and detects the presence of tumors, edema, or bleeding. CT scans are often the first choice in emergencies because of their wide availability and speed of imaging.

MRIs provide greater detail and can detect smaller tumors or lesions that are difficult to see with CT scans.

2. **Emergency Assessment**

Imaging helps assess the tumor's size, location, and effect on surrounding brain structures.

Imaging can show signs of increased ICP, such as a shift in the brain's midline or a herniation (bulging) of the brain. This information is important in determining the severity and priority of treatment.

3. **Guidance for Treatment**

Imaging helps plan surgical procedures, such as a craniotomy (opening of the skull) to remove a tumor or reduce ICP.

Imaging also helps guide minimally invasive interventional procedures, such as placing a ventricular drain to reduce fluid buildup in the brain. In some cases, imaging results can also help doctors prescribe appropriate medications.

4. **Patient Monitoring**

Serial imaging can monitor a patient's response to treatment and detect complications. Imaging helps assess the development of edema, bleeding, or changes in tumor size.

Types of Imaging Used:

- **Computed Tomography (CT) Scan**
  Quick and easily accessible, ideal for emergencies. Effective in detecting bleeding, edema, and large tumors.
- **MRI (Magnetic Resonance Imaging)**
  Provides better detail and higher tissue contrast. More sensitive in detecting small tumors and lesions that are difficult to see with CT scans.
- **CT or MRI angiography**
  Helpful in assessing blood vessels in the brain and detecting vascular abnormalities associated with tumors.

Conclusion:

Brain imaging is an essential diagnostic tool in the emergency management of brain tumors. By providing rapid and accurate visualization of brain structures, imaging helps doctors diagnose, assess the severity, guide treatment, and monitor the patient's condition.

Prof. Dr. dr. Yuyun Yueniwati, M.Kes., Sp.Rad. Susbsp.NKL(K)

Radiology Department of Brawijaya University

yuyun@ub.ac.id
yuyun@uin-malang.ac.id

Intracranial Aneurysm and Subarachnoid Hemorrhage

dr. Tan Siauw Koan, Sp.Rad. Subsp.NKL(K), MSc

Radiology Department of ST Borromeus Hospital, Bandung

tan.s.koan@gmail.com

The overall worldwide incidence of aSAH is 6.1 per 100000 person-years, highest incidence in Japan and Finland at 28 and 16.6 per 100 000 person-years.

aSAH is a severely morbid and often deadly condition. Prehospital mortality rates from aSAH have been reported to be 22% to 26%. Hospital inpatient mortality rates 19% - 20% in 2021 [global], 10%† BEFORE RECEIVING TR/ (due to intraventricular extension of hemorrhage and acute pulmonary edema). In Emergency Dep/NICU: 1/3 poor grade (4,5) → 50%† within 3 months, 1/3 neurologic deterioration → morbidity, mortality, 1/3 chance of good recovery.

PROGNOSIS SAH = CONSCIOUSNESS + NEUROLOGICAL DEFICIT, indicator of severity brain injury. 2 types grading system: World Federation of Neurologic Surgeons (WFNS) and Hunt and Hess. GRADE 1,2,3 CANDIDATES FOR EARLY SURGERY.

Rebleeding on first day 4%, 2 weeks 25%, following months 30-50% leading to mortality rate > 50%, morbidity 20-25%. Complications include delayed cerebral arterial vasospasm and hydrocephalus.

For initial diagnosis of a subarachnoid hemorrhage (SAH), a non-contrast computed tomography (CT) scan of the brain is the preferred imaging modality due to its high sensitivity for detecting blood in the subarachnoid space, especially within the first 6 hours of symptom onset. Sensitivity Decreases Over Time: The sensitivity of CT scans for detecting SAH decreases as time passes after the bleed, as blood products degrade.

Lumbar Puncture: If a CT scan is negative but clinical suspicion for SAH remains.

Magnetic resonance imaging (MRI) can be used to assess for SAH, especially in the subacute phase. CT Angiography (CTA) can be used to visualize blood vessels and identify the source of the bleeding, such as a ruptured aneurysm. Cerebral Angiography (DSA) is considered the gold standard for identifying and characterizing aneurysms, but CTA is increasingly used as a first- line modality.

Imaging of Spinal Vascular Malformation

Vascular abnormalities of the spinal cord, spinal canal, and vertebrae involve diverse terminologies and classifications, making their imaging challenging to comprehend. In a 2002 publication, Robert F. Spetzler et al. proposed a classification system for spinal cord vascular lesions that is relatively straightforward to understand. Generally, these vascular abnormalities can be categorized into three main groups: neoplasms, aneurysms, and arteriovenous lesions. Neoplastic vascular lesions include hemangioblastomas and cavernous malformations. The second group, aneurysms, are rarely found in the vasculature surrounding the spinal cord. The third group, arteriovenous lesions, can be further divided into arteriovenous fistulas and arteriovenous malformations. Accurate diagnosis of these conditions requires attention to imaging techniques to ensure sufficient image quality for lesion visualization. Early diagnosis can facilitate prompt management and therapy, thereby improving the prognosis. The purpose of this case report is to present the basic anatomical theory, imaging techniques, and several case examples to illustrate these vascular abnormalities.

dr. H. Farhan Anwary, Sp.Rad. Subsp.NKL(K), MHKes.

Radiology Department of Santosa Hospital Bandung Central

Farhan.anwary@yahoo.com

The Role of Imaging in Seizure

Heterogenous disorders could cause epilepsy and diagnosis epilepsy is challenging for radiologist, conventional MRI is a useful tool for helping the radiologist to find the epileptogenic lesions, but sometimes we need advanced MR imaging to make sure the exact epileptogenic site.

The International League Against Epilepsy (ILAE) suggests that everyone with epilepsy should have a high quality of MRI.

The National Institute of Health and Clinical Excellence (NICE) guidelines recommend that MRI of the brain should be the investigation of choice in children and adults with epilepsy to screen for structural abnormalities and advanced MRI with non-contrast MR perfusion, contrast MR perfusion and DTI with tractography help to make an accurate diagnosis and prompt management.

The Neuroimaging Task Force recommends use of the Harmonized Neuroimaging of Epilepsy Structural Sequences (HARNESS-MRI) protocol with isotropic, millimetric 3D T1 and FLAIR images, and high-resolution 2D sub millimetric T2 images.

Use of the HARNESS-MRI protocol standardizes best-practice neuroimaging of epilepsy in outpatient clinics and specialized surgery centres alike

Keywords: Epilepsy; Harness protocol; Advanced MRI

Dr. dr. Sri Andreani Utomo, Sp.Rad. Subsp.NKL(K)

Radiology Department of Dr. Soetomo Academic General Hospital, Faculty of Medicine, Airlangga University

sriandreaniutomo@gmail.com

The Role of Imaging on Stroke

dr. Melita, Sp.Rad. Subsp.NKL (K)

Radiology Department of National Brain Center Hospital, Jakarta

melitadonny23@gmail.com

Stroke remains a critical global health burden, ranking as the second leading cause of death and the third leading cause of disability worldwide. In Indonesia, it holds the grim position of being the number one cause of mortality. Timely diagnosis and intervention are paramount, as the brain loses an average of 1.9 million neurons each minute during an untreated ischemic stroke—equivalent to the neurodegeneration seen in 3.6 years of normal aging per hour. Neuroimaging plays a central role in acute stroke management by identifying potentially salvageable brain tissue and enabling the extension of treatment windows for reperfusion therapy.

The overarching goal of neuroimaging in acute stroke is to rapidly establish an accurate diagnosis, delineate the location and extent of infarction, and determine the age of the ischemic event. It also facilitates the assessment of intracranial vasculature and cerebral perfusion, enabling clinicians to select the most appropriate therapeutic approach. Crucially, imaging aids in identifying the ischemic penumbra—the hypoperfused but potentially reversible area surrounding the infarct core—and in excluding alternative diagnoses that may mimic stroke symptoms.

A systematic imaging framework known as “2P3C” is fundamental in acute stroke assessment. This includes evaluation of:

* Parenchyma: to assess the presence and extent of infarction and to rule out hemorrhage
* Pipes: accessing major arteries intra and extracranial to detect occlusion or thrombus
* Collaterals: to determine the extent of alternative perfusion pathways that can sustain brain tissue
* Core: representing the irreversible damaged tissue and the salvagable penumbra
* Clot: to locate and characterize the occlusion.

Quantitative scoring systems further support imaging interpretation. The ASPECTS (Alberta Stroke Program Early CT Score) provides a standardized method for evaluating early ischemic changes in the anterior circulation, and adaptations exist for posterior circulation strokes. The ECASS (European Cooperative Acute Stroke Study) classification is also widely utilized to estimate the extent of infarct and hemorrhagic transformation, aiding in treatment decisions and prognostication.

Magnetic Resonance Imaging (MRI) is especially valuable in the hyperacute phase of ischemic stroke, demonstrating higher sensitivity than CT for early infarcts. A comprehensive MRI protocol for stroke typically includes:

* DWI (Diffusion-Weighted Imaging) and ADC (Apparent Diffusion Coefficient)
* FLAIR (Fluid-Attenuated Inversion Recovery)
* T1-weighted and T2-weighted images
* GRE/SWI (Gradient Echo or Susceptibility-Weighted Imaging)
* PWI (Perfusion-Weighted Imaging) using contrast
* 3D TOF MRA (Time-of-Flight MR Angiography)

Together, these sequences allow for the classification of stroke mechanism, prediction of outcomes, and tailored therapeutic planning.

In conclusion, advanced neuroimaging is indispensable in the acute management of ischemic stroke. Its role extends beyond diagnosis—it informs prognosis, guides reperfusion strategies, and underpins individualized patient care. Ongoing developments in imaging protocols and automated interpretation tools continue to enhance precision, reduce treatment delays, and ultimately improve functional outcomes for stroke patients.

Imaging of Non Traumatic Neuroradiology Emergency

Neuroradiology emergencies not caused by trauma can be challenging due to the wide variety of conditions that present with acute neurologic symptoms or signs. Computed tomography (CT) scans of the head without contrast are almost always the most appropriate and highly useful first imaging test to rule out life-threatening conditions. Imaging findings of various neurological disorders often overlap on a no-contrast CT scan, and the differential diagnosis may be extensive.

Non-contrast CT scan of the head is an examination that can be performed quickly, is widely available, and is well tolerated by patients in critical condition. A no-contrast CT scan of the head can be the first step to narrowing the differential diagnosis and can lead to the classification of CT scan findings into broad categories. It is excellent at excluding most life-threatening conditions, including intracranial hemorrhage, brain herniation, acute hydrocephalus, and large masses. In neuroradiology emergencies, a radiologist should be able to not only identify these conditions but also make a concise diagnosis, relevant differential diagnosis to facilitate patient management, direct further evaluation and management.

Based on the type of abnormality on initial imaging, further imaging studies may include Computed Tomographic Angiography (CTA), Digital Substraction Angiography (DSA), and/or Magnetic Resonance Imaging (MRI). Understanding the specific imaging findings that indicate a particular diagnosis can help facilitate appropriate clinical examination and treatment.

Dr. dr. Made Widhi Asih, Sp.Rad, Subsp.NKL(K)

Radiology Department of Prof Ngoerah Hospital, Medical Faculty of Udayana University, Denpasar

widhiasih123@gmail.com

Imaging In Orbital Trauma

Dr. dr. Widiana Ferriastuti, Sp.Rad Subsp.NKL(K)

Radiology Department of Dr. Soetomo Regional General Hospital, Faculty of Medicine Airlangga University

widiana_ferriastuti@yahoo.com

The orbit is a complex anatomical structure composed of bony walls, neurovascular components, and soft tissues that protect and support the eye. It consists of four walls—superior, inferior, medial, and lateral—as well as the orbital floor, which houses critical structures such as the optic nerve, extraocular muscles, and blood vessels. Due to its delicate anatomy, the orbit is highly susceptible to trauma, which can result in fractures, hemorrhages, foreign body penetration, or soft tissue damage. Among the orbital walls, the medial and inferior walls are the thinnest and most vulnerable to blowout fractures, often leading to muscle entrapment and herniation of orbital contents into adjacent sinuses. These complications can cause diplopia, enophthalmos, and restricted ocular motility, significantly impairing vision and function.

Orbital trauma can occur due to blunt force impact, penetrating injuries, or retained intraorbital foreign bodies (IOFBs). Foreign bodies such as metal, wood, or glass pose a high risk of infection, chronic inflammation, and orbital abscess formation if not promptly detected and removed. In some cases, delayed diagnosis of IOFBs results in progressive infections, fibrosis, and restricted eye movement, leading to long-term functional impairment. Additionally, orbital trauma can lead to orbital emphysema, where air becomes trapped within the orbital tissues due to fractures in the lamina papyracea. In severe cases, this condition can progress to tension pneumo-orbit, a sight-threatening complication that necessitates urgent decompression to relieve pressure on the optic nerve.

Computed Tomography (CT) is the gold standard imaging modality for assessing orbital trauma due to its high sensitivity in detecting fractures, hematomas, soft tissue injuries, and foreign bodies. Standard CT imaging protocols for orbital trauma involve obtaining thin-section axial and coronal scans with slice thicknesses between 0.625 and 1.25 mm to achieve high-resolution visualization of orbital structures. Multiplanar reconstruction (MPR) further enhances fracture assessment and muscle entrapment evaluation. Bone window settings (4000 HU width/400 HU level) optimize the detection of subtle fractures and foreign bodies, particularly radiopaque objects. Soft tissue window settings (200–350 HU width, 15–40 HU level) allow for detailed assessment of hematomas, fat prolapse, and extraocular muscle involvement. In cases of suspected vascular injury, orbital abscess, or optic nerve compression, contrast-enhanced CT is often employed to provide additional diagnostic information.

For penetrating orbital injuries, CT plays a crucial role in precisely locating intraorbital foreign bodies, determining their composition and trajectory, and evaluating their impact on adjacent structures. However, certain organic materials, such as wooden fragments, may be difficult to detect using conventional CT due to their low density, which can mimic air pockets and lead to misinterpretation. In such instances, magnetic resonance imaging (MRI) may be required for a more accurate diagnosis.

Advancements in artificial intelligence (AI) have significantly improved diagnostic accuracy and efficiency in orbital trauma imaging. AI-powered image segmentation techniques enhance the detection of fractures, volumetric analysis, and foreign body identification, thereby improving preoperative planning and clinical decision-making. Recent studies evaluating AI models, such as ChatGPT-4, have demonstrated nearly 100% accuracy in diagnosing orbital fractures, although their performance in distinguishing between cases requiring surgical intervention and those suitable for conservative management remains moderate. The integration of AI into radiological workflows has the potential to reduce human error, streamline trauma assessment, and improve patient outcomes.

A thorough understanding of orbital anatomy, trauma mechanisms, and imaging protocols is essential for optimizing diagnostic and therapeutic strategies. The combination of high-resolution CT imaging, AI-assisted diagnostic tools, and standardized imaging protocols ensures early and accurate detection of fractures, soft tissue damage, and foreign bodies. This approach minimizes complications and enhances both functional and aesthetic recovery. Future developments in AI-driven imaging analysis, three-dimensional reconstruction, and automated decision-support systems may further refine orbital trauma management, ultimately improving surgical precision and patient care.

Keywords: Orbital trauma, computed tomography, intraorbital foreign body, blowout fracture, artificial intelligence, imaging proto col, orbital emphysema.

Imaging On Acute Myelopathy

Myelopathy is a general term that refers to any disorder affecting the spinal cord.

Based on the time taken to reach the maximum neurological deficit, myelopathy is classified into :

- Acute myelopathy: reaches peak symptom severity within ≤21 days.
- Subacute myelopathy: reaches peak symptom severity over a course of several weeks to months.
- Chronic myelopathy: reaches peak symptom severity over several months to years.

Based on its etiology, myelopathy can be broadly categorized into compressive and non-compressive types :

- Compressive myelopathy: caused by degenerative changes, trauma, tumors, vascular malformations, or abscesses.
- Non-compressive myelopathy: caused by myelitis due to infection, toxins, radiation, metabolic disturbances, or paraneoplastic processes.

Acute non-compressive myelopathy may be caused by:

- Vascular causes: spinal cord infarction (hyperacute, with peak symptoms within ≤4 hours).
- Inflammatory causes: partial or transverse myelitis (acute, with symptom peak between 4 hours to 21 days), which may result from demyelinating diseases such as Multiple Sclerosis (MS), Neuromyelitis Optica Spectrum Disorder (NMOSD), Acute Disseminated Encephalomyelitis (ADEM), or Myelin Oligodendrocyte Glycoprotein Antibody-associated Disease (MOGAD). Other possible causes include (para)infectious myelitis and systemic inflammatory diseases such as Lupus, Behçet's disease, Sjögren's syndrome, and Sarcoidosis.

Subacute to chronic myelopathy may be caused by vascular, toxic-metabolic, infectious, neurodegenerative, autoimmune/paraneoplastic, or neoplastic conditions.

MRI is a crucial diagnostic modality that aids in reaching a more accurate diagnosis, as each etiology of myelopathy exhibits specific imaging characteristics, such as lesion length (short segment <3 vertebrae vs. long segment >3 vertebrae), orientation (longitudinal or transverse), location (central or peripheral), and enhancement patterns following contrast administration. These imaging findings are instrumental in guiding management decisions, therapeutic strategies, and prognostic evaluations.

dr. Francisca Notopuro, Sp.Rad. Subsp.NKL(K)

Radiology Department of National Hospital, New Brain Clinic, Ciputra Hospital

franciscanotopuro2@gmail.com

Role Imaging in Atraumatic Acute Neck and Back

dr. I Made Dwijaputra Ayusta, Sp.Rad. Subsp.NKL(K)

Radiology Department of Prof. Ngoerah Hospital, Udayana University

Dp.ayusta@gmail.com

Background

Atraumatic acute neck and back pain are common clinical presentations in emergency and outpatient settings. While most cases are benign and self-limiting, a subset of patients may harbor serious underlying pathologies that require prompt diagnosis and intervention. Imaging plays a critical role in distinguishing between benign musculoskeletal conditions and serious spinal pathologies such as infections, malignancies, or neurologic compromise.

Objective

This review aims to explore the role of imaging modalities in the evaluation of atraumatic acute neck and back pain, highlighting appropriate indications, diagnostic utility, and recent advancements in imaging technologies.

Findings

The initial assessment of atraumatic acute spinal pain should emphasize history-taking and physical examination to identify red flags such as fever, immunosuppression, history of cancer, neurological deficits, or recent infections. In the absence of red flags, imaging is often unnecessary during the first six weeks of symptoms. However, when red flags are present, imaging becomes crucial in identifying serious etiologies.

Conventional Radiography

Plain radiographs remain a first-line modality in many cases due to accessibility and cost-effectiveness. However, their diagnostic yield is limited in soft tissue and early-stage infections or tumors. X-rays are mainly useful in detecting vertebral fractures, gross alignment abnormalities, and degenerative changes (Jarvik & Deyo, 2002).

Magnetic Resonance Imaging (MRI)

MRI is the imaging modality of choice when red flags are present. It offers superior soft-tissue contrast and allows for the assessment of intervertebral discs, spinal cord, ligaments, and paraspinal soft tissues. MRI is particularly useful in diagnosing disc herniation, spinal cord compression, epidural abscesses, and malignancy. It is the preferred modality in suspected cauda equina syndrome, myelopathy, or spinal infections (Chou et al., 2011).

Computed Tomography (CT)

CT provides excellent bone detail and is superior in detecting subtle fractures not visualized on radiographs. CT myelography is an alternative when MRI is contraindicated. However, it involves ionizing radiation and contrast risks. CT is often used in trauma but may have a limited role in atraumatic cases unless MRI is unavailable or contraindicated (Modic et al., 2005).

Ultrasound and Nuclear Imaging

Ultrasound has limited utility in spine imaging but may be helpful in detecting paraspinal soft tissue infections or guiding procedures. Nuclear medicine techniques such as bone scans or PET-CT can identify metastases or infection, especially in patients with systemic symptoms or cancer history (Kowalski et al., 2007).

Recent Advances

Recent advances include the development of whole-body MRI protocols, diffusion-weighted imaging (DWI), and machine learning algorithms that can assist in triaging and interpreting spinal images. These technologies may enhance early detection and reduce diagnostic delays in high-risk populations (Baum et al., 2020).

Conclusion

Imaging plays a pivotal role in the evaluation of atraumatic acute neck and back pain, particularly in identifying patients who require urgent management. MRI remains the gold standard in evaluating red-flag symptoms, while CT and radiographs have adjunctive roles. Judicious use of imaging guided by clinical algorithms ensures optimal patient outcomes while avoiding unnecessary exposure and healthcare costs.

Imaging Of Craniofacial Trauma

Craniofacial trauma is a complex and challenging field in radiology that requires accurate and early evaluation for optimal patient treatment. A deep understanding of craniofacial anatomy, mechanisms of injury, and imaging modalities is essential to diagnose and classify different types of fractures and associated injuries. Facial trauma can be caused by various etiologies, such as traffic accidents, fights, falls, or sports activities.

The craniofacial anatomy consists of various interconnected bones, each with different areas of strength and weakness such as the *Maxillofacial Buttress*: There are several major buttresses, including the *Nasomaxillary buttress*, *Zygomaticomaxillary buttress*, and *Pterygomaxillary buttress*. Some important sutures in the context of trauma are the *Zygomaticofrontal suture*, *Zygomaticotemporal suture*, and *Frontonasal suture.*

Available imaging modalities such as Plain Photos are rarely used due to limitations in visualization of bone and soft tissue details. CT scan is the *gold standard* modality for evaluation of craniofacial trauma due to its ability to provide detailed visualization of bone and soft tissue rapidly and accurately. CTA (CT Angiography) is used to evaluate traumatic injuries to blood vessels, such as carotid artery dissection or aneurysm formation, as well as pathological conditions such as vascular malformations or aneurysms that may predispose to bleeding. MRI (Magnetic Resonance Imaging is used for examination of extra-cranial soft tissue structures of the head and neck, such as muscles, nerves, and ligaments. MRI may also be used to evaluate injuries to the brain and spine. Types of Fractures that are typically recognized include Orbital Fracture (Blow-out fracture, Blow-in fracture, Trapdoor" blow-out fracture), Frontal Fracture, Zygoma Fracture, Nose Fracture, Naso-Orbital-Ethmoid (NOE) Fracture, Maxillary Fracture, Mandibular Fracture, and Palate Fracture.

The summary

CT scans are more accurate and easily performed for facial trauma. Accurate radiological evaluation helps in surgical management and improves clinical outcome. Facial fractures are often multiple, so it is important to explore for other injuries if a specific fracture is found. Comprehensive radiologic evaluation and careful interpretation are essential for optimal management of patients with craniofacial trauma. It is important to always observe facial symmetry and look for asymmetry, which can be indicative of a fracture or dislocation. Also, keep in mind that the management of craniofacial trauma frequently involves a multidisciplinary approach, including radiologists, maxillofacial surgeons, neurosurgeons, and other specialists.

Dr. dr. Rachmi Fauziah Rahayu, Sp. Rad. Subsp.NKL(K)

Radiology Department of Sebelas Maret University, Moewardi Government Hospital

rachmifr@gmail.com/
rachmifr_sprad@staff. uns.ac.id

Emergency Neuroradiology in Toxic and Metabolic Disorders

Toxic and metabolic brain disorders, although relatively uncommon, are cases that can be encountered in emergency situations. This disorder needs to be recognized so that appropriate treatment can be given. Imaging plays an important role because this examination is often the first diagnostic modality performed so that it can direct the next step of investigation. Patients with toxic and metabolic disorders frequently can not be asked properly because they are in confusional or delirium state, so imaging may be the only clue to look for abnormalities. Some patients may also not be honest about their drug and medication history. Neuroimaging in toxic and metabolic disorders is quite challenging because these disorders consist of many heterogenous groups of etiology and the majority of cases are also unspecific. Toxic and metabolic brain disorders in the literature are usually approached based on the classification of the etiology of the substance. This approach mixes many different possible imaging manifestations and creates more confusion. This presentation use a systematic approach based on the pattern of neuroimaging findings. This approach is more applicable to our daily clinical practice, because the pattern of neuroimaging finding will be the first clue that can be obtained. The most important patterns are as follows: 1. Basal ganglia and/or thalami involvement; 2. Dentate nuclei involvement; 3. Prominent cortical gray matter involvement; 4. Symmetric periventricular white matter involvement; 5. Corticospinal tract involvement; 6. Corpus callosum involvement; 7. Asymmetric white matter involvement; 8. Parieto-occipital subcortical vasogenic edema. 9. Central pons involvement. This pattern based approach can be used to reduce the number of differential diagnosis. Nevertheless, clinical history should always be looked at, as it points to subjacent toxic and metabolic causes.

dr. Robby Hermawan, SpRad. Subsp.NKL(K), MKes

Radiology Department of Santo Borromeus Hospital, Bandung

antrobher@yahoo.com

Cone Beam-CT: Imaging on Dental Emergencies

Dental disease is a prevalent finding on head and neck images, particularly in emergency settings. This can present a challenge for radiologists who lack experience with identifying dental trauma or disease. The presence of dental abnormalities can be subtle, and therefore, they must be incorporated into the systematic approach to these images. While dedicated dental images are not typically obtained in emergency cases, teeth are frequently present on various head and neck images, and their preliminary evaluation rarely necessitates a dedicated protocol. The high prevalence of craniofacial trauma, sinus infection, and maxillomandibular procedures, among other conditions, frequently necessitates the interpretation of dental images in daily emergency practice. The imaging findings in emergencies can be categorized into the three categories of infection, trauma, and procedural complications, although these categories may sometimes overlap. These categories can assist the radiologist in determining the most appropriate imaging protocol and dynamic maneuvers to employ, as well as facilitate the interpretation of images and the formulation of differential diagnoses. The radiologist's familiarity with the imaging findings of dental emergencies has been shown to improve diagnostic confidence and the radiologist's role in guiding patient care, avoiding progression to life-threatening conditions, and reducing aesthetic problems, dental loss, and related conditions.

drg. Muhammad Novo Perwira Lubis, Sp.RKG, SubSp. RDP (K)

Trisakti University, Jakarta

drg.novolubis@gmail.com
m.novo@trisakti.ac.id

Emergency on Temporal Imaging

dr. Junus A. B. Baan, Sp.Rad, Subsp.NKL(K)

Radiology Department of Hasanuddin University

junusbaan@yahoo.com

The temporal bone is a complex structure containing critical auditory, vestibular, and facial nerve components, and lies adjacent to intracranial structures. These anatomical features make it vulnerable to both traumatic and infectious emergencies, which can result in serious clinical consequences if not promptly diagnosed and managed.

In acute settings, CT is the preferred first-line imaging modality due to its speed, excellent bone detail, and broad coverage. Non-contrast CT is typically sufficient for trauma evaluation, while contrast-enhanced studies are helpful in cases of suspected infection. MRI, though offering superior soft tissue contrast, is less practical as an initial imaging tool in emergencies due to longer scan times and limited bone resolution.

For temporal bone trauma, a structured CT checklist helps ensure a thorough evaluation:

* Fracture orientation and location
* Otic capsule involvement: cochlea, vestibule, semicircular canals, vestibular aqueduct
* Ossicular chain integrity: malleus, incus, stapes
* Facial nerve canal: internal auditory canal, fallopian canal, geniculate fossa, tympanic and mastoid segments
* Tegmen: tympani and mastoideum
* Vascular structures: carotid canal (petrous and cavernous portions), venous sinuses (transverse, sigmoid, jugular bulb)

The mastoid process, as part of the temporal bone, is anatomically adjacent to vital intracranial structures, making it a critical region in emergency settings. Careful radiologic evaluation is essential, as both traumatic and infectious mastoid pathologies can lead to serious complications if not promptly diagnosed. Imaging plays a pivotal role in detecting potentially life-threatening conditions such as subperiosteal abscess, sinus thrombosis, and intracranial involvement, while also guiding decisions regarding surgical intervention or conservative treatment. The appropriate selection of imaging modalities and systematic interpretation are crucial for early diagnosis, therapeutic planning, and morbidity prevention in mastoid emergencies.

Infectious emergencies most commonly involve middle ear infections, particularly chronic suppurative otitis media (CSOM), with a prevalence of approximately 2.7%. Otitis media involves inflammation of the mucoperiosteal lining of the middle ear cleft. Complications can occur when infection extends to surrounding structures, potentially affecting:

* The facial nerve
* The inner ear, leading to hearing or balance disturbances
* Dural venous sinuses, meninges, or brain tissue
* Extra-temporal soft tissues

CT is essential in evaluating bone involvement, while contrast-enhanced MRI is valuable for detecting soft tissue and intracranial complications.

Conclusion

Temporal bone emergencies, including those affecting the mastoid process, require prompt and structured imaging evaluation. CT remains the mainstay of initial assessment, especially in trauma, with MRI serving as an important adjunct in selected cases. A systematic radiologic approach ensures accurate diagnosis, guides treatment, and helps prevent long-term morbidity.

PAPER ABSTRACT

PA01: RADIOLOGICAL DIFFERENTIATION OF COMMON PRIMARY CEREBELLAR AND FOURTH VENTRICLE TUMORS USING CT AND MRI FEATURES: A 7-YEAR SINGLE CENTER STUDY

D. Andriawan[1], N.H Setyawan[1], D.P Dharma[1], A. Ekowati[1]
Department of Radiology, Dr. Sardjito General Hospital, Yogyakarta, Indonesia[1]

BACKGROUND: Patient with posterior fossa tumor often presents in emergency settings with signs of elevated intracranial pressure, decrease of consciousness, nerve palsies and even seizure. Excluding brainstem lesions, primary tumors in posterior fossa have several differentials. Imaging plays crucial roles especially for treatment planning. Although contrast-enhanced MRI is often the recommended imaging modalities, it is often not available. We observe and analyze CT and MRI findings that might be helpful to differentiate between these kinds of tumors.

OBJECTIVES: To differentiate between common primary cerebellar and fourth ventricle tumors using several CT and MRI features.

METHODS: The study samples consisted of patients admitted to Dr. Sardjito General Hospital between 2017 and 2024, who were suspected of having intracranial masses and underwent head CT and MRI scans. Only patients with confirmed histopathological diagnoses of: (1) astrocytoma, (2) ependymoma, (3) high-grade neuroepithelial tumors (medulloblastoma) or (4) hemangioblastoma located in the cerebellum / fourth ventricle were included. Patients with known other primary malignancies were excluded. CT and MRI findings prior to treatment were retrospectively collected and analyzed using statistical methods.

DISCUSSION: Despite their proximity, tumors located in the fourth ventricle or cerebellum may have different treatment approaches and prognoses. CT is often the first-line imaging modality used. Previous studies that analyze the radiological findings, particularly the CT features of these tumors, remain limited. Differentiating between common fourth ventricle and cerebellar hemisphere tumors remains challenging. Several features may assist radiologists in determining the site of origin and tumor type.

CONCLUSION: Several CT and MRI features, with consideration of patient's ages are useful to differentiate between common primary tumors in the cerebellum and 4th ventricle based on the tumor epicentrum, characteristics and its effect to surrounding structures.

KEYWORDS: Posterior fossa tumor, Cerebellum, Fourth ventricle, Astrocytoma, Ependymoma, Medulloblastoma, Hemangioblastoma, High-grade neuroepithelial tumor

ABBREVIATIONS: Computed Tomography (CT), Magnetic Resonance Imaging (MRI)

PA02: DESCRIPTIVE ANALYSIS OF ORBITAL TRAPDOOR FRACTURES: CORRELATION OF GCS WITH CLINICAL OUTCOMES

Dinda Ariesta[1], Rachmi Fauziah Rahayu[2]
[1]Radiology Resident, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta
[2]Staff of Radiology Department, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta

Background: Orbital trapdoor fractures can cause significant functional impairment due to soft tissue entrapment. Glasgow Coma Scale (GCS) is commonly used to assess the severity of head injury, but its correlation with outcomes in trapdoor fractures still requires further research. This study aims to descriptively analyze the relationship between initial GCS scores and clinical outcomes in patients with orbital trapdoor fractures.
Objective: To analyze the relationship between initial GCS score and clinical outcomes, including the need for surgical intervention, resolution of diplopia, and overall recovery in patients diagnosed with orbital trapdoor fracture.
Methods: Retrospective descriptive study of 10 patients with orbital trapdoor fracture who were treated at Dr. Moewardi Surakarta Hospital from 20222024. Data collected included initial GCS score, radiologic findings (e.g.,tear-drop sign, fracture location), treatment modality (surgical vs.conservative), and clinical outcomes (ocular motility, diplopia resolution, complications).
Results: Of the 10 patients, the initial GCS range varied from 3 to 15. Eight patients had mild head injury (GCS 14-15), one patient had moderate head
injury (GCS 11), and one patient had severe head injury (GCS 3). Radiologic findings showed orbital fat entrapment in all patients. Six patients with initial GCS 14-15 were treated conservatively and showed resolution of diplopia within 2-4 weeks. Four patients required surgical intervention. The patient with GCS 3 had complications of multiple traumas.
Conclusion: Initial GCS score can be a prognostic indicator in orbital trapdoor fracture patients. Early surgical

intervention can improve ocular outcomes, but initial GCS and concomitant injuries affect overall recovery. Further research is needed to validate these findings and refine management guidelines.

Keywords: Trapdoor Orbital Fracture, Glasgow Coma Scale, Diplopia, Surgical Intervention.

PA03: AI FOR DETECT INTRACRANIAL HEMORRHAGE, A LITERATURE REVIEW

Finidya Septiani[1]; M. Irvanie Harahap[2]; Samuel Tandionugroho[3]

[1] Resident. Department of Radiology, Faculty of Medicine, Universitas Pembangunan Nasional Veteran Jakarta, Indonesia.

[2] Consultant Radiologist. Department of Radiology, Faculty of Medicine, RSPAD Gatot Soebroto Jakarta, Indonesia.

[3] Consultant Interventional Radiologist. Department of Radiology, Faculty of Medicine, RSPAD Gatot Soebroto Jakarta, Indonesia.

Background

Intracranial hemorrhage (ICH) is an emergency condition that requires rapid diagnosis. Non-contrast head CT scan is the primary modality for detecting ICH, especially in emergency situations. Artificial intelligence (AI) is being developed to improve the accuracy and speed of ICH diagnosis. This literature review explore the implementation of AI in ICH detection, from deep learning-based algorithms to its integration into clinical workflows.

Objective

AI is used to analyze non-contrast head CT scans with the aim of automatically detecting intracranial hemorrhage.

Method

These ten reviewed journals explore the application of deep learning to detect intracranial hemorrhage in non-contrast head CT. The methods used involve training an AI model using a dataset of CT images to identify ICH, notification appears as a pop-up widget on the radiologist's monitor for the first step; dominant using Convolutional Neural Networks (CNN) with modified deep learning to detect and classify ICH, indications are marked "AI" in the worklist as the second step; statistical confidence scores to reduce false positives by filtering predictions, exams detected positive by AI are prioritized in the worklist for the last step.

Result and discussion

AI demonstrated excellent capability in detecting intracranial hemorrhage with statistical confidence score >90% correlated with high diagnostic accuracy. Implementation of AI not only improves detection accuracy but also the efficiency of radiology workflow. Without AI, ICH diagnosis system relies entirely on human speed and expertise, which is prone to time and human error constraints. AI acts a sophisticated tool in initial screening.

Conclusion

This literature review show that AI has high sensitivity, specificity, and accuracy in detecting ICH in non-contrast head CT scans, can be used as an advanced aid tool for radiologists. AI can be a game-changer in emergency radiology.

PA04: IMAGING PATTERN OF TEMPORAL BONE FRACTURE USING HRCT MODALITY AMONG PATIENT WITH HEAD INJURY AT DR. MOEWARDI HOSPITAL

Lia Galih Yogya Tama[1], Rachmi Fauziah Rahayu[2]

[1]Radiology Resident, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta

[2]Staff of Radiology Department, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta

Background: Temporal bone trauma, often associated with traumatic brain injury (TBI), impacts neurological status and long-term outcomes, necessitating accurate diagnosis and prompt management. High-resolution computed tomography (CT) is the gold standard for evaluating temporal bone trauma and complications. This study evaluates high-resolution CT's role in diagnosing fractures, assessing neurological status using the Glasgow Coma Scale (GCS), and analyzing clinical outcomes, including mortality.

Objective: To assess the diagnostic utility of high-resolution CT in patients with Temporal bone trauma, correlating radiological findings with GCS scores, neurological complaints, and mortality rates.

Method: A retrospective descriptive review of 48 patients with temporal bone trauma who underwent high-resolution CT imaging at our institution was conducted. Data extracted included demographics, GCS scores, neurological complaints (categorized as mild, moderate, or severe), fracture patterns, associated complications, and mortality rates. The most common fractures involved pars petrousa, pars squamous, pars mastoidea, pars tympanic and pars styloidea. Complications included dizzines, deficit neurology, and loss of consciousness. Surgical intervention was performed in severe cases, while

conservative management was applied for stable fractures.

Result: High-resolution CT provided detailed anatomical visualization, enabling precise identification of fracture patterns and associated complications, significantly aiding surgical decision-making. GCS scores and neurological complaints correlated with CT findings, influencing management strategies. Mortality (12.5%) was associated with severe TBI and complications. These findings align with existing literature, emphasizing the evolving role of imaging in trauma evaluation.

Conclusion: High-resolution CT is an indispensable tool for temporal bone trauma. Its accuracy in diagnosing, guiding treatment, and assessing complications underscores its role. Further research will refine protocols and optimize resource use.

Keywords: Temporal bone trauma, temporal bone fracture, computed tomography, glasgow coma scale, neurological complaints, mortality.

PA05: HYPEREOSINOPHILIC SYNDROME AS A RARE ETIOLOGY OF "WATERSHED STROKE" AND MYOCARDIAL INFARCTION

Made AM Inggas[1,2], Yonathan W[3,4], Jourdy Keintjem[1], Jeffrey Tanudjaja[4]

[1]Department of Neurosurgery Team, Siloam Hospital Lippo Village

[2]Department of Neurosurgery, Faculty of Medicine, Pelita Harapan University

[3]Radiology Department, Kebon Jeruk Siloam Hospital

[4]Radiology Residency, Pelita Harapan University

Background

Hypereosinophilic syndrome (HES) is a rare disorder characterized by persistent eosinophilia, causingend-organ damage. The case highlights an uncommon association of acute ischemic stroke (AIS) and acute myocardial infarction (AMI) with HES.

Objectives

To describe a rare presentation of HES involving concurrent AIS and AMI, emphasizing the importance of timely diagnosis and targeted treatment.

Case Description

A 39-year-old man presented with sudden right-sided weakness, abdominal pain, agitation, lagophthalmos, and incoherent speech. AIS and AMI were initially linked to uncontrolled hypertension. Brain MRI confirmed watershed stroke, and echocardiography revealed hypokinesis with elevated troponin levels. Peripheral eosinophilia (8.9×10^9/L) and bone marrow eosinophilia (35%) established the diagnosis of HES.

Discussion

Further analysis of molecular markers and comprehensive cardiac evaluation are essential to elucidate the causal role of HES and the mechanism linking HES with cardiac damage. In this case, the watershed stroke pattern suggested cerebral involvement of HES. The patient showed significant recovery after one month of corticosteroid and imatinib therapy, with restored mobility, coherent communication, and no recurrence of stroke on follow-up MRI.

Conclusion

HES should be considered in patients presenting with eosinophilia alongside AIS and AMI. Early diagnosis and therapy can prevent irreversible organ damage.

Keywords: hypereosinophilic syndrome, ischemic stroke, myocardial infarction

PA06: CT PERFUSION IN LATE-WINDOW ACUTE ISCHEMIC STROKE: A SYSTEMATIC REVIEW AND META-ANALYSIS OF MORTALITY, RECANALIZATION, AND FUNCTIONAL OUTCOMES

Mohammad Pratama[1]; Amalia Ayuputri[2]; Nurhuda Setyawan[1]; Dito Dharma[1]

[1]Radiology Departement, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada

[2]Center for Child Health, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada

Background

Endovascular treatment for acute ischemic stroke relies on appropriate imaging for patient selection, with CT perfusion (CTP) increasingly used in the late window. While CTP provides additional perfusion metrics, its necessity over non-contrast CT and CT angiography (CTA) remains debated.

Objective

This meta-analysis aimed to assess whether CTP improves patient selection and clinical outcomes in acute ischemic stroke treated in the late window (>6 hours). Additionally, we evaluated functional independence and clinical outcomes to determine whether conventional imaging alone is sufficient or if CTP provides added value.

Method

A systematic review and meta-analysis were conducted following PRISMA guidelines. Relevant studies comparing ischemic stroke outcomes in CTP-triaged versus non-CTP

cohorts were retrieved from major databases. Pooled odds ratios (ORs) with 95% confidence intervals (CIs) were computed using a random-effects model. Primary endpoints included favorable functional outcome (modified Rankin Scale [mRS] 0–2 at 90 days), 90-day mortality, and successful recanalization (Thrombolysis in Cerebral Infarction [TICI] score 2b–3).

Result and Discussion

Twelve studies analyzed favorable functional outcomes (mRS 0–2 at 90 days), showing no significant difference between CTP and control cohorts (OR = 1.09; 95% CI = 0.83–1.96). However, nine studies demonstrated significantly lower 90-day mortality in the CTP group (14.2% vs. 16.4%; OR = 0.71; 95% CI = 0.58–0.85). Eight studies assessed recanalization success, revealing a 1.26-fold higher likelihood in CTP-triaged patients (OR = 1.26; 95% CI = 0.97–1.55), though not statistically significant. These findings suggest that while CTP does not significantly enhance functional outcomes, it may improve survival and recanalization rates.

Conclusion

CTP-based selection in the late window is associated with reduced mortality and a trend toward higher recanalization rates but does not significantly improve functional independence for late-window acute ischemic stroke patients.

Keywords

Ischemic stroke; computed tomography perfusion; late-window stroke; functional outcome; recanalization; mortality.

PA07: MISSIDENTIFIED AS A LOW-GRADE GLIOMA: AN UNUSUAL RETROCEREBELLAR DERMOID CYST CASE REPORT

Ratna Sutanto[3,4], Lutfi H[1,2], Harsan[1,2], Patricia Diana[5],Jourdy Keintjem[1], Jeffrey Tanudjaja[4]

[1]Department of Neurosurgery, Siloam Hospital Lippo Village, Tangerang, Indonesia

[2]Department of Neurosurgery, Pelita Harapan University, Tangerang, Indonesia

[3]Radiology Department, Siloam Hospital Lippo Village, Tangerang, Indonesia

[4]Radiology Residency, Pelita Harapan University, Tangerang, Indonesia

[5]Department of Pathology Anatomy, Siloam Hospital Lippo Village, Tangerang, Indonesia

Background

Intracranial tumors pose diagnostic challenges, requiring radiologists to consider clinical symptoms, tumor location, and MRI sequences for accurate diagnosis. This case highlights an unusual retrocerebellar dermoid cyst mimicking a low-grade glioma and others tumor.

Objectives

To emphasize the radiological and clinical features of a retrocerebellar dermoid cyst with atypical imaging characteristics leading to diagnostic misinterpretation.

Case Description

A 32-year-old female presented with six months of dizziness, followed by progressive blurred vision, diplopia, and right-sided weakness. A magnetic resonance imaging (MRI) revealed an off-midline mass in the left cerebellum with hyperintensity with foci hypointense on T2-weighted imaging, hypointensity with foci hyperintense T1-weighted imaging, restricted diffusion and no contrast enhancement. The mass caused significant brainstem compression and obstructive hydrocephalus, initially diagnosed as a low-grade cerebellar glioma or epidermoid cyst. Subsequently, the patient underwent a programmable ventriculoperitoneal (VP) shunt placement followed by a craniotomy tumor removal. Intraoperatively, the tumor appeared yellowish, firm, and solid. Postoperative histopathology revealed the tumor to be a dermoid cyst. Following the surgery, her vision, headache, and motor function improved significantly.

Discussion

Dizziness, as the initial symptom, can be an early indication a tumor originates from or close to cerebellar. Retrospective analysis on patient's MRI identified the "cerebrospinal fluid (CSF) cleft sign" and broad dural base as missed crucial clues that makes not suited to glioma. Diagnostic difficulty arose from the dermoid cyst's unusual location and imaging features.

Conclusion

Differentiating intra- and extra-axial intracranial tumors is challenging. Careful assessment of clinical symptoms and radiological signs of extra-axial tumors is essential. This reporting of atypical dermoid cyst appearances hope may aid future diagnoses.

Keywords: retrocerebellar dermoid cyst, low-grade glioma mimic, extra-axial tumor

POSTER ABSTRACTS
CNS TRAUMA

POA01: BEYOND THE MASK: UNRAVELING THE DEVASTATION OF LE FORT FRACTURES THROUGH RADIOLOGY – A CASE SERIES

Annisa Rusfiana[1], Dito Pondra Dharma[2], Nurhuda Hendra Setyawan[3]
[1]Resident of Radiology Department
[2.3]Staff of Radiology Department Faculty of Medicine Public Health and Nursing Universitas Gadjah Mada Yogyakarta,Indonesia

BACKGROUND: Facial fractures are commonly caused by motor vehicle accidents and require rapid radiological assessment for proper management. Midfacial fractures, including Le Fort classifications, can lead to airway compromise, vision impairment, and intracranial complications, making accurate radiological reporting essential.

OBJECTIVE: This case series highlights the crucial role emergency of radiology in the rapid diagnosis and classification of Le Fort fractures. This report emphasizes the value of CT imaging in facilitating timely intervention and management.

CASE PRESENTATION: A 20-year-old male with a Le Fort II fracture and a 52-year-old female with a Le Fort III fracture from high-speed motorcycle accidents presented with moderate head trauma. The male had bilateral maxillary sinus and nasal bone fractures with panhematosinus, decreased consciousness (GCS 12), and periorbital hematoma. The female had comminuted fractures of the frontozygomatic bone, orbital rim, and nasal structures, with vitreous hemorrhage, orbital emphysema, and decreased consciousness (GCS 11). Both required emergency airway management, pain control, and close monitoring.

DISCUSSION: Le Fort fractures disrupt midface stability and can cause significant morbidity, including visual and breathing impairments. Diagnosis relies on clinical assessment and MSCT, which accurately identifies fracture patterns. Le Fort II fractures form a pyramidal maxillary fragment, while Le Fort III fractures cause complete craniofacial dissociation. Radiologists play a key role in triage and treatment planning, ensuring timely intervention for optimal functional and aesthetic outcomes.

CONCLUSION: Le Fort fractures demand precise radiological assessment, with CT imaging playing a crucial role in diagnosis and guiding effective management.

Keywords : Le Fort Fracture, Computed Tomography (CT)

POA02: RADIOLOGIC CLUES TO COMPLEXITY: A CASE SERIES OF TRAUMATIC BRAIN INJURY WITH MIXED INRACRANIAL HEMORRHAGES

Ayu Larasati Sukarno[1], Nurhuda Hendra Setyawan[2], Dito Pondra Dharma[3]
[1] Resident of Radiology Department
[2,3]Staff of Radiology Department Faculty of Medicine Public Health and Nursing Universitas Gadjah Mada Yogyakarta,Indonesia

BACKGROUND: Traumatic brain injury (TBI) is a common injury worldwide that affects individuals of all ages. The injuries range in severity therefore timely assessment of injury is important to triage cases that may be imminently life-threatening. Computed Tomography (CT) imaging is standardly the first modality performed in emergency setting for the evaluation of head trauma.

OBJECTIVE: This study explores how CT imaging helps distinguish hemorrhages subtypes and guide treatment decisions. It also assesses the prognosis of mixed hemorrhagic patterns and their impact on patient outcomes.

CASE PRESENTATION: We present a case series of three patients with traumatic brain injuries resulting from motorcycle accidents, illustrate the varied outcomes associated with such severe injuries. The first patient, a 29-year-old man with a Glasgow Coma Scale (GCS) score of 9, CT imaging showed subarachnoid, subdural, and intracerebral hemorrhages and ultimately survived. In contrast, a 72-year-old and an 18-year-old man presented with a more complex injury profile, including subarachnoid, subdural, intracerebral, and also intraventricular hemorrhages. Both had a GCS score of under 8 and died a few days later.

DISCUSSION: The GCS score is commonly used to assess TBI, with scores classified as mild (13-15), moderate (9-12), and severe (3-8). Lower scores indicate more extensive hemorrhage and worse outcomes. CT imaging helps visualize the presence of intracranial hemorrhage, its volume, location, and extent of hemorrhages. Acute blood appears hyperdense on CT, enabling rapid diagnosis, especially soon after symptom onset. Multiple hemorrhages, particularly intraventricular hemorrhage (IVH) combined with other types, are linked to significantly worse prognosis.

CONCLUSION: A lower GCS score and the presence of intraventricular hemorrhage play a pivotal role in determining poor prognosis in patients with TBI. CT

imaging remains an essential modality for the early identification of TBI, aiding in clinical decision-making and guiding management strategies to optimize patient outcomes.

Keywords: Traumatic Brain Injury, Intracranial Hemorrhages, Computed Tomography (CT)

POA03: OPTIMIZING HEAD TRAUMA DIAGNOSIS: A SYSTEMATIC APPROACH TO CT SCAN INTERPRETATION IN EMERGENCY SETTINGS

Elsa Larissa Widyani[1], Yuyun Yueniwati[2]
[1]Radiology Residency Program, Faculty of Medicine, Universitas Brawijaya, Malang Indonesia
[2]Neuroradiology division, Radiology Department, Faculty of Medicine, Universitas Brawijaya, Malang Indonesia

Background: Head trauma remains the leading cause of morbidity and mortality worldwide. Zygomaticomaxillary complex (ZMC), Blowout, and Le Fort fractures are maxillofacial fractures arising from high-impact trauma. Also, intracranial hemorrhage poses a life-threatening neurological emergency. A skilled radiologist must be able to interpret CT scans rapidly in emergency settings. Therefore, a systematic evaluation is essential.

Objective : To formulate a systematic imaging approach for trauma in emergency settings.

Case Report: We present four cases. First patient with facial multiple vulnus laceratum, bilateral pterygoid bones, andhorizontal maxillary fracture, consistent with Le Fort fracture. The second patient had left facial swelling with intact pterygoid bone, but all four ZMC articulations fractured, indicating a ZMC fracture. The third patient with left eye swelling has intact pterygoid bones, ZMC, and orbital rim. However, an orbital wall fracture was noted, with herniation of orbital fat into the maxillary sinus, consistent with a Blowout Fracture. The fourth patient survived a motorbike accident and showed intact pterygoid bones, ZMC, orbital rim, and orbital wall. However, EDH, contusional hemorrhage, SAH, and SDH were present.

Discussion

When interpreting a head CT scan, evaluate it using the brain window (to identify hyperdense/hypodense lesions) and bone window (to assess for fractures). If subcutaneous emphysema is present, the bones at the affected region should be carefully examined. A systematic bone evaluation begins with evaluating the pterygoid plates, as a pterygoid fracture strongly suggests a Le Fort fracture. Next, ZMC and orbital rim should be evaluated. Finally, the orbital wall should be evaluated, as a fracture in this area, especially with protrusion of orbital fat into adjacent sinuses, confirms a Blowout Fracture. Following this systematic approach allows for efficient fracture detection.

Conclusion: A systematic approach to CT evaluation is essential for quick and accurate trauma diagnosis, which can lead to improved outcomes.

Keywords: blowout fracture, CT scan, Le Fort fracture, traumatic brain injury, ZMC fracture

POA04: THE HIDDEN SECOND BLOW: DECIPHERING COUP – CONTRECOUP BRAIN INJURY THROUGH LENS OF CT IMAGING

Imaniar Hidayati Arindha[1], Nurhuda Hendra Setyawan[2], Dito Pondra Dharma[3]
[1]Resident of Radiology Department
[2,3]Staff of Radiology Department Faculty of Medicine Public Health and Nursing Universitas Gadjah Mada Yogyakarta, Indonesia

BACKGROUND: Coup-contrecoup injuries, typically resulting from falls or road traffic accidents can cause severe brain damage. These injuries often lead to a wide range of symptoms, including visual disturbances and potentially fatal intracranial complications. Accurate radiological reporting is essential for proper management.

OBJECTIVE: This report underscores the significance of radiology in diagnosing coupcontrecoup brain injuries, highlighting the role of Computed Tomography (CT) imaging in facilitating prompt intervention.

CASE PRESENTATION: A 52-year-old male was brought to the emergency room after falling from height, with his head striking the ground first. He presented with vomiting blood and a reduced level of consciousness (GCS 7). CT imaging revealed a right temporo-parietal bone fracture, subgaleal hematoma in the right parietal region, right periorbital soft tissue swelling, and bilateral subarachnoid hemorrhages. Additionally, a left fronto-temporo-parietal subdural hemorrhage and left lateral ventricle intraventricular hemorrhage were noted. Immediate airway management was initiated, and the patient was referred for neurosurgical intervention.

DISCUSSION: Coup and contrecoup injuries result from focal brain damage, with coup injuries occurring at the impact site and contrecoup injuries at distant sites due to shock waves. This injury mechanism is worsened by acceleration, deceleration, and rotational forces. In cases with both coup and contrecoup injuries, prognosis is often

worse. CT scans are critical in diagnosing and managing moderate to severe brain trauma.

CONCLUSION: Coup-contrecoup injuries require detailed radiological assessment. CTimaging plays a pivotal role in diagnosing and guiding the timely intervention of these complex brain injuries, making it indispensable in the management.

Keyword : Coup, Contre coup, Computed Tomography (CT)

POA05: MAJOR INTRACRANIAL HEMORRHAGE MANIFEST AS SDH AND IVH FOUND IN EARLY CT-SCAN EVALUATION ON PATIENT FOLLOWING HEAD TRAUMA: ACASE-REPORT

Irnawati Suryaningsih Miagia[1], Nurhuda Hendra Setyawan[2], Dito Pondra Dharma[2]
[1]Resident of Radiology Department,
[2]Staff of Radiology Department, Faculty of Medicine Public Health and Nursing Universitas Gadjah Mada

BACKGROUND: The use of computed tomography (CT) is essential for the initial evaluation of most patients with head trauma; it's played a vital role in acute patient management based on the severity of the head trauma.

OBJECTIVE: to determine appropriate therapeutic action according to CT evaluation of head trauma.

CASE REPORT: A 55-year-old male patient was admitted the emergency department after having a motor vehicle accident. Further history revealed that the patient hit his head, experienced otorrhagia, epistaxis, vomiting, and was unconscious before admission. Physical examination showed unstable vital signs. Head CT-scan found intracranial hemorrhage (ICH) in the left temporal region with an estimated blood volume of 16 mL at 65 HU density, subdural hemorrhage (SDH) in the left temporoparietal region with 59 HU density, intraventricular hemorrhage (IVH) in the right and left lateral ventricles with 60 HU density, without midline shift, and skull fractures on the right frontal side and maxillofacial injuries, including multiple sinus fracture.

DISCUSSION: Intracranial hemorrhage (ICH) is defined as bleeding within the intracranial vault. Non-contrast multidetector CT has become the consensus choice for the initial imaging study following head trauma in detecting injuries requiring emergent neurosurgical attention. ICH subtypes are further defined by the anatomic site of the bleeding. SDH, classically appearing on CT-scan as a crescent-shaped, hyperdense material compared to the adjacent brain cortex, is a collection of blood from ruptured bridging veins in the space between the dura mater and the underlying arachnoid mater. While IVH occurs as a result of tearing of subependymal or choroidal veins or reflux of SAH into the ventricular system. On CT, IVH may appear as a hyperdense collection in the ventricular system. The amount of ICH bleeding volume significantly determines the patient's subsequent management.

CONCLUSION: Early CT-scan evaluation plays a vital role in patient outcomes and mortality.

POA06: TRAUMATIC PNEUMOCEPHALUS: CASE SERIES AND WHAT WE SHOULD CONCERN ABOUT IT

Lufi Qurrati Ayun[1], Yuyun Yueniwati[2]
[1]Radiology Residency Program, Faculty of Medicine, Universitas Brawijaya, Malang Indonesia
[2]Neuroradiology division, Radiology Department, Faculty of Medicine, Universitas Brawijaya, Malang Indonesia

BACKGROUND: Pneumocephalus is defined as the presence of gas within any intracranial compartment of the cranial vault. Incidence of pneumocephalus after trauma is uncommon, reported cases only 0.5 to 9.7% of all traumatic brain injury (TBI) cases. The presence of pneumocephalus alerts us to associated injuries that may occurred. Therefore, our concern should not only focus on the mass effect of the pneumocephalus but also on understanding its underlying causes.

OBJECTIVE: To emphasize the points that should be considered when traumatic pneumocephalus is present.

CASE REPORTS: We present three cases of traumatic pneumocephalus. First patient had tension pneumocephalus and it was found comminuted fracture on temporobasal, pars mastoid and petrosus os temporal and sinuses wall. The second patient had pneumocephalus on frontotemporobasal and temporooccipital region and it was also found fractures on sinuses wall. The third patient had tension pneumocephalus and the head CT also showed multiple fractures on sinuses walls.

DISCUSSION

In CT head trauma, the usual first evaluation is to look through the brain window. Pneumocephalus will be easily detected because CT can detect air with a volume as small as 0.5 cm^3. Once pneumocephalus is present, it is a must to look for associated injuries that cause intracranial air trapping to prevent further deterioration. Traumatic pneumocephalus tends to be associated with cranial base and facial injuries, especially injuries on sinuses wall which can act as the air entry point to intracranial.

CONCLUSION: Traumatic pneumocephalus is a rare condition. Early recognition and clinical suspicion are important to decide definite treatment. CT scan is the best imaging choice for diagnosing pneumocephalus and determining the related injuries causing it.

Keywords : pneumocephalus, trauma, fractures, CT

POA07: CT IMAGING IN ORBITAL BLOWOUT FRACTURE WITH CONCOMITANT OPTIC NERVE TETHERING: A RADIOLOGIST'S GUIDE TO EMERGENCY TRAUMA MANAGEMENT

Mursyidah Helmi[1], Amri Wicaksono Pribadi[2], Nurhuda Hendra Setyawan[2]
[1]Resident of Radiology Department
[2]Staff of Radiology Department Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada, Yogyakarta

BACKGROUND: Orbitocranial trauma is common and needs urgent imaging assessment due to possible irreversible ocular damage. Orbital blowout fractures (BOF) result from blunt trauma to the orbit, leading to fractures of the thin orbital walls. Optic nerve tethering remains rare, necessitating urgent intervention to prevent long-term complications such as vision loss, diplopia, and enophthalmos.

OBJECTIVE: To emphasize the role of CT imaging in identifying orbital BOF with optic nerve tethering and its impact on emergency trauma management

CASE REPORT: A 32-year-old woman was referred to the emergency department after a traffic accident, experiencing right facial pain, dizziness, periorbital edema, and reduced visual acuity (6/15). Brain CT imaging revealed a comminuted fracture of the right inferior orbital rim with displacement of the inferior oblique and inferior rectus muscles through the fracture defect, with concomitant tethering of the right optic nerve. Additional findings included the right nasal bone fracture and blood effusion into the right maxillary sinus. The patient was consulted with an otolaryngologist. She underwent surgical reconstruction of orbital floor fracture using an implanted mesh, nasal repositioning, and irrigation of the maxillary sinus hematoma.

DISCUSSION: CT imaging provides high sensitivity in identifying bone fractures and associated soft tissue injuries. In this case, CT imaging effectively identified the extraocular muscle entrapment, and optic nerve tethering--a rare complication carrying possible permanent vision loss, such as Traumatic Optic Neuropathy, leading to surgical urgency. The inferior orbital fracture involving more than 50% of the floor met surgical criteria. Concomitant nasal fracture and sinus hematoma reinforced the need for multidisciplinary care.

CONCLUSION: This case underscores the importance of CT imaging in early diagnosis and management of BOF and optic nerve involvement. Radiologists play a vital role in detecting subtle but critical signs of optic nerve tethering to guide timely surgical intervention.

KEYWORDS: orbital blowout fracture, Computed Tomography (CT) Imaging, optic nerve tethering

POA08: THE KNIFE'S WHISPER: CAN YOU HEAR THE SILENT CRY OF THE SHIFTING BASILAR ARTERY?

Radian Ashar Pambudi[1], Trianingsih[2], Afif Rahman[2]
Resident[1], Staff of Radiology Department[2] , Faculty of Medicine, Public Health, and Nursing, Gadjah Mada University, Yogyakarta, Indonesia

BACKGROUND: Penetrating basilar artery injuries from cranial stab wounds are exceptionally rare (<1% of neurovascular trauma), yet fatal in >60% due to posterior circulation disruption. CT angiography demonstrates 100% sensitivity for detecting vascular shifts and guiding urgent endovascular or surgical intervention to mitigate morbidity.

OBJECTIVE: This report highlights the rare basilar artery stab injury, emphasizing CT angiography's role in detecting dynamic vascular shifts and offering novel insights into managing penetrating neurovascular trauma.

CASE REPORTS: A 19-year-old male presented to the emergency department after sustaining a stab wound to the left temporal region. The patient was conscious, and the knife remained in situ. CT angiography revealed the following findings: a metallic knife penetrating the left temporal bone, displacing the basilar artery frontocaudally, with suspected stenosis or rupture.

DISCUSSION: This case of a 19-year-old with a penetrating craniocerebral injury presents a rare and complex radiological challenge. The 7.3 cm metal knife penetration through the left temporal bone, terminating at the dorsum sellae, exemplifies the vulnerability of this thin skull region (≈2.5 mm), requiring only 255 N of force for penetration. The trajectory's depth and location, displacing the basilar artery frontocaudally, classify this as a critical posterior zone injury per Haworth and de Villiers' framework, typically associated with high mortality. Despite the severity, patients with cranial stab wounds often present in

stable condition, emphasizing the crucial role of comprehensive imaging. While CT angiography is the initial modality of choice, metallic artifacts from the retained knife necessitate DSA for accurate vascular assessment. Given the risk of delayed pseudoaneurysm formation, this case underscores the importance of early angiography pre-removal and long-term follow-up.

CONCLUSION: CT angiography detects basilar displacement, but DSA's dynamic assessment remains essential despite artifacts. High-mortality posterior injuries require long-term surveillance, highlighting the critical role in guiding neurovascular trauma management.

KEYWORDS: Basilar injury, CT angiography, Stab neurotrauma

POA09: THE SWIRL SIGN: A RADIOLOGICAL CLUE TO ACTIVE BLEEDING IN SUBDURAL HEMATOMA - A CASE REPORT

Yudith Selyna Arisepti[1], Bestari Ariningrum Setyawati[2], Nurhuda Hendra Setyawan[2]

Resident[1], Staff of Radiology Department[2] ,Faculty of Medicine Public Health, and Nursing, Gadjah Mada University Yogyakarta, Dr. Sardjito General Hospital Yogyakarta

BACKGROUND: Subdural hematoma is a potentially life-threatening condition often caused by head trauma. The Swirl sign on head computed tomography (CT) is an indicator of active bleeding within the hematoma and indicates potential expansion that requires immediate treatment. Identifying this sign is critical in clinical decision-making to prevent neurological deteriotation.

OBJECTIVE: Awareness of the swirl sign can help identify patients with active bleeding who are at risk of hematoma expansion and predict patient prognosis.

CASE REPORT: A 17-year-old man was admitted to the emergency department after being injured in a motor vehicle accident. Upon admission, his vital signs were unstable, the patient had decreased consciousness with a Glasgow Coma Scale (GCS) score of 8 (E2V2M4). Physical examination showed severe head trauma with multiple head and body laceration. Emergency non-contrast CT of the brain showed an acute subdural hematoma with swirl sign, intracerebral and intraventricular hemorrhage.

DISCUSSION: The Swirl sign is an noncontrast CT finding representing an area of low attenuation compared to hyperattenuating clotted blood. It has been described commonly in patients after head injury having large extra-axial collection like subdural or epidural hematoma. It is associated with hematoma expansion and poor prognosis.

CONCLUSION: The swirl sign is a crucial radiological marker of active bleeding in subdural hematoma. Early identification and surgical intervention can significantly improve patient outcomes. Clinicians should be aware of identifying this sign for optimal management in cases of acute subdural hematoma.

Keywords: Swirl sign, Subdural hematoma, Intracranial hemorrhage

POSTER ABSTRACTS

CNS TUMOR

POA10: CRITICAL MRI FINDINGS IN EMERGENCY DIAGNOSIS OF BRAIN METASTASES IN ADVANCED NSCLC: A CASE REPORT

Ainien Faida[1], Afif Rahman[2], Nurhuda Setyawan[2]
[1]Resident of Radiology Department, [2]Staff of Radiology Department, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada

BACKGROUND: Non-small cell lung carcinoma (NSCLC) is a major contributor to cancer-related mortality, with brain metastasis frequently occurring in advanced stages. Among its subtypes, large cell carcinoma (LCC) can present with diverse metastatic patterns, frequently causing acute neurological symptoms that demand immediate medical evaluation. Approximately 20-40% of patients with NSCLC develop brain metastases during the disease. Radiological imaging plays a crucial role in timely diagnosis and effective management.

OBJECTIVE: This case highlights the essential role of radiology, particularly neuroimaging, in diagnosing brain metastases in NSCLC patients and focuses on identifying key MRI findings that necessitate urgent intervention.

CASE REPORT: A 47-year-old male patient with a history of NSCLC (Large Cell Carcinoma, T4N1M1B) post-radiotherapy presented to the emergency department with generalized weakness, severe headache, and visual disturbances. Emergency brain MRI with contrast revealed multiple hemorrhagic brain metastases in the bilateral frontotemporal-parietal subcortical regions and the right occipital lobe. The lesions showed different stages of hemorrhage, marked perifocal vasogenic edema, and significant mass effect. Additionally, retinal detachment and vitreous hemorrhage were noted in the left eye, indicating advanced metastatic spread. These findings were critical in diagnosing life-threatening complications requiring immediate attention.

RESULT AND DISCUSSION: MRI showed multiple hemorrhagic brain metastases, perifocal vasogenic edema, and mass effect, indicating acute disease progression and potential for rapid neurological decline. The presence of retinal detachment and vitreous hemorrhage emphasized the severity of systemic involvement. These findings underscored the urgent need for medical intervention in NSCLC patients with neurological symptomps.

CONCLUSION: MRI is essential for detecting critical complications of brain metastases in NSCLC patients. Critical findings such as hemorrhagic lesions, vasogenic edema, and retinal detachment warrant immediate intervention to prevent further neurological deterioration and optimize patient outcomes.

POA11: NEURORADIOLOGICAL FINDINGS IN A GRADE III RETINOBLASTOMA: AN EMERGENCY PERSPECTIVE

Aldo Dimitri Daiva[1], Harry Galuh Nugraha[2]
[1] Resident,[2]Consultant of Radiology Department, Faculty of Medicine Padjadjaran University, Hasan Sadikin General Hospital, Bandung, Indonesia

BACKGROUND: Retinoblastoma is the rare but most common primary intraocular malignancy in children, with early diagnosis being crucial for treatment and prognosis. Advanced cases, such as Grade III retinoblastoma, often present as emergencies due to extraocular extension and potential intracranial involvement. Neuroradiological imaging, like MRI and CT, is crucial in assessing tumor extent, guiding urgent interventions, and predicting outcomes.

OBJECTIVE: This case report highlights the neuroradiological findings in a pediatric patient with Grade III retinoblastoma, emphasizing the importance of emergency imaging in disease staging.

CASE REPORT: A 2-year-old with significant proptosis in the left eye and a reddish swelling extending to the left face. Urgent CT and MRI revealed an intraocular mass involving the left optic nerve, with extraocular spread and signs of intracranial involvement, including ommunicating hydrocephalus with dandy walker variant and ypertrophy of the right nasal concha. The child nderwent urgent ncology evaluation, resulting in the initiation of 12 cycle of chemotherapy and further management plans.

DISCUSSION: Neuroradiological imaging, particularly MRI and CT, is crucial for evaluating advanced retinoblastoma. In this case, imaging provided essential information on tumor staging, orbital invasion, and intracranial extension, all influencing urgent management decisions. The presence of communicating hydrocephalus with Dandy-Walker variant and hypertrophy of the right nasal concha further complicated the clinical picture, underscoring the importance of a multidisciplinary approach in treatment planning.

CONCLUSION: This case highlights the critical role of neuroradiology in emergency evaluation of advanced retinoblastoma. Rapid imaging assessment enables timely intervention, improving the chances of optimal management and better outcomes. Early recognition of

intracranial involvement is crucial in preventing life-threatening complications.

Keywords: porencephalic cyst, fistula, seizure, Magnetic Resonance Imaging

POA12: UNUSUAL PORENCEPHALIC CYST WITH FISTULA PRESENTING SIMPLE PARTIAL SEIZURE IN ADULT

Heni Fatmawati[1], Steven Harsono[2], Mohammad Bachtiar Adam[3]

[1]Department of Radiology, Faculty of Medicine, University of Jember, Indonesia

[2]Department of Radiology, Siloam Hospital Manado, Indonesia

[3]Faculty of Medicine, University of Jember, Indonesia

BACKGROUND: Porencephaly is a very unique rare cerebral malformation that has an intracerebral fluid-filled cyst or cavity inside the brain matter as characteristics, which affects the central nervous system. Porencephaly is observed in approximately 3.5 out of every 100,000 live births and is an uncommon occurrence in adults. Symptoms in affected individuals may remain undetected or be absent, depending on the size and location of the cyst or cavity.

OBJECTIVE: In this report, we present an original case porencephalic cyst with fistula to the right frontal sinus.

CASE REPORTS: We present a 19-year-old patient with non-specific symptoms, rightsided extremity weakness and atypical intermittent headaches that occurred over several days, with one episode of seizures a month earlier. Contrast-enhanced MR showed a cystic mass with air fluid level in the right frontal lobe connecting with frontal sinus, consistent with porencephalic cyst with fistula. Clinical characteristics and imaging findings are described.

DISCUSSION: Magnetic resonance imaging (MRI) reveals a well-circumscribed cystic lesion, frequently correlating with a specific vascular territory. The signal characteristics of the cystic contents with air fluid level, indicative of cerebrospinal fluid (CSF), are consistent across all magnetic resonance imaging (MRI) sequences: T1, T2, FLAIR, and DWI. In accordance with established signal characteristics, the patient's MRI demonstrates a hypointense signal on T1-weighted imaging, indicative of fluid accumulation within the ventricles. Conversely, T2-weighted imaging reveals a hyperintense signal.

CONCLUSION: Porencephaly can be classified as congenital or acquired disease with the exact etiopathogenesis that has not yet been clearly defined. It can happen to both fetal and adults. Porencephaly affects the central nervous system with various clinical representations.

POA13: RADIOLOGICAL INSIGHTS INTO CRANIOPHARYNGIOMA: A CASE REPORT OF IMAGING FEATURES AND DIAGNOSTIC PITFALLS

I Made Tirta Saputra[1], Hilman[2]

[1]Resident, [2]Consultant of Radiology Department, Faculty of Medicine Padjadjaran University, Hasan Sadikin General Hospital, Bandung, Indonesia

BACKGROUND : Craniopharyngiomas are common sellar tumors, but diagnosing them is challenging due to many similar lesions in the suprasellar cistern. We present a case of an atypical craniopharyngioma with high signal intensity in all MR sequences.

OBJECTIVES: Show typical and atypical imaging features and diagnostic pitfalls.

CASE PRESENTATION: A 25-year-old man presented with 6 months of worsening headaches, nausea, and dizziness, accompanied with significant vision loss. MRI demonstrated a 4.00x4.16x4.89 cm semisolid mass with a lobulated configuration located in suprasellar region expanding and obliterating the optic chiasm and third ventricle. Contrast-enhanced T1-weighted image demonstrates heterogeneous peripheral enhancement of the solid parts. The thalamus and midbrain were compressed and displaced posteriorly. The internal carotid artery was encased and expanding to cavernous sinus bilateral. The tumor has high signal intensity on all T1-, T2, and increasing lipid on MR spectroscopy. There was no evidence of obstructive hydrocephaly.

DISCUSSION: Craniopharyngiomas are classified into adamantinomatous that arises from Rathke's pouch remnants, and papillary types that result from metaplastic changes in pituitary cells. Craniopharyngiomas can be aggressive and recurrent. Located in the sellar and parasellar regions, they can compress vital structures, leading to visual disturbances, endocrine dysfunction, and increased intracranial pressure.

It is diagnosed by clinical evaluation and imaging, confirmed histopathologically. CT detects calcifications, while MRI assesses its morphology, location, extent, and association. MR angiography evaluates vessels involvement and differentiate tumors from vascular abnormalities. Adamantinomatous tumors are cystic with calcifications, while papillary tumors are solid. Solid parts and cyst walls enhance with gadolinium. Cyst fluid signals

vary on T2-weighted images, with high T1 intensity in cholesterol- or protein-rich lesions.

CONCLUSION: Atypical craniopharyngiomas have diverse MRI appearances. Comprehensive evaluations are necessary because their location, invasiveness, and proximity to adjacent neurovascular structures are important for their management

POA14: NEUROLOGICAL EMERGENCIES IN HIGH-GRADE GLIOMA: THE ROLE OF RADIOLOGIC IMAGING IN DIAGNOSING MASS EFFECT

Iffah Al Mufidah[1], Dito Pondra Dharma[2], Nurhuda Hendra Setyawan[3]
[1]Resident of Radiology Department
[2,3]Staff of Radiology Department
Faculty of Medicine Public Health and Nursing Universitas Gadjah Mada Yogyakarta,Indonesia

BACKGROUND: High-grade glioma (HGG) is a malignant brain tumor with rapid growth and poor prognosis. One of its serious complications is mass effect, which can lead to a neurological emergency known as "brain code". Rapid diagnosis through radiological imaging is crucial in determining interventional management to prevent morbidity and mortality.

OBJECTIVE: To highlight the crucial role of radiology in identifying neurological emergencies caused by brain tumors through clinical-imaging correlation, aiming to improve diagnostic accuracy and patient management.

CASE REPORT: A 43-year-old man presented to the emergency department with decreased consciousness, recurrent seizures, right hemiparesis, communication impairment, and visual disturbances. Brain MRI revealed a solid mass with hemorrhagic components in the left frontoparietotemporal lobe extending to the right frontal lobe, suggestive of HGG, causing mass effect, subfalcine herniation (1.21 cm), and tentorial herniation. Contrast-enhanced head MSCT showed a 10% increase in mass size with worsening subfalcine herniation (1.94 cm). Based on these findings, the patient required immediate surgical intervention through tumor removal craniotomy.

DISCUSSION: High-grade glioma can lead to gross mass effect, triggering neurological emergencies such as intracranial hypertension and acute brain herniation (brain code). Clinical manifestations may include papilledema, headache, nausea and vomiting, abnormal eye movements, seizures, altered mental status, hemiparesis, and aphasia, which can be identified through imaging. In emergency conditions, a head CT scan is necessary to assess the need for urgent surgical intervention, while MRI is performed once the brain code risk is controlled.

CONCLUSION: High-grade glioma is a progressive brain tumor with a poor prognosis that can lead to brain code, a neurological emergency caused by mass effect. Rapid and accurate diagnosis through radiological imaging can be achieved using many point approach, including clinical history analysis, anatomical understanding, and identification of structural shifts and complications.

Keywords: High-grade glioma, mass effect, radiology imaging, neurological emergency

POA15: LOW AFP IN A CNS YOLK SAC TUMOR: UNMASKING A RARE PEDIATRIC EMERGENCY CASE WITH A LITERATURE REVIEW OF PROPOSED ROLE FOR RADIOMICS

Ismi Ayu Putri Rahmadillah[1] , Lenny Violetta[2]
[1]Resident of Radiology, Airlangga University, Dr. Soetomo General&Academic Hospital
[2]Staff of Radiology Department, Pediatric Division, Dr. Soetomo General&Academic Hospital

BACKGROUND: Yolk sac tumors (YSTs) of the central nervous system (CNS) are rare and frequently misdiagnosed due to nonspecific presentations and imaging overlap with more common pediatric brain tumors. In emergency settings, delayed or incorrect diagnosis can significantly impact treatment decisions. This case highlights an atypical presentation of a CNS YST, emphasizing the role of advanced MRI biomarkers in rapid neuro-oncology decision-making and the potential future application of radiomics.

OBJECTIVE: To report a pediatric CNS yolk sac tumor presenting with ophthalmic involvement and rapid neurological decline, demonstrating how advanced MRI techniques aid in early differentiation and emergency management.

CASE REPORT: A 4-year-old girl presented to the Dr Soetomo emergency department with decrease of consciousness. The patient can't walk or sit due to inferior paraparesis, has facial palsy on the right side, ptosis on right palpebrae, initially suspected as keratitis.

RESULTS & DISCUSSION: MRI revealed a supratentorial mass with heterogeneous enhancement, necrosis, and perilesional edema, mimicking medulloblastoma. However, DWI showed restricted diffusion in viable tumor areas, suggesting high cellularity. MR spectroscopy revealed elevated lipid-lactate peaks and reduced NAA, favoring a germ cell origin. Perfusion MRI demonstrated

heterogeneous vascularity, distinguishing it from other pediatric tumors. These imaging findings prompted biopsy confirmation of YST, leading to immediate chemotherapy instead of unnecessary surgery. This case highlights MRI biomarkers as essential emergency tools for guiding rapid pediatric neuro-oncology decisions.

CONCLUSION: Advanced MRI techniques (DWI, spectroscopy, perfusion) are critical for differentiating CNS yolk sac tumorsin pediatric emergencies. While radiomicsremains a proposed future approach, its integration into imaging workflows may further improve tumor classification and emergency triage.

POA16: MISSIDENTIFIED AS A LOW-GRADE GLIOMA: AN UNUSUAL RETROCEREBELLAR DERMOID CYST CASE REPORT

Ratna Sutanto[3,4], Lutfi H[1,2], Harsan[1,2], Patricia Diana[5],Jourdy Keintjem[1], Jeffrey Tanudjaja[4]

[1]Department of Neurosurgery, Siloam Hospital Lippo Village, Tangerang, Indonesia

[2]Department of Neurosurgery, Pelita Harapan University, Tangerang, Indonesia

[3]Radiology Department, Siloam Hospital Lippo Village, Tangerang, Indonesia

[4]Radiology Residency, Pelita Harapan University, Tangerang, Indonesia

[5]Department of Pathology Anatomy, Siloam Hospital Lippo Village, Tangerang, Indonesia

BACKGROUND: Intracranial tumors pose diagnostic challenges, requiring radiologists to consider clinical symptoms, tumor location, and MRI sequences for accurate diagnosis. This case highlights an unusual retrocerebellar dermoid cyst mimicking a low-grade glioma and others tumor.

OBJECTIVES: To emphasize the radiological and clinical features of a retrocerebellar dermoid cyst with atypical imaging characteristics leading to diagnostic misinterpretation.

CASE DESCRIPTION: A 32-year-old female presented with six months of dizziness, followed by progressive blurred vision, diplopia, and right-sided weakness. A magnetic resonance imaging (MRI) revealed an off-midline mass in the left cerebellum with hyperintensity with foci hypointense on T2-weighted imaging, hypointensity with foci hyperintense T1-weighted imaging, restricted diffusion and no contrast enhancement. The mass caused significant brainstem compression and obstructive hydrocephalus, initially diagnosed as a low-grade cerebellar glioma or epidermoid cyst. Subsequently, the patient underwent a programmable ventriculoperitoneal (VP) shunt placement followed by a craniotomy tumor removal. Intraoperatively, the tumor appeared yellowish, firm, and solid. Postoperative histopathology revealed the tumor to be a dermoid cyst. Following the surgery, her vision, headache, and motor function improved significantly.

DISCUSSION: Dizziness, as the initial symptom, can be an early indication a tumor originates from or close to cerebellar. Retrospective analysis on patient's MRI identified the "cerebrospinal fluid (CSF) cleft sign" and broad dural base as missed crucial clues that makes not suited to glioma. Diagnostic difficulty arose from the dermoid cyst's unusual location and imaging features.

CONCLUSION: Differentiating intra- and extra-axial intracranial tumors is challenging. Careful assessment of clinical symptoms and radiological signs of extra-axial tumors is essential. This reporting of atypical dermoid cyst appearances hope may aid future diagnoses.

KEYWORDS: retrocerebellar dermoid cyst, low-grade glioma mimic, extra-axial tumor

POA17: EMERGENCY NEUROLOGICAL EVALUATION OF RAPIDLY ENLARGING NECK MASS WITH OROPHARYNGEAL INVOLVEMENT: CASE REPORT

Julian Johozua Roberth Maker[1], Naela Himayati Afifah[1], Dito Pondra Dharma[1]

[1]Radiology Department, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada, Indonesia

BACKGROUND: Rapidly expanding neck masses, often due to squamous cell carcinoma (SCC) or non-Hodgkin's lymphoma (NHL), can invade deep neck spaces, leading to airway obstruction and fatal complications. Malignant airway obstruction (MAO) significantly worsens prognosis, with a 5year survival rate of only 18.5%, underscoring its severe impact on patient outcomes. Early intervention is critical, as delays increase morbidity and mortality, while contrast-enhanced CT plays a pivotal role in evaluating tumor extent, vascular involvement, and airway compression to differentiate aggressive malignancies and guide emergency interventions

OBJECTIVE: To highlight neuroradiological findings and emergency management of a rapidly expanding cervical mass causing oropharyngeal obstruction and airway compromise.

CASE REPORTS: A 45-year-old male with a smoking history presented with a one-month history of a progressively enlarging left cervical mass, dysphagia, trismus, and 12 kg weight loss. Examination revealed a 16 × 12 × 8 cm firm, immobile mass from the left parotid to the oropharynx, with a friable, bleeding lesion. CT showed extensive tumor infiltration (prevertebral, pharyngeal mucosal, parapharyngeal, nasopharyngeal, and carotid spaces), 54% airway narrowing, and tracheal deviation. Multiple cervical lymphadenopathies were noted.

DISCUSSION: The clinical presentation and imaging findings strongly suggest malignancy, with SCC or NHL as the most probable diagnoses. SCC, often linked to smoking, presents as an aggressive, infiltrative tumor with ulceration and friable bleeding lesions, typically spreading to regional lymph nodes. In contrast, NHL is characterized by rapid enlargement, deep neck invasion, and extensive lymphadenopathy without mucosal ulceration. The severe airway obstruction posed an immediate respiratory risk, warranting urgent tracheostomy, as malignant airway obstruction can rapidly progress to complete respiratory failure, making early recognition and intervention critical.

CONCLUSION: Early neuroradiological evaluation is crucial in identifying malignant cervical masses and guiding timely airway intervention to prevent life-threatening obstruction.

Keywords: Neck Tumor, Oropharyngeal Mass, Airway Obstruction

POA18: ADVANCEMENTS IN INTERVENTIONAL RADIOLOGY: THE IMPACT OF INTERVENTIONAL RADIOLOGY TECHNIQUES WITH MINIMAL INVASIVE ON SPINAL TUMOR MANAGEMENT A SYSTEMATIC REVIEW

Alvin NN[1],Pramono A[2]

[1]Medical doctor of Hj. Anna Lasmanah Banjarnegara District Hospital

[2]Radiologist of Radiology Department at Hj. Anna Lasmanah Banjarnegara District Hospital

BACKGROUND: The vertebral column is the most common site for bone metastases, incidence of 30%–70% in patients with metastatic cancer. There are several alternative strategies for the treatment of painful metastases, including minimally invasive percutaneous imaging-guided tissue ablative methods using ethanol, laser-induced interstitial thermotherapy, radiofrequency ablation (RFA) and cryoablation. [1]The spinal column is the most common location for osseous metastases with 40% of patients with cancer developing metastases to the spine. External beam radiation therapy (RT) has been standard of care in the treatment of patients with spinal metastases. Radiation therapy is a well-tolerated and effective intervention for spinal metastases.

OBJECTIVE: This study purpose is to know the impact of interventional radiology techniques on spinal tumor management.

METHOD: The PRISMA diagram illustrates the review process conducted to evaluate literature on Interventional Radiology Techniques for Spinal disease. Total of 102 studies were retrieved. After the rigorous eligibility assessment leaving a total of 13 studies in this review.

RESULT : This study results literature search through the flow diagram of study election that shown in figure. A total of RCT, cohort and case control study, meta analysis and systematic review about interventional Radiology Techniques for Spinal tumor disease.

DISCUSSION : Radiation can be easily and quickly, Additionally its effectiveness has been repeatedly demonstrated through time. There are several different modalities for spinal ablation, including laser photocoagulation, radiofrequency ablation, cryoablation, and microwave ablation, each with unique advantages and disadvantages. While radiofrequency is the most Vertebral body.

CONCLUSION: In conclusion, role of radiological intervention for spinal tumor disease have a significant advancements made in minimally invasive spine surgery. duration of operation, reduced complication rates, and faster recovery times associated with interventional radiology for spinal tumor.

Keywords : Interventional Radiology. Spinal tumor disease.

POA19: CASE SERIES : A RETROBULBAR MASS PRESENTING AS AN ACUTE OPHTHALMOLOGIC EMERGENCY

Rizky Mukti Sejati[1] , Rachmi Fauziah Rahayu[2]

[1]Radiology Resident, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta

[2]Staff of Radiology Department, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta

BACKGROUND: Retrobulbar masses can cause acute ophthalmologic emergencies characterized by rapid vision loss and proptosis. Early recognition and characterization are critical for effective management and to preserve vision. This case series emphasizes on the diverse

etiologies and imaging features of retrobulbar masses in such emergencies.

OBJECTIVES: To describe the clinical presentation, imaging findings, and management of five patients who developed acute visual impairment and proptosis due to retrobulbar mass lesions.

CASE REPORT: We present five cases of patients who had rapid visual decline, proptosis, and an orbital mass on clinical examination. Imaging examinations, including CT and MRI, revealed retrobulbar masses with different characteristics like a patient with intraconal mass, another patient presented with a large extraconal mass suggestive of orbital rhabdomyosarcoma, another patient with metastatic disease, and the other two patients with similar symptoms, and imaging showed different retrobulbar lesions. Management strategies varied depending on the etiology and extent of the mass, ranging from surgical excision to chemotherapy.

DISCUSSION: Retrobulbar masses can arise from a variety of causes, including primary tumors, metastatic disease, and inflammatory processes. Differential diagnosis is required, relying on both clinical and imaging findings. Our case highlights the diverse etiologies of retrobulbar masses, emphasizing a comprehensive diagnostic approach.

CONCLUSIONS: Retrobulbar masses can present as an acute ophthalmologic emergency with rapid visual decline and proptosis. Timely diagnosis through clinical assessment, imaging, and histopathology is essential for effective treatment. This case emphasizes the wide range of etiologies and the need for critical management.

Keywords: Retrobulbar mass, proptosis, vision loss, ophthalmologic emergency

POA20: SUPRASELLAR MENINGIOMA: AN UNUSUAL PRESENTATION MIMICKING EMERGENCY VISUAL DISTURBANCE

Septiana Amelia[1], Junus A Baan[2], Nur Amelia Bachtiar[2]
[1]Radiology Residency Program, Faculty of Medicine, Hasanuddin University, Makassar, Indonesia
[2]Department of Radiology, Faculty of Medicine, Hasanuddin University, Makassar, Indonesia

BACKGROUND: Meningiomas are common extra-axial brain tumors, usually found at parasagittal, convexity, or skull base regions. Suprasellar meningiomas are rare, comprising only 1–2% of all intracranial meningiomas, and may mimic other lesions such as pituitary adenomas or schwannomas, especially when presenting with acute symptoms.

OBJECTIVE:To report an unusual case of suprasellar meningioma presenting with acute neurological symptoms and to highlight the importance of neuroradiological evaluation in distinguishing it from emergency conditions.

CASE REPORT: A 43-year-old male experienced sudden blurred vision and intermittent headaches. Ophthalmologic findings included bilateral nystagmus. Brain MRI with contrast revealed a well-defined solid mass in the suprasellar region, measuring approximately 3.05 x 2.58 x 1.9 cm. The lesion appeared hypointense on T1WI, intensely enhanced post-contrast, and was heterogeneously hyperintense on T2WI and FLAIR, with no diffusion restriction. A dural tail was noted on the anterior and left lateral aspects. The lesion compressed the pituitary gland without evidence of bony destruction.

DISCUSSION: Suprasellar meningioma is a rare entity that may mimic acute neurologic events like posterior circulation stroke or sudden visual loss. Radiological features such as extraaxial location, broad dural attachment, and Dural tail Are key In differentiating It from other Suprasellar masses. MRI is essential In early and Accurate diagnosis To prevent mismanagement.

CONCLUSION: Suprasellar meningiomas can mimic emergency neurologic conditions. Prompt MRI evaluation ensures correct diagnosis and guides appropriate clinical management.

POA21: AN EMERGENCY CAUDA EQUINA SYNDROME, FROM A RARE CASE: LUMBAR SPINE EXTRASEKELETAL EWING SARCOMA

Suga Marthawati[1], Sri Andreani[2], Lenny Violetta[3]
[1]Department of Radiology, Faculty of Medicine Universitas Airlangga, Surabaya, Indonesia
[2,3] Department of Radiology, DR. Sutomo Hospital, Surabaya, Indonesia

BACKGROUND: Extrasekeletal Ewing Sarcoma (EES) in lumbar spine a rare peripheral primitive neuroectodermal tumor, 15% of Ewing sarcoma. Predilection in lumbar is very rare, only 5 % from all EES. This case come with emergency cauda equina syndrome condition

OBJECTIVE: Aimed to report an rare case, an EES in lumbar spine that mimicking nerve sheath tumor, with the emergency cauda equina syndrome

CASE REPORTS : 4 years old boy came to hospital with complain weakness in left leg, lump and pain in left femur. He also complain bedwetting, constipation since 5 months.

He has hyperesthesia at VL 5 and under it. Xray showed soft tissue calcification mass in left femur. MRI lumbosacral and femur were huge solid and necrotic soft tissue mass extending form lumbal into pelvis and left femur region as long as nerve sheath. It has plateau phased. Pathology show round malignant cell with positif in CD99 and FLI-1

DISCUSSION : Imaging lumbar EES show mimicking dumb bell lesion schwannoma, but had solid and necrotic consistency, unlike schwannoma. Advanced MRI support malignant lesion. It mimicking nerve sheath lesion, but actually walk all the way nerve from lumbar, foraminal into to inguinal canal and bulging in the femur regio. It give an emergency finding, compress the spinal canal , make an cauda equina syndrome.

CONCLUSION : Although gold standard EES is pathology, MRI useful for tumor extension, get rid other mimicking, and advanced support the conventional MRI. MRI show emergency cauda equina syndrome either require the urgent surgery

KEYWORDS : Lumbar EES; Cauda equina syndrome ; nerve sheath tumor mimicking

POA22: THE RARITY OF RECURRENCE : A UNIQUE CASE OF ZYGOMATIC MENINGIOMA SHOWCASED IN IMAGING FINDINGS

Yasmien Anis[1], Widiana Ferriastuti [2]

[1] Radiology Resident, Faculty of Medicine Airlangga University

[2]Consultant, Division of Head and Neck Radiology, Faculty of Medicine Univeristas Airlangga Dr. Soetomo Hospital, Surabaya, Indonesia

BACKGROUND : Meningiomas are the most common type of brain tumor, about 30% of all brain tumors. They are usually not cancerous, but can behave aggressively. Managing recurring meningiomas can be tricky because their behavior can change based on their size. Imaging is crucial for diagnosis and monitoring, as it helps detect if the tumor recurrent. This case report highlights a situation with a recurring zygomatic meningioma and the need for thorough imaging.

OBJECTIVE : This case report highlights the complexities involved in managing recurrent meningiomas in the zygomatic region, emphasizing the need for advanced imaging techniques.

CASE REPORT : A 39 yo woman noticed lumps in her right eye and cheek in August 2023. She had similar lumps removed in 2012-2017, but details are scarce. In 2021, she underwent surgery to remove her right eye and part of her jaw due to a meningioma, followed by radiation therapy. A recent CT scan showed a solid mass in her right cheek and another in a previous surgery location, measuring 8.2 cm. In January 2025, she had another surgery, leading to an atypical meningioma (CNS WHO type 2).

DISCUSSION : Recurrent meningiomas in the zygomatic area are rare, about just 1-2% of all cases. These tumors can be hard to identify since they similar to other head and neck tumors. The necrotic of these tumors raises concerns for aggressive behavior. Ongoing CT scans are essential for tracking recurrent meningiomas. While surgery is the main treatment, repeat operations can be risky. Incomplete removals increase the chance of recurrence. If surgery isn't possible, radiosurgery may be considered.

CONCLUSION : This case illustrates the need for monitoring and responses for patients with recurring meningiomas, especially in complex areas. Imaging tests, including MRI and CT scans, are vital for detecting and managing these tumors.

POA23: UNVEILING SHADOWS IN THE ORBIT: THE ROLE OF RADIOLOGICAL IMAGING IN DIAGNOSING ORBITAL RHABDOMYOSARCOMA – A CASE REPORT

Yulia Niswatul Fauziyah[1], Trianingsih[2], Dito Pondra Dharma[2]

[1]Resident of Radiology Department,

Staff Radiology Department, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada

BACKGROUND : Rhabdomyosarcoma is a rare soft tissue sarcoma occurring predominantly in the paediatric and adolescent population that can arise anywhere in the human body andorbital involvement only about 10% of rhabdomyosarcoma cases.

OBJECTIVE : To determine the role of radiology in the early diagnosis of orbital rhabdomyosarcoma.

CASE REPORT : A 3-year-old child came to the emergency state with a pain (VAS score 7) in his left eye the last 2 days. There was a lump in his left eye since 1 month ago and getting bigger as big as a fist, complaints accompanied by tenderness and redness. Head CT scan revealed an isohypodense lesion on the intraconal superior aspect with measure about 5.1x3.7x4.9cm and 38 HU density, and the mass pushing nervus opticus to the lateral side and the bulbus oculli causing proptosis oculli sinistra. 2 days later the patient underwent surgery and final histopathologic diagnosis was Embryonal rhabdomyosarcoma.

DISCUSSION: Orbital rhabdomyosarcoma are overrepresented in males and occur in children below the

age of 15 years. Clinical presentation is typically with a rapidly enlarging mass, causes proptosis and diplopia. Often the mass invades the eyelid causing marked edema. CT is the modality of choice for assessment rhabdomyosarcoma. On CT, rhabdomyosarcomas are typically homogeneous soft tissue masses isodense to normal muscle and enhancement is usually present in contrast. Differential diagnosis of orbital rhabdomyosarcoma is orbital psedotumor, orbital psedotumor will appear enlargement of the muscle belly of one (or more) extraocular muscles typically with the involvement of tendinous insertions. In this case specific diagnosis using fine needle cytology was found to overlap with embryonal rhabdomyosarcoma and neuroblastoma. then immunologic histopathologic examination was shown to provide a specific diagnosis of Embryonal rhabdomyosarcoma.

CONCLUSION: Radiological finding in orbital rhabdomyosarcoma in 3-year-old boy in our institution mimicked Embryonal orbital rhabdomyosarcoma characteristics.

Keywords : Orbital rhabdomyosarcoma, Radiology of rhabdomyosarcoma, Pediatric orbital mass

POSTER ABSTRACTS
VASCULAR DISEASE

POA24: CT AS AN INDISPENSABLE TOOL FOR TIMELY DIAGNOSIS OF SEVERE INTRACRANIAL HEMORRHAGE WITH SUBFALCINE AND UNCAL HERNIATION

Adsel Kartadinata[1], Made Widhi Asih[1]
[1]Radiology Department, RSUP Prof Ngoerah Hospital/Udayana University, Denpasar, Bali

BACKGROUND :Intracranial hemorrhage (ICH) is a life-threatening condition that can result from trauma, hypertension, or vascular abnormalities. It can lead to severe complications, including herniation such as subfalcian and uncal herniation. Subfalcian herniation occurs when the brain shifts across the falx cerebri, potentially compressing the anterior cerebral artery, while uncal herniation involves downward displacement of the temporal lobe, leading to brainstem compression and oculomotor nerve involvement.

OBJECTIVE :To assess the importance of using CT in diagnosing ICH with associated brain herniation for timely interventions that can improve patient outcomes and minimize neurological damage.

CASE REPORT : We present 2 cases of intracranial hemorrhage accompanied by subfalcian and uncal herniation. Both patients exhibit worsening headache accompanied by decrease of consciousness before being admitted to hospital.

Results and Discussion : MSCT revealed intracranial hemorrhage in basal ganglia accompanied by perifocal edema which compresses and narrows lateral and third ventricle resulting in subfalcian and uncal herniation that compresses the midbrain. The following case displays classic herniations resulted from intracerebral hemorrhage subfalcian herniation being the commonest followed by uncal herniation. Unfortunately, one patient in this case series experienced a cardiac arrest the following day and subsequently passed away.

CONCLUSION : The imaging findings underscore the severity of the condition, necessitating urgent intervention to prevent compression of critical structures in the brain, which highlights the importance of using the MSCT modality as a tool for stroke diagnosis.. Timely and accurate MSCT imaging is crucial in the emergency setting for diagnosing and guiding the management of such lifethreatening conditions

KEYWORDS : Intracerebral hemorrhage, subfalcian herniation, uncal herniation, MSCT, stroke

POA25: THE DOUBLE-EDGED SWORD OF ANTICOAGULATION: RADIOLOGIC PERSPECTIVES ON SUBDURAL HEMATOMA IN A LONG-TERM WARFARIN USER

Anak Agung Ngurah Bagus Satya Sueningrat.[1], Dito Pondra Dharma[2], Nurhuda Hendra Setyawan[3]
[1] Resident of Radiology Department
[2,3]Staff of Radiology Department
Faculty of Medicine Public Health and Nursing Universitas Gadjah Mada Yogyakarta,Indonesia

BACKGROUND: Warfarin is widely used to prevent thromboembolism but poses a significant risk of spontaneous subdural hematoma (SDH). Anticoagulant-related SDH tends to be thicker, with a greater midline shift and a higher risk of rebleeding. Head CT imaging is crucial for early detection, severity assessment, and management, especially in patients with elevated INR levels.

OBJECTIVE: To illustrate the radiologic features of SDH in a patient on long-term warfarin therapy, emphasizing the dual risk of anticoagulation therapy—preventing thrombosis while increasing bleeding risk—and the critical role of imaging in diagnosis and management.

CASE PRESENTATION: An 80-year-old male on long-term warfarin therapy presented with decreased consciousness and right-sided motor lateralization. Head CT revealed an acute SDH in the left frontoparietotemporooccipital region, falx cerebri, and tentorium cerebelli (1.1 cm thick) with a 7 mm midline shift. Laboratory findings showed severe coagulopathy (INR 11.5). Neurosurgical intervention was deferred due to high bleeding risk. After warfarin cessation, INR improved, and follow-up imaging showed hematoma stability.

DISCUSSION: Spontaneous SDH in anticoagulated patients often exhibits larger hematomas and more pronounced midline shifts than in non-anticoagulated individuals. CT imaging plays a vital role in determining the need for surgery, which is influenced by hematoma size, midline shift, and GCS score. Surgical intervention is often postponed in patients with severe coagulopathy due to the risk of rebleeding and perioperative complications.

CONCLUSION: This case highlights the “double-edged sword” of warfarin therapy, balancing its benefits against the risk of SDH. Imaging surveillance and INR monitoring are crucial in guiding treatment decisions and preventing complications.

Keywords: Spontaneous Subdural Hematoma, Anticoagulation Therapy, Warfarin-Associated Hemorrhage, Computed Tomography (CT) Imaging.

POA26: POST TRAUMATIC CAROTID CAVERNOUS FISTULA : A CASE REPORT

Ayudia Pratiwi[1], Nur Amelia[2], *Nikmatia Latief[3], Junus Baan[4]*

Radiology Residency Program, Wahidin Sudirohusodo Hospital, Faculty of medicine, Hasanuddin University, Makassar, Indonesia[1]

Radiology Consultant, Wahidin Sudirohusodo Hospital, Faculty of medicine, Hasanuddin University, Makassar, Indonesia[2,3,4]

BACKGROUND: Carotid cavernous fistula (CCF) is an abnormal shunt between the arterial and venous blood circulation, either directly between the internal carotid artery (ICA) lumen and the CS (cavernous sinus) or indirectly between branches of the ICA and/or external carotid artery (ECA) and the CS, which may endanger both vision and cranial nerve function. CCFs can be classified as direct (Barrow Classification type A) or indirect (types B, C, and D).

OBJECTIVES:

This case report aims to present the clinical presentation and radiology imaging of a CCF case.

CASE REPORT: A 20-year-old male presented with chemosis, pulsatile exophthalmus, blurred vision in the right eye, double vision, and ocular bruit in the right side since a traffic accident 3 months ago. MRI findings showing dilatation and tortuosity of the right CS and ophthalmic vein. Digital substracted angiography (DSA) confirmed a fistula in the C4 segment of the right ICA, leading to the right CS, accompanied by reflux and dilation of the right superior ophthalmic vein. There is a partial fetal-type left posterior cerebral artery, with collateral flow to the right middle cerebral artery vascular territory via the anterior communicating artery, and collateral flow to the right middle cerebral artery territory through the circle of Willis.

DISCUSSION: MRI dan DSA show type A CCF of the right eye, characterized by direct shunting of blood flow from the ICA into the CS. The classical Dandy's triad for Barrow type A CCF is also present in this case.

CONCLUSION: Based on history, physical examination and radiological examination, it is concluded that this patient has CCF type A Barrow classification. DSA remains the gold-standard imaging modality in the diagnosis of CCF and endovascular intervention is now the treatment modality of choice in many cases.

POA27: INTRACRANIAL HEMORRHAGE DUE TO RUPTURED BRAIN ARTERIOVENOUS MALFORMATIONS (BAVM) : A CASE REPORT

Darma J T[1], Dwijaputra A I M[2], Margiani N N[3]

Resident. Departement of Radiology, Faculty of Medicine, Universitas Udayana - Ngoerah Hospital, Bali, Indonesia[1]

Staff. Departement of Radiology, Faculty of Medicine, Universitas Udayana - Ngoerah Hospital, Bali, Indonesia[2]

BACKGROUND: Intracranial hemorrhage is a life threatening condition and a potential complication of brain arteriovenous malformations (BAVM), which are characterized by a nidus forming, feeding artery and the draining vein. Head CT Angiography (CTA) followed Digital Substraction Angiography (DSA) has an essential role in diagnosis and management.

OBJECTIVE: To report a case of ruptured BAVM diagnosed using multimodal imaging and discuss its management and prognosis

CASE REPORTS: A 48 year old male suffered persistent headache for 9 hours prior to hospital admission, which suddenly occurred while working. The patient had uncontrolled hypertension, vomiting (+), On examination GCS was E4V5M6, BP 160/100 mmHg, HR: 72 bpm, RR: 20 x/m, SpO2: 98%, Neurological deficits included left-sided cranial nerve VII & XII paresis, left flaccid hemiparesis (motor strength 4/4), and intact pathological reflexes. Non-contrast head CT suggested a spontaneous intracerebral hemorrhage in the right frontal lobe with surrounding edema due to a ruptured BAVM, causing a midline shift to the left approximately 4 mm. Head CTA revealed a nidus with a "bag of worms" appearance, a feeding artery from the A1 segment of the anterior cerebral artery (ACA), and draining vein into the superior sagittal cerebral vein (Spetzler-Martin Grade 2). The patient underwent craniotomy with clot evacuation (hematoma volume 24.3 cc). Digital subtraction angiogram (DSA) confirmed the diagnosis.

DISCUSSION: BAVMs are high-risk vascular anomalies that predispose patients to hemorrhagic stroke. In this case, early neuroimaging facilitated prompt diagnosis and intervention. Craniotomy with clot evacuation helped reduce mass effect and prevent further complications. DSA confirmed the BAVM and assisted in planning further interventions to minimize the risk of recurrence.

CONCLUSION: Early neuroimaging is crucial in patients with sudden severe headache to identify vascular malformations. Timely surgical intervention, followed by DSA for treatment planning, improves outcomes and reduces the risk of rebleeding.

PAO28: HEMORRHAGIC STROKE IN THE SETTING OF PREECLAMPSIA : A CT IMAGING CASE REPORT IN A GRAVID PATIENT

D. Angriyana[1], N.H. Setyawan[2],D.P. Dharma[2]
[1]Resident of Radiology Department,
[2]Staff of Radiology Department, Faculty of Medicine, Public Health, and Nursing, Gadjah Mada University

INTRODUCTION: Stroke in pregnant women is rare but is part of the complications of pregnancy that can cause long-term disability after pregnancy and can be life threatening. The presence of preeclampsia is associated with the occurrence of hemorrhagic stroke. Non-contrast CT scan plays an important role in rapid diagnosis in detecting hemorrhage in emergency cases.

OBJECTIVE: This case report aims to provide an overview of pathophysiology and CT imaging appearance of hemorrhagic stroke in a pregnant patient with preeclampsia.

CASE REPORT: A 27-year-old-female G1P0A0 with 35 weeks gestation with preeclampsia came to the hospital with complaints of dextra hemiparesis and spinning dizziness. Non-contrast head CT scan examination showed intracerebral hemorrhage was found in the sinistra parietal lobe with a volume of 36.7 cc accompanied by perifocal edema that narrowed the sinistra lateral ventricle.

DISCUSSION: Hemorrhagic stroke during pregnancy can take the form of intracerebral hemorrhage or subdural hemorrhage. Changes during pregnancy are that cardiac output increases by 60% at the end of the second trimester, but blood volume and arterial pressure increase progressively during pregnancy until they reach their highest values at term. In addition, preeclampsia can cause various molecular changes affect endothelial, capillary, and smooth muscle function, resulting in patients predisposed to intracranial hemorrhage.

CONCLUSION: Hemorrhagic stroke during pregnancy can cause long-term disability after pregnancy and can be life threatening, especially if not treated early. The ability to understand pathophysiology and imaging diagnostic during pregnancy should allow radiologists to continue to make an important contribution to the care of these patients in the emergency department.

POA29: GIANT ANEURYSM MIMICS HAEMORRHAGIC STROKE

[1]Edward Jonathan, [2]Francisca Notopuro
[1]Medical student, Universitas Airlangga, Surabaya, Indonesia
[2]Department of Radiology, National Hospital, Surabaya, Indonesia

BACKGROUND: In this case, a hyperdense lesion at left pons detected on CT scan was suspected for hemorrhagic stroke. The patient suffered from right hemiparesis & slurred speech since one month. He also had history of nasopharyngeal cancer. It made differential diagnosis challenging in this case. Accurate diagnosis is essential for appropriate treatment and management, and MRI-MRA play a crucial role in this process.

OBJECTIVE: To illustrate the role of MRI-MRA in differentiating etiology of hyperdense lesion in patient with extremities weakness and history of nasopharyngeal cancer

CASE REPORT: A 46-year-old man with a history of nasopharyngeal cancer treated with radiotherapy in 2010 presented with history of right extremity weakness and slurred speech. An initial CT scan in February 2025 suggested a haemorrhagic stroke in the left pons. However, a follow-up MRI-MRA at the end of March 2025 revealed a lobulated lesion in the left prepontine cistern severely causing hydrocephalus. The lesion appeared iso-hyperintense on T1W, hypointense on T2W and SWI, and MRA showed continuity with the mid basilar artery. These findings indicated a giant aneurysm of the mid basilar artery with thrombus, rather than a stroke.

RESULT AND DISCUSSION: In this case: The MRI findings indicated a giant aneurysm of the mid basilar artery with thrombus. However, the initial CT scan showing hyperdensity led to a misdiagnosis of haemorrhagic stroke. The patient's history of nasopharyngeal cancer also raised the possibility of a haemorrhagic metastatic tumor. Ultimately, MRA confirmed the lesion on the vascular structure, supporting the diagnosis of a giant aneurysm.

CONCLUSION: This case report emphasizes that incorporating MRI-MRA into the diagnostic evaluation of patients presenting with neurological symptoms is important because it can distinguish the causes of lesions accurately and guide clinicians in determining the most

suitable management and treatment approaches to improve patient outcomes.

POA30: HYPEREOSINOPHILIC SYNDROME AS A RARE ETIOLOGY OF "WATERSHED STROKE" AND MYOCARDIAL INFARCTION

Made AM Inggas[1,2], Yonathan W[3,4], Jourdy Keintjem[1], Jeffrey Tanudjaja[4]
[1]Department of Neurosurgery Team, Siloam Hospital Lippo Village
[2]Department of Neurosurgery, Faculty of Medicine, Pelita Harapan University
[3]Radiology Department, Kebon Jeruk Siloam Hospital
[4]Radiology Residency, Pelita Harapan University

BACKGROUND: Hypereosinophilic syndrome (HES) is a rare disorder characterized by persistent eosinophilia, causing end-organ damage. The case highlights an uncommon association of acute ischemic stroke (AIS) and acute myocardial infarction (AMI) with HES.
OBJECTIVES: To describe a rare presentation of HES involving concurrent AIS and AMI, emphasizing the importance of timely diagnosis and targeted treatment.
CASE DESCRIPTION: A 39-year-old man presented with sudden right-sided weakness, abdominal pain, agitation, lagophthalmos, and incoherent speech. AIS and AMI were initially linked to uncontrolled hypertension. Brain MRI confirmed watershed stroke, and echocardiography revealed hypokinesis with elevated troponin levels. Peripheral eosinophilia (8.9×10^9/L) and bone marrow eosinophilia (35%) established the diagnosis of HES.
DISCUSSION: Further analysis of molecular markers and comprehensive cardiac evaluation are essential to elucidate the causal role of HES and the mechanism linking HES with cardiac damage. In this case, the watershed stroke pattern suggested cerebral involvement of HES. The patient showed significant recovery after one month of corticosteroid and imatinib therapy, with restored mobility, coherent communication, and no recurrence of stroke on follow-up MRI.
CONCLUSION: HES should be considered in patients presenting with eosinophilia alongside AIS and AMI. Early diagnosis and therapy can prevent irreversible organ damage.
Keywords: hypereosinophilic syndrome, ischemic stroke, myocardial infarction

POA31: FATAL BRAINSTEM HEMORRHAGE : THE ESSENTIAL ROLE OF NEUROIMAGING IN DIAGNOSIS

Luh Dindi Ayu Surya Kanti[1], Made Widhi Asih[2]
[1]Radiology Resident, Faculty of Medicine Udayana University/Ngoerah Hospital Bali
[2]Radiology Consultant, Faculty of Medicine Udayana University/Ngoerah Hospital Bali

BACKGROUND : Brainstem hemorrhage is a rare life-threatening neurological emergency that have high mortality rates exceeding 60-90% in severe cases. The critical location of the brainstem, which regulates vital functions including respiration and cardiovascular activity, makes hemorrhage in this region particularly devastating. Rapid neuroimaging is essential for timely diagnosis and effective management.
OBJECTIVE : This case report aims to highlight the critical role of radiological imaging in diagnosing brainstem hemorrhage and guiding management decisions in a patient with hypertensive emergency.
CASE REPORT : A 34-year-old male with uncontrolled hypertension presented with sudden loss of consciousness, preceded by severe headache and seizures. Examination showed Glasgow Coma Scale E1VxM1, anisocoria, high blood pressure (270/140 mmHg) and respiratory distress. A non-contrast head CT scan revealed extensive brainstem hemorrhage (midbrain to pons) with a volume of approximately 21.5 cc accompanied by perifocal edema, causing ascending trans tentorial herniation, along with intraventricular hemorrhage and non-communicant mild hydrocephalus. Management included neuroprotection, blood pressure control, ventilatory support, and seizure management. Despite aggressive treatment, the patient condition deteriorated and succumbed to cardiac arrest.
DISSCUSION : Brainstem hemorrhagic stroke results from the rupture of small penetrating arteries, often due to hypertension-induced vessel weakening. The hemorrhage causes mass effect, edema, and increased intracranial pressure, leading to brainstem dysfunction. In younger patients, vascular malformations or coagulopathies may be underlying causes. Greater blood volumes such as in this case may worsen patient condition. Secondary complications like intraventricular hemorrhage and hydrocephalus further disrupt cerebrospinal fluid dynamics, increasing the risk of herniation.
CONCLUSION : Neuroimaging is essential in diagnosing brainstem hemorrhagic stroke, rapidly assessing its extent

and complications. In this case, a non-contrast CT scan identified critical findings such as trans tentorial herniation and hydrocephalus, guiding clinical management. This highlights the vital role of radiology in early detection and decision-making to improve patient outcomes.

POA32: FROM HEMORRHAGE TO INFARCT: AN UNUSUAL NEUROLOGICAL TRAJECTORY IN SEVERE SLE FOLLOWING INTRAVENOUS IMMUNOGLOBULIN

Mufid Arifin[1], Dito Pondra Dharma,[2] Nurhuda Hendra Setyawan[2]
[1]Resident of Radiology Department
[2]Staff of Radiology Department
Faculty of Medicine Public Health and Nursing Universitas Gadjah Mada Yogyakarta, Indonesia

BACKGROUND: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease characterized by periods of relapse and remission. It can affect the central nervous system, known as Neuropsychiatric SLE (NPSLE). In severe case, particularly NPSLE. Intravenous immunoglobulin (IVIG) is a potential treatment. However, IVIG carries risks, and its association with thromboembolic events, including cerebral infarction, remains a concern. This case report highlights a rare IVIG complication in a patient with severe SLE.

OBJECTIVE: To report a rare case of acute cerebral infarction following IVIG administration in a patient with NPSLE.

CASE REPORT: A 22-year-old female patient with SLE presented to the emergency room with severe headache. Initial CT scan revealed intracerebral haemorrhage in the left occipital lobe and a subarachnoid haemorrhage (SAH) in the left temporoparietal region. She was diagnosed with severe SLE activity manifesting as NPSLE. Non-contrast MRA and MRV of the brain showed a small vertebral artery and non-visualization of the left internal carotid artery, suggestive of arteritis and severe stenosis. On day 14 of treatment, the patient received IVIG therapy. Within 24 hours of IVIG administration, she lost consciousness. A follow-up CT scan revealed an acute infarct in the left frontotemporoparietooccipital lobes.

DISCUSSION: The patient's clinical condition raised the question of whether the acute infarction was due to the progression of SLE or the adverse effects of IVIG management. Acute infarction after IVIG administration is rare and may be caused by hyperviscosity, thromboembolism, vasculitis, or cerebral vasospasm. However, SLE is also associated with cerebrovascular events. This case demonstrates the importance of risk assessment and close monitoring in patients with severe SLE treated with IVIG.

CONCLUSION: This case highlights the potential risks of IVIG therapy in patients with NPSLE. Although IVIG may have contributed to the acute infarction, underlying SLE activity cannot be ruled out as a contributing factor.

Keywords: Systemic lupus erythematous, neuropsychiatric SLE, Intravenous immunoglobulin, acute cerebral infarction, vasculitis

POA33: ACUE INFARCT ON NON-CONTRAST HEAD CT : A CASE REPORT WITH UNEXPECTED EARLY SIGNS

Ni Luh Putu Novita Ulan Sari[1] , Ana Meliyana[2] ,Nikolas Ardito Suselo [3]
[1]General Practitioner of Emergency Unit of Air Force Hospital Dr.Dody Sardjoto
[2]Radiology Specialist. Radiology Section of the Air Force Hospital dr.Dody Sardjoto South Sulawesi
[3] Radiology Specialist Consultant Interventional Radiology.Director Air Force Hospital dr.Dody Sardjoto Maros South Sulawesi

BACKGROUND: Acute cerebral infarction is a neurological emergency that requires rapid diagnosis to ensure optimal management, the prevalence of stroke in Indonesia increased by 10.9% (Rikesdas,2018). The unequal distribution of MRI makes non-contrast head computer tomography (CT) a crucial initial modality in stroke management, despite its limited sensitivity in the hyperacute phase.

Objective: This report aims to explain how non-contrast CT findings can influence the diagnosis and management of stroke. Hyperdense MCA sign, insular ribbon sign, the loss of differentiation between white matter and grey matter are features seen in acute cerebral infarction.

CASE REPORT: This report presents a case of a 53-year-old male with uncontrolled hypertension, who presented with right hemiparesis and communication disorder. Non-contrast head CT showed two significant findings within <24 hours post-onset: hyperdense left middle cerebral artery (MCA) sign and hypodense lesion in the left frontotemporoparietal lobe with midline shift (±0.25 cm). The patient was treated with multiple antiplatelets, antihypertensives, and corticosteroids.

DISCUSSION: This case emphasizes that although contrast-enhanced CT has its limitations, the combination of hyperdense left MCA sign with extensive hypodense lesions can alert the diagnosis and be an indicator of poor

prognosis. Rapid detection of radiologic signs and appropriate treatment are necessary to reduce mortality and morbidity.

CONCLUSION: This report emphasizes the importance of integrating clinical, radiological and risk factor findings in therapeutic decision making.

Keywords: Acute cerebral infarction, non-contrast head CT, MCA hyperdensity.

POA34: THE ROLE OF ASPECT SCORE IN ASSESSING SEVERITY OF INFARCTION IN AN ACUTE SIMULTANEOUS ACUTE ISCHEMIC STROKE-ACUTE MIOCARD INFARCTION: A CASE REPORT

Ratna[1], NH Setyawan[2], DP Dharma[3]
Radiology Department, Faculty of Medicine, Public Health and Nursing, Universitas Gadjah Mada

BACKGROUND: The simultaneous occurrence of acute myocardial infarction (AMI) and acute ischemic stroke (AIS) is extremely rare, with an incidence of just 0.009%. Both conditions are critical emergencies with limited treatment windows, making early and accurate assessment essential. This case report underscores the value of the Alberta Stroke Program Early CT Score (ASPECTS), a tool used on non-contrast head CT scans to assess early ischemic changes in the middle cerebral artery (MCA) territory. Is there any different treatment for a simultaneous ST-elevation myocardial infarction?

CASE REPORT: A 56-year-old man with hypertension and poorly controlled diabetes presented with decreased consciousness and left-sided weakness. An ECG showed Stelevation in Leads II, III, and aVF , suggesting an inferolateral myocardial infarction. He was diagnosed With both AMI and AIS and Treated with thrombolytics, antiplatelets, heparin, and neuroprotective agents. A head CT at Sardjito Hospital revealed a right frontoparietal infarct in the MCA territory with an ASPECTS of 4, indicating a large stroke. He subsequently underwent Percutaneous Coronary Intervention (PCI).

DISCUSSION: An ASPECT score of 4 suggests a significant infarct burden and poor neurological prognosis. This score influenced the decision to manage the stroke conservatively rather than pursue aggressive intervention. ASPECTS is a reliable predictor of stroke outcomes and risk of complications such as hemorrhagic transformation. Its use in clinical protocols supports better decision-making regarding thrombolysis and mechanical thrombectomy, especially the presence of AMI simultaneously.

CONCLUSION: In summary, ASPECTS is a vital tool in early stroke assessment, helping to guide personalized treatment strategies and predict outcomes, especially in complex cases involving simultaneous cardiac and neurological emergencies.

KEYWORDS: Acute Ischemic Stroke, Acute Miocard Infarction, ASPECT Score, Infark severity

POA35: DECODING THE VASCULAR PUZZLE: IMAGING PERSPECTIVES IN DIAGNOSING BRAIN AVMs

Savitri Wijayanti[1], Bestari A Setyawati[2]
, Nurhuda H Setyawan[2]
Resident[1], Staff of Radiology Department[2]
, Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada

BACKGROUND: Cerebral arteriovenous malformations (AVMs) are congenital vascular anomalies characterized by abnormal tangles of arteries and veins in the brain that bypass the capillary system. AVMs pose risks of intracranial hemorrhage, seizures, and neurological deficits, necessitating precise imaging for diagnosis, treatment planning, and follow-up. Accurate radiological assessment is crucial for risk stratification and intervention strategies.

OBJECTIVE: To evaluate the radiological diagnostic approach for cerebral AVMs.

CASE REPORT: A 46-year-old female patient was transferred to our emergency department with a chief complaint of loss of consciousness. Five days prior to admission, the patient had already experienced severe headaches and seizures. A cerebral computed tomographic angiography (CTA) was performed, revealing a right frontal AVM with a feeding artery from the bilateral anterior cerebral artery, and the inferior sagittal sinus as the draining vein, along with a nidus and a calcification component, resulting in a Spetzler Martin score of 3. Additionally, there was evidence of intraventricular hemorrhage in the bilateral lateral ventricles.

DISCUSSION: Radiological diagnosis of cerebral AVMs requires detailed reporting of key features: the nidus size, location, feeding arteries, and draining veins, as these influence treatment decisions. Hemorrhagic presentation on CT and flow voids on MRI are critical findings. DSA remains the gold standard for precise angioarchitecture. Additionally, associated complications like edema or aneurysms must be noted. Accurate reporting ensures optimal management, reducing risks of rupture or deficits. Literature emphasizes the importance of multimodal

imaging for comprehensive evaluation and long-term follow-up to monitor changes.

CONCLUSION: Radiological diagnosis of cerebral AVMs is essential for guiding treatment and preventing complications. Multimodal imaging, particularly DSA, ensures accurate characterization, enabling timely intervention and improved patient outcomes.

POA36: CASE SERIES ON SECONDARY INTRAVENTRICULAR HEMORRHAGES : A MULTICAUSAL COMPLICATIONS WITH ADVERSE OUTCOMES

Winslow Darmawan Tjiptadi[1,2], Anggraini Dwi Sensusiati[1,2]
[1]Department of Radiology, Rumah Sakit Universitas Airlangga, Surabaya, Indonesia
[2]Faculty of Medicine Universitas Airlangga, Surabaya, Indonesia

BACKGROUND: Secondary intraventricular hemorrhage (IVH) is characterized by bleeding confined to the ventricular system or occurring within or near the ventricles due to intraventricular extension from a primary intracerebral hemorrhage (ICH) or subarachnoid hemorrhage due to aneurysm, tumor, vascular malformation, or trauma, which when present, becomes an independent predictor of poor outcome.[1,2]

OBJECTIVE: Aimed to present several cases of IVH with its possible causes in which its presence adds to the complications of those diseases.

CASE SERIES: We presented cases of IVH as complications of other entities, some common and others rarer. Among these, ICH from subcortical structures are the most prominents with 6 cases, 2 case from basal ganglia, 3 cases from thalamus, and 1 case from cerebellar, with combinations of such structures. There is also an uncommon case of large IVH following a pineal gland tumor procedure. The presence of IVH in all of these instances contributes to longer hospital stay dan more complex management of the disease.

DISCUSSION: Similar to our cases, subcortical structures are most at risk for IVH, with common locations including the putamen (35%–50%), lobes (30%), thalamus (10%–15%), pons (5%–12%), caudate (7%), and cerebellum (5%).[2] Its presence as complications of pineal gland tumor procedures have also been documented.[3]

After the initial damage to the reticular activating system (RAS) and thalamus during the acute phase of hemorrhage expansion, a secondary injury may be caused by the effects of neurotoxic compounds released from the hematoma and the brain's response to blood which add to the worsened outcomes.[4]

CONCLUSION: The presence of secondary IVH as complications, regardless of its primary cause, presented with its own set of challenges and management considerations, and therefore should be approached with mindful considerations.

KEYWORDS : Intraventricular hemorrhage; Intracerebral hemorrhage compications; pineal gland tumor complications

POA37: COMPREHENSIVE IMAGING AND SURGICAL INTERVENTION FOR A HIGHRISK ANTERIOR COMMUNICATING ARTERY ANEURYSM : A CASE STUDY

Yeni Wulandari[1], Afif Rahman[2], Trianingsih[2]
[1]Resident of Radiology Department, [2]Staff of Radiology Department, Faculty of Medicine,Public Health, and Nursing, Universitas Gadjah Mada

BACKGROUND: Intracranial aneurysms (IAs) are common and can be life-threatening if ruptured, though many unruptured IAs have a low annual rupture risk (0.1%-1.3%). OBJECTIVE: To assess intracranial aneurysms' morphology and rupture risk through comprehensive imaging, diagnostic evaluation, and appropriate treatment strategies.

CASE REPORT: A 68-year-old woman was admitted to the emergency department with decreased consciousness, vomiting, and left-sided weakness. MSCT Angiography (MSCTA) revealed a saccular aneurysm in the anterior communicating artery (ACommA) with a daughter aneurysm and multiple haemorrhages, including intracerebral, intraventricular, subdural, and subarachnoid bleeding, as well as multiple aneurysm ruptures. Transfemoral Cerebral Angiography (TFCA) confirmed the saccular aneurysm in the ACommA. The patient underwent an urgent craniotomy for aneurysm clipping and subdural hematoma (SDH) evacuation.

DISCUSSION: The saccular ACommA aneurysm is a typical morphology in this location, exhibiting a complex structure with a daughter aneurysm, significantly increasing the rupture risk, especially in multiple haemorrhages. Due to their location and intricate anatomy, ACommA aneurysms are highly rupture-prone, with factors such as irregular shape, daughter sacs, and multiple aneurysms further elevating this risk. MSCTA revealed widening aneurysms and contrast media extravasation, appearing as a twisted ribbon-like structure from the aneurysmal dome, underscoring the urgency of surgical intervention.

Ruptured Intracranial Aneurysms (RIAs) are associated with complications like thromboembolic events, rebleeding, intraprocedural rupture, and delayed cerebral ischemia. MSCTA provided essential diagnostic insights, and TFCA confirmed the aneurysm and detailed its anatomy for surgical planning. Both endovascular and microsurgical approaches were considered, with concurrent SDH evacuation mitigating the risks of elevated intracranial pressure and neurological deterioration.

CONCLUSION: This case underscores the importance of prompt and accurate imaging in diagnosing complex ACommA aneurysms and the necessity of timely surgery in rupture cases. The combined use of MSCTA and TFCA provided comprehensive diagnostic insights, enabling timely surgical intervention and successful management of this high-risk aneurysm.

Keywords: Aneurysm, Anterior Communicating Artery Aneurysm, Subdural Haemorrhages, Subarachnoid Haemorrhages, MSCT Angiography, Transfemoral Cerebral angiography

POA38: NOT ALL WHO ARE DIRECT ARE DIRELY ACUTE – A CASE OF A DIRECT-TYPE CAROTID CAVERNOUS FISTULA WITH AN UNCONVENTIONAL PRESENTATION

Zekordavar Rimba[1], Sherly Wijayaningrum[1] ,Novita Hermanus[2], Anna Nalley[2]

[1]Department of Radiology, Rumah Sakit Umum Daerah WZ Johannes, Kupang, Nusa Tenggara Timur

[2]Department of Radiology, Siloam Hospitals Kupang, Kupang, Nusa Tenggara Timur

BACKGROUND : Carotid cavernous fistula (CCF) is a rare vascular malformation categorized into direct and indirect type. Direct type is traditionally associated with a rapid, catastrophic course after trauma – characterized by rapid-onset painful proptosis, conjunctival congestion, and bruit. However, it may have an insidious course resembling the indirect type and may present instead with intracranial hemorrhage.

OBJECTIVE: To report a case of direct CCF with a late, gradual course documented by two sequential imaging: an initial MRA, and a CTA performed one year later.

CASE REPORTS : A 23-year-old male involved in a motor vehicle accident in January 2023 was initially discharged with mild head injury. Seven months later, he began to develop gradual left eye proptosis without pain or visual deficits. Twenty months post-injury, the patient presented with tonic-clonic seizure, prompting an MRA which demonstrated a subarachnoid hemorrhage, and a direct fistula between the left internal carotid and left cavernous sinus. Although digital subtraction angiography was suggested, staffing delays led to loss of follow up. After a year of being asymptomatic, the patient again presented with a seizure. A CTA confirmed a stable direct CCF with recurrent subarachnoid hemorrhage. Following an uneventful hospital stay, the patient was discharged and referred for advanced care.

DISCUSSION: This case demonstrates that direct CCF may present with gradual painless proptosis and delayed subarachnoid hemorrhage, in line with recent reports of a mean symptoms' onset of 7.7 months post-trauma. The presence of subarachnoid bleeding is attributed to cortical venous reflux. While angiography remains the gold standard for diagnosis, cross-sectional imaging (CT/MRI) is still valuable in visualizing the direct fistula in resource-limited settings.

CONCLUSION : Direct CCF may not always present acutely. This case underscores the variability in clinical presentation and highlights the importance of imaging studies in distinguishing between CCF types.

POSTER ABSTRACTS
CNS INFECTION

POA39: RASMUSSEN'S ENCEPHALITIS

Amalia[1], Junus Baan [2], Amelia Bachtiar[3], Rafikah Rauf [4]
[1] Radiology Residency Program, Wahidin Sudirohusodo Hospital, Faculty of Medicine,Hasanuddin University, Makassar, Indonesia
[2, 3, 4] Radiology Consultant, Wahidin Sudirohusodo Hospital, Faculty of Medicine, Hasanuddin University, Makassar, Indonesia

BACKGROUND: Rasmussen's encephalitis is a rare and progressive form of chronic encephalitis that typically affects one hemisphere of the brain and primarily occurs in pediatric individuals with an incidence of 2.4 per 10 persons under age 18 years per year and has an unknown etiology.

OBJECTIVE: This study aims to present the clinical presentation and radiology imaging of a Rasmussen's Encephalitis case

CASE REPORTS : A 4-year-old girl presented with focal seizures that had been occurring for the past two years, accompanied by mild weakness in her right upper extremity. MRI revealed a loss of the gray-white matter junction, along with encephalomalacia/gliotic changes, dilation of the left ventricle, and atrophy of the left basal ganglia. The findings also included hypointense signals on T1WI and FLAIR, hyperintense signals on T2WI in the left frontoparietal lobe, and no diffusion restriction on DWI-ADC. EEG results were abnormal, showing bilateral slow activity.

DISCUSSION : Radiologically, CT is considered less effective than MRI, although both may show similar imaging findings. MRI is superior because it can detect signal changes in the affected hemisphere at an earlier stage. Bien et al. proposed a four-stage classification for MRI findings in Rasmussen's encephalitis shown on T2WI/FLAIR: normal volume and signal (stage 0), swelling with hyperintense signal (stage 1), normal volume with hyperintense signal (stage 2), atrophy with hyperintense signal (stage 3), and progressive atrophy with a normal signal (stage 4). The findings in this patient are consistent with stage 3 of the disease.

CONCLUSION : Rasmussen's encephalitis is a devastating neurological disorder characterized by seizures, brain inflammation, and progressive hemispheric atrophy. A history of refractory seizures starting at a young age should raise suspicion for Rasmussen's encephalitis. Brain investigations, including MRI and electroencephalography, are essential for diagnosis and staging of the disease.

POA40: RIGHT CEREBELLAR ABSCESS IN A 5-YEAR-OLD BOY WITH KARTAGENER'S SYNDROME

Andi Wetenri Padauleng[1], Nur Amelia Bachtiar[2], Rafikah Rauf[3]
Radiology student at Faculty of Medicine, Hasanuddin University[1]
Radiologist of Hasanuddin University Hospital[2]
Radiologist of Hasanuddin University Hospital[3]

BACKGROUND: Cerebellar abscess in pediatric population is uncommon with an incidence of 4:1,000,000 population. However, its prevalence may increase up to 60% in children with cyanotic congenital heart disease such as Kartagener's Syndrome (KS).

OBJECTIVES: This case report aims to present a right cerebellar abscess case in a 5-year-old boy with Kartagener's syndrome.

CASE REPORT:

A 5-year-old boy come to the hospital with headache since 4 days ago followed by seizures, irritability and abnormal eye movements. Patient has fever and cough since 9 days before. Patient has a history of Blalock-Taussig shunt surgery due to cyanotic congenital heart disease. Physical examination reveals cyanotic lip and clubbing fingers. Chest radiograph reveals pneumonia, cardiomegaly with dextrocardia and signs of pulmonary hypertension. Noncontrast enhanced Brain CT follow ed by Magnetic Resonance Imaging (MRI) shows a round ring-enhanced mass that is hyperintense in T2 with restricted diffusion internally, sized 2.77 x 4.50 x 3.26 cm confirmed as a right Cerebellar abscess with perifocal edema compressing the 4th ventricle, causing dilatation to both lateral and 3rd ventricles. Multisinusitis And persistent anterior fontanella Was also found.

DISCUSSION: Cerebellar abscess in children is a rare condition, but the occurance of KS and a history of cardiac surgery may lead to hematogenous source of infection to the brain. Furthermore, this patient also has multiple focus of infections including pneumonia and multisinusitis that may worsen the condition, leading to mortality.

CONCLUSION: Cerebellar abscess in a 5-year-old boy with KS can be caused by hematogenous infections. Early diagnosis using Multiple imaging Modalities like chest radiograph, and head CT/MRI) are essential for prompt initiation of empiric treatment and neurosurgical evaluation.

KEYWORDS: Cerebellar abscess; Kartagener's syndrome; Chest radiograph; Computed Tomography; Magnetic Resonance Imaging

POA41: FROM HEART TO HEAD: THE UNFORESEEN EMERGENCY OF A BRAIN ABSCESS IN A CHILD WITH PENTALOGY OF FALLOT

Nuria Hafsari[1], Naela Himayati Afifah[2]
, Dito Pondra Dharma[2]
[1] Resident of Radiologi Departement,
[2]Staff of Radiologi Departement Faculty of Medicine, Public Health, and Nursing, Universitas Gadjah Mada

BACKGROUND: Patients with brain abscess and a secondary diagnosis of Pentalogy Of Fallot (POF) rarely occur fatal complications. About 12.8–69.4 % patients with Cyanotic Heart Disease develop brain abscess and 25-46 % of unrepaired patient develop brain abscess.
OBJECTIVE: To determine the role of radiology in the early diagnosis of brain abscess.
CASE REPORT: RN, a 13-year-old girl presented to the emergency department with complaints of vertiginous headaches accompanied by fever and projectile vomiting with changes in position over the last 7 days. She had a history of recurrent episodes of shortness of breath since childhood and was diagnosed with POF during echocardiography one year ago, but did not receive any treatment due to financial issues. Head CT Scan revealed a hypodense lesion in the cerebellar vermis, round in shape, with well-defined borders and regular edges which narrows the fourth ventricle with rim enhancement.
DISCUSSION: POF is a variant of the Tetralogy Of Fallot (TOF) with the addition of an Atrial Septal Defect or Patent Ductus Arteriosus. Untreated POF is associated with several complications, including brain abscess. Head CT Scan is the first line of imaging. On CT, the brain abscess showed a low-density lesion with peripheral enhancement, surrounding low-density white-matter edema. The differential diagnosis of a ringenhancing brain lesion is broad and includes a variety of infections (bacterial, tuberculoma); primary (lymphoma, high-grade glioma) and metastatic brain tumors;demyelinating conditions; and radiation necrosis. Management strategies include medical and surgical approaches. This patient underwent a craniectomy surgery two days later and she is improved.
CONCLUSION: Brain abscess is a rare but serious complication in patients with uncorrected POF. Head CT Scan is an essential diagnostic instrument for managing patients with POF exhibiting neurological symptoms. It can also assist in clinical decision-making and enhancing patient outcomes.
Keyword: Brain Abscess, Pentalogy Of Fallot, Congenital Heart Disease, Pediatric Emergency, CT Scan.

POA42: A 43-YEAR-OLD MALE WITH MULTIPLE BILATERAL FRONTAL LOBE CEREBRAL ABSCESSES POST-URGENT CRANIOTOMY AND ABSCESS EVACUATION

Constanti, Rossy Yolanda[1]; Ekasari, Esti Nur[1]; Rahayu, Fauziah Rachmi[2]
[1]Radiology Resident, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta
[2]Staff of Radiology Department, Dr Moewardi Hospital, Faculty of Medicine, Sebelas Maret University, Surakarta

BACKGROUND: Cerebral abscesses are focal infections of the brain parenchyma. These can arise from contiguous, hematogenous, or idiopathic sources. Multiple abscesses, particularly in the frontal lobes, can present significant diagnostic and therapeutic challenges.
OBJECTIVE: To report a case of multiple bilateral frontal lobe cerebral abscesses in a 43-year-old male, highlighting the clinical presentation, diagnostic workup, and management following urgent surgical intervention.
CASE REPORT: A 43-year-old male presented with progressive headache, fever, vision changes, left-sided weakness, dysarthria, and gait disturbance. The patient had a history of chronic sinusitis and a prior dental infection. Neurological examination revealed left hemiparesis and cranial nerve deficits. Brain MRI with contrast demonstrated multiple abscesses in the bilateral frontal lobes. Urgent craniotomy with abscess evacuation was performed, and microbiological analysis identified bacterial pathogens. Histopathological examination showed brain parenchyma with granulation, cellular infiltration, extensive necrosis, and inflammatory cell infiltration, confirming the diagnosis of brain abscess. Neurobehavioral assessment revealed mild cognitive impairment. The patient received post-operative intravenous antibiotics and supportive therapy. Follow-up imaging showed improvement, and the patient exhibited gradual neurological recovery.
DISCUSSION: Cerebral abscesses often present with non-specific symptoms, making early diagnosis challenging. Imaging modalities such as MRI and CT scan are essential for accurate localization and characterization. Management includes a combination of surgical drainage and prolonged antibiotic therapy. In this case, early neurosurgical intervention led to a favorable outcome. The

presence of underlying predisposing factors, such as sinusitis and odontogenic infections, highlights the importance of infection control in preventing intracranial complications.

CONCLUSION: Multiple cerebral abscesses require prompt diagnosis and aggressive management. This case emphasizes the need for a multidisciplinary approach and highlights the potential for neurological deficits despite treatment.

Keywords: Cerebral abscess, frontal lobe, craniotomy, sinusitis

POA43: DEEP NECK ABSCESS EXTENDING TO THE MEDIASTINUM WITH ESOPHAGEAL RUPTURE: THE CRITICAL ROLE OF CONTRAST-ENHANCED CT

[1]Tatag; NH Setyawan[1]; DP Dharma[1]

[1]Radiology Departement, Faculty of Medicine, Public Health, and Nursing,Universitas Gadjah Mada

BACKGROUND: Deep neck abscesses are life-threatening infections that can extend into the mediastinum, causing severe complications such as descending necrotizing mediastinitis. Radiological evaluation plays a crucial role in early diagnosis and management.

OBJECTIVE: To report a case of a deep neck abscess with esophageal rupture, leading to mediastinal extension.

CASE REPORT: A 79-year-old male presented with dysphagia, odynophagia, and a sensation of throat obstruction for nine days. Physical examination revealed a 3 cm, tender, warm, erythematous, and fluctuating mass in the right submandibular region. Laboratory tests showed leukocytosis. Contrast-enhanced CT of the neck and thorax showed retropharyngeal abscess extending into the mediastinum, causing tracheal deviation and narrowing of the airway. Esophageal rupture with an esophageal-mediastinal fistula was also confirmed on MSCT thorax. The patient then underwent surgical debridement and the diagnosis was confirmed histopathologically.

DISCUSSION: Deep neck abscesses can rapidly progress to mediastinitis, requiring prompt diagnosis and intervention. Ccontrast-enhanced CT is essential in evaluating the extent of infection, detecting complications such as fistula formation, and guiding surgical planning. Typical CT features of deep neck abscesses include rim-enhancing fluid collections with surrounding inflammatory fat stranding, gas formation, and possible extension into adjacent spaces. In cases complicated by descending mediastinitis, CT may reveal mediastinal fluid collections, gas tracking along fascial planes, and thickening of mediastinal structures. In this case, the presence of an esophageal fistula contributed to the complexity of the infection.

CONCLUSION: Early radiological assessment is vital for diagnosing deep neck abscesses and their complications. This case highlights the importance of CT imaging in detecting esophageal rupture and mediastinal involvement, which are critical for guiding appropriate management strategies.

Keywords: Deep neck abscess, mediastinitis, esophageal rupture, contrast enhanced CT

POSTER ABSTRACTS

PEDIATRIC & METABOLIC DISEASE

POA44: CT 3D RECONSTRUCTION TO EMPHASIZE DIAGNOSIS OF CRANIOFACIAL CLEFT TESSIER 14: A RARE CASE REPORT

Ghina Nur Alifah, MD[1], Harry Galuh Nugraha, MD[1]
[1]Department of Radiology, Faculty of Medicine Padjadjaran University, Dr. Hasan Sadikin Hospital Bandung

BACKGROUND: Craniofacial clefts are rare with estimated incidence is about 1.4–4.9 in 100.000 live births. Tessier extensively studied the characteristics and treatment of these clefts, and his clinical classification has become the global standard reference. The number 14 craniofacial cleft, described by Tessier, is a rare midline cranial cleft of unknown cause with distinct soft-tissue and bony characteristics. In this report, we presented a child diagnosed with craniofacial cleft Tessier 14.
OBJECTIVES: To report a rare case of Tessier 14 craniofacial cleft and emphasize the role of 3D CT in diagnosis
CASE REPORTS: A 11-year-old male presented with facial deformity in the nose area, which has been present since birth (11 years ago). A non-contrast CT scan with 3D reconstruction was performed, revealing a bifid defect in the nasal passages, as well as the formation of a bifida crista galli. These findings support a diagnosis of craniofacial cleft Tessier 14.
DISCUSSION: Craniofacial cleft Tessier 14 also referred as median craniofacial dysplasia. The underlying cause of a number 14 cleft in embryological development is a malformation of the nasal capsule, coupled with the forebrain developing in an unusual position. This leads to a disruption in the normal medial movement of the eye. There is flattening of the glabella and significant lateral displacement of the inner canthi. Along thorough examination, imaging techniques play a crucial role in assessing the extent of skeletal involvement in each individual case. CT 3D reconstruction provides preoperative understanding of the condition and aid in surgical planning.
CONCLUSION: CT 3D reconstruction aids in understanding facial clefts, guiding surgery, and improving outcomes through precise planning and monitoring. In this case, it revealed key features consistent with craniofacial cleft Tessier 14, leading to a definitive diagnosis in this patient.
Keywords: Craniofacial cleft Tessier 14, 3D CT reconstruction, Case report

POA45: AN INTERESTING UNCOMMON CASE REPORT: OSMOTIC DEMYELINATION SYNDROME (ODS) WHAT RADIOLOGIST SHOULD KNOW

M Dainulmu'akhir Farid[1], M Irvanie R Harahap[2] , Leksmana A Chandra[2]
[1]Radiology Resident. Faculty of Medicine, Pembangunan Nasional "Veteran" Jakarta University- Gatot Soebroto Indonesia Army Central Hospital
[2]Staff. Department of Radiology, Gatot Soebroto Indonesia Army Central Hospital- Faculty of Medicine, Pembangunan Nasional "Veteran" Jakarta University

BACKGROUND: The term "Osmotic Demyelination Syndrome" (ODS) is signifying a disorder marked by brain injury, notably affecting the white matter tracts of the pontine area. This damage results from the fast rectification of electrolyte abnormalities, particularly instances of hyponatremia. MRI is the preferred method for diagnosing and tracking brain abnormalities related to this condition.
Objective: This case report aims to illustrate the utility of MRI brain scan to explain ODS case study conducted at Gatot Soebroto Indonesia Army Central Hospital.
CASE REPORT: A 53 years male patient, was referred to the emergency unit at Gatot Soebroto Hospital with complains of weakness, headache and double vision. Physical examination revealed normal vital signs, but there was nystagmus, dysarthria, and right-sided VI nerve paresis. The laboratory results are electrolite imbalance (hyponatremia, hypokalemia, decrease in calcium and magnesium.) MRI brain showed symmetrical hyperintensities on T2 TSE/T2 TIRM weighted images involving the central pons with restriction on diffusion-weighted images (DWI) and also the involvement of right subcortical frontal lobes.
DISCUSSION: ODS is an uncommon and life-threatening illness, with a prevalence of 0.25% to 0.5%. Radiology examination, especially MRI plays a crucial for assessing ODS. Radiographic features of ODS are often subtle. On CT may demonstrate low attenuation crossing the midline in the lower pons. On MRI imaging, the earliest finding is seen on DWI with diffusion restriction in the lower pons, followed by high T2 signal and low T1 signal developing over two weeks. This region has a classic trident-shaped appearance. In this case, MRI displayed characteristic symmetrical hyperintensity in the central pons.
CONCLUSION: ODS is an uncommon clinical condition. The diagnosis is usually made by clinical examination and MRI examinations. MRI scans show hyperintensities involving

the central pons, the basal ganglia and the thalamus on T2-weighted (T2W) and fluid-attenuated inversion recovery (FLAIR) images.

DISCUSSION: These cases demonstrate the wide spectrum of neuroimaging findings in epilepsy due to congenital, infectious, and vascular etiologies. In complex epilepsy cases, identifying unusual imaging patterns is essential for individualised treatment, directing both medical and surgical interventions.

CONCLUSION: A comprehensive, multimodal imaging approach is essential in diagnosing rare epilepsy-related CNS disorders, with future advancements enhancing precision and outcomes.

Keywords: Epilepsy, Neuroimaging, Neurocutaneous Melanosis, CNS Tubulinopathy, Complex hydrocephalus, Dural Arteriovenous Shunt, Dyke-Davidoff-Masson Syndrome.

POA46: EPILEPSY BEYOND THE USUAL : UNRAVELLING RARE CNS DISORDERS THROUGH NEUROIMAGING

Putri Ayu Ratnasari[1]
, Made Widhi Asih[2]
, I Made Dwijaputra Ayusta[2]
[1]Resident. Radiology Department Universitas Udayana. RSUP Ngoerah Denpasar, Bali
[2]Neuroradiologist. Staff of Radiology Department. Universitas Udayana. RSUP Ngoerah Denpasar, Bali

BACKGROUND: Imaging remains a critical diagnostic modality for identifying rare and challenging structural brain abnormalities that contribute to epilepsy. This case series highlights the diverse neuroimaging features of six rare disorders associated with epilepsy, emphasizing the diagnostic value of various imaging techniques in emergency presentations.

OBJECTIVE: To illustrate the role of imaging in diagnosing rare and complex structural abnormalities associated with epilepsy in emergency settings and to emphasize the importance of multimodal imaging for accurate diagnosis and treatment planning.

CASE PRESENTATIONS: A 5-year-old girl with status epilepticus and a giant melanocytic nevus showed T1 hyperintense lesions in bilateral amygdala and left pons on MRI, consistent with neurocutaneous melanosis. A 2-year-old girl with seizures and gait difficulty demonstrated polymicrogyria, pontocerebellar hypoplasia, and asymmetric basal ganglia on MRI, suggestive of tubulinopathy. A 1-year-old boy with macrocephaly and seizures exhibited multiloculated hydrocephalus, subfalcine herniation, and pyogenic ventriculitis on MRI. A 4-year-old boy with status epilepticus and right hemiparesis showed left cerebral hemisphere cortical and subcortical hyperintensities, consistent with encephalopathy. A 1-year-old boy with seizures, proptosis, and hypothyroidism showed contrast pooling in cerebral venous sinuses and turbulent flow in the superior ophthalmic vein on CT and Doppler ultrasound, suggestive of a dural arteriovenous shunt (DAVS). A 31-year-old woman with lifelong seizures and hemiparesis showed left cerebral hemiatrophy, calvarial thickening, and hippocampal atrophy with T2-FLAIR hyperintensity, consistent with Dyke-Davidoff-Masson Syndrome (DDMS) and mesial temporal sclerosis (MTS).

DISCUSSION: These cases demonstrate the wide spectrum of neuroimaging findings in epilepsy due to congenital, infectious, and vascular etiologies. In complex epilepsy cases, identifying unusual imaging patterns is essential for individualised treatment, directing both medical and surgical interventions.

CONCLUSION: A comprehensive, multimodal imaging approach is essential in diagnosing rare epilepsy-related CNS disorders, with future advancements enhancing precision and outcomes.

Keywords: Epilepsy, Neuroimaging, Neurocutaneous Melanosis, CNS Tubulinopathy, Complex hydrocephalus, Dural Arteriovenous Shunt, Dyke-Davidoff-Masson Syndrome.

POA47: REVERSIBLE YET CRITICAL: POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME IN A CHILD WITH GLOMERULONEPHRITIS THROUGH ADVANCED NEUROIMAGING

Sarah Puspa Muliawaty[1], Nurhuda Hendra Setyawan[2]
, Afif Rahman[2]
[1]Resident of Radiology Department,
[2]Staff of Radiology Department, Faculty of Medicine, Public Health, and Nursing, Gajah Mada University

BACKGROUND: Posterior reversible encephalopathy syndrome (PRES) is a rare disease attributed to an increase in blood pressure that exceeds the autoregulatory capabilities of the cerebral vasculature, resulting in brain edema. The imaging features on brain MRI are often atypical, especially in pediatric patients. Advanced neuroimaging, particularly MRI, plays a crucial role in early detection and management.

OBJECTIVE: To highlight the role of multimodal imaging in diagnosing PRES in a pediatric patient with glomerulonephritis.

CASE REPORT: An 8-year-old boy with a history of glomerulonephritis presented to the emergency department with seizures and headache. His blood pressure was 178/115 mmHg. He was on corticosteroids, immunosuppressants, and antihypertensive medications. Noncontrast CT of the brain showed cerebral edema and watershed infarcts in the subcortical frontoparietal and parietooccipital lobes bilaterally. MRI results 2 days later showed bilateral cerebral hemisphere and right cerebellar lesions with T1 hypointensity, T2/FLAIR hyperintensity, restricted diffusion on DWI, and absence of contrast enhancement. Additionally, microhemorrhage in the bilateral occipital lobes support the appearance of PRES.

DISCUSSION: While CT scan identified cerebral edema and watershed infarcts, MRI provided a more comprehensive assessment, revealing additional findings such as microhemorrhage and restricted diffusion, which are crucial for distinguishing PRES from ischemic infarction. Restricted diffusion and microhemorrhage are considered atypical in PRES. In PRES, a higher rate of microhemorrhage is associated with vasculopathy. Several theories exist to explain why there are regionsof restricted diffusion in some cases of PRES. The mostpopular theory is that hyperperfusion causes a severe mass effect from vasogenic edema with compression of the localmicrocirculation, resulting in acute ischemia and cytotoxicedema.

CONCLUSION: PRES in pediatric can present with atypical imaging findings, including microhemorrhage and restricted diffusion, complicating the clinical course. Early multimodal imaging is crucial for diagnosis, risk stratification, and guiding therapeutic interventions to improve outcomes.

Keywords: posterior reversible encephalopathy syndrome, hypertension, , seizures, pediatric, MRI, neuroimaging

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