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A RARE CASE OF SUBCAPSULAR HEMATOMA WITH MULTIPLE PSEUDOANEURYSMS AT NON BIOPSY RELATED SITES FOLLOWING RENAL BIOPSY

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Introduction: Renal biopsies are a common diagnostic tool for evaluating renal pathology. Subcapsular hematoma is a known complication. However, the occurrence of multiple cortical pseudoaneurysms at non biopsy related sites is exceptionally rare and warrants attention due to its potential for serious morbidity

Case Report: We reported a case of a 66-year-old female who presented with worsening renal function and was suspected to have nephrotic syndrome. An ultrasound-guided renal biopsy was performed at lower pole. The procedure was uneventful, however within hours post-biopsy, the patient developed a significant drop in hemoglobin levels with acute hemodynamic instability. A CT Angiogram of mesentry revealed the presence of a large subcapsular hematoma with foci of cortical pseudoaneurysms involving mid and lower poles and evidence of active arterial blush, indicative of ongoing hemorrhage. Immediate renal angiogram confirmed the presence of four pseudoaneurysms in the mid and lower poles of the left kidney. Superselective embolization was successfully performed and patient was subsequently discharged.

Conclusion: This case highlights a rare but critical complication of renal biopsy, where subcapsular hematoma can lead to multiple cortical pseudoaneurysms even at non biopsy sites. Prompt recognition and intervention are essential in preventing further complications and preserving renal function.

CUMULATIVE RADIATION DOSE IN A LIVER CANCER PATIENT UNDERGOING YTTRIUM-90 RADIOEMBOLIZATION: A DOSIMETRIC CASE STUDY

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This case study presents a cumulative dosimetric analysis of a 70-year-old male with rectosigmoid adenocarcinoma and liver metastases who completed chemotherapy and proceeded with local therapies, including Transarterial Chemoembolization (TACE) and Yttrium-90 (Y-90) Selective Internal Radiation Therapy (SIRT). The treatment targeted liver segments II/III and VII/VIII and was preceded by multiple imaging procedures including CT multiphase liver scans, Tc-99m MAA lung shunt studies, and FDG PET-CT. The cumulative effective dose from diagnostic imaging was approximately 95 mSv. Additionally, fluoroscopy-guided interventions contributed to significant radiation exposures, measured using dose area product (DAP). Final Y-90 delivery resulted in absorbed doses of 173.37 Gy to segment II/III and 161.56 Gy to segment VII/VIII, with an average liver dose of 74.61 Gy. This case underscores the importance of organ-specific dosimetry, cumulative dose tracking, and patient-specific planning. Tools like Radimetrics at IKN have proven essential in facilitating integrated dose monitoring, enabling real-time tracking across modalities and supporting safer, precision-guided treatment decisions.

A VASCULAR SURPRISE : THE CASE OF THE HEPATIC ARTERY PSEUDOANEURYSM

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Hepatic artery pseudoaneurysm (HAP) is a rare but potentially fatal vascular complication that typically arises following trauma, hepatobiliary surgery, or interventional procedures. Due to its nonspecific clinical presentation and potential for catastrophic hemorrhage, early recognition is critical yet often challenging. We present a case of 75-year-old male who developed a hepatic artery pseudoaneurysm following endoscopic retrograde cholangiopancreatography (ERCP), highlighting the diagnostic challenges and the pivotal role of imaging in early detection. Endovascular stenting was successfully performed, resulting in a favourable outcome. This case underscores the importance of maintaining a high index of suspicion for HAP in patients presenting with post-procedural abdominal pain or gastrointestinal bleeding, and it emphasizes the effectiveness of minimally invasive therapeutic strategies.

AI-ASSISTED DETECTION OF HYPERINTENSE VESSEL SIGN ON FLAIR MRI: A NOVEL TRIAGE TOOL FOR ACUTE ISCHEMIC STROKE MANAGEMENT

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Introduction: The Hyperintense Vessel Sign (HVS) on FLAIR MRI is a subtle yet critical marker of arterial occlusion in acute ischemic stroke. Its timely detection can influence decisions regarding thrombolysis or thrombectomy eligibility. However, manual HVS identification is time-intensive and prone to inter-observer variability, especially in high-pressure emergency settings. We present a novel deep learning-based triage tool designed to assist radiologists by automating HVS detection with high computational efficiency and clinical reliability.

Method: A total of 300 FLAIR MRI datasets were retrospectively collected from Hospital Sultan Abdul Aziz Shah (HSAAS), UPM, obtained using a standardized protocol on a 3T scanner. A deep learning model based on the nnU-Net architecture was developed to detect HVS with pixel-level precision. The model was trained using 5-fold cross-validation and tested against annotations by three board-certified neuroradiologists (gold standard). Inference was conducted on an RTX 4080 GPU with an average runtime of 30 seconds per scan. Novel features included the integration of explainable AI (XAI) techniques to enhance model transparency and improve radiologist trust in AI outputs.

Results: The model achieved a sensitivity of 89%, specificity of 84%, and Dice score of 0.78 ± 0.11 compared to radiologists' consensus annotations (accuracy: 95%). While radiologists outperformed the model diagnostically, the tool reduced average triage decision time by 40%, prioritizing high-risk cases for review without compromising safety. Importantly, XAI visualizations provided interpretable heatmaps highlighting regions of interest, which radiologists reported as valuable for cross-verification during time-critical scenarios.

Conclusion: By reducing decision-making time while maintaining diagnostic accuracy, this approach has the potential to transform stroke workflows in resource-limited or high-volume settings. Future work will focus on integrating this tool into real-time clinical pipelines and expanding its application to multi-modal imaging data for comprehensive stroke assessment.

IMAGING IN ACUTE STOKE CARE: EFFICACY, LIMITATIONS AND OPPORTUNITIES – A SYSTEMATIC REVIEW

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Introduction: The global incidence of stroke is escalating, impacting millions annually, with acute ischemic stroke (AIS) constituting a significant proportion of cases. Modern imaging techniques have revolutionized stroke care, enabling the identification of patients eligible for reperfusion therapies, including mechanical thrombectomy (MT). However, variations in imaging workflows across healthcare systems pose challenges, leading to inconsistent clinical outcomes and treatment delays. This systematic review aims to evaluate the efficacy, limitations, and opportunities associated with recent advancements in various imaging modalities for AIS management.

Method: A rigorous and transparent systematic review was conducted following established guidelines, employing the PICO (Population, Intervention, Comparison, Outcomes) framework. The search strategy focused on articles pertaining to acute stroke patients undergoing thrombectomy, workflow and techniques for radiographers, imaging modalities (CT and MRI), and patient selection and clinical outcomes. Scopus was utilized to identify relevant articles, and study selection and screening were managed using Rayyan, a web-based application. Inclusion and exclusion criteria were applied to screen articles, with a focus on studies published between 2021 and 2024.

Results: The initial search yielded 157 articles, with 10 ultimately meeting the inclusion criteria after a systematic screening process. The review highlighted several key findings. Non-contrast CT (NCCT) was found to be as effective as CT perfusion or MRI for patient selection in the late window for mechanical thrombectomy. MRI acceleration techniques were identified to make MRI feasible for acute stroke imaging while retaining quality, enabling a transition from CT to MRI-based workflows. However, MRI showed lower functional independence rates compared to CT, with similar mortality and haemorrhage outcomes. CT perfusion demonstrated moderate volumetric agreement with follow-up DWI infarct volume, with significant overestimation in certain methods. The review also emphasized the importance of workflow optimization and multidisciplinary collaboration in optimizing imaging techniques.

Conclusion: This systematic review underscores the crucial role of imaging in acute stroke management, highlighting both advancements and challenges. CT, CT perfusion, and MRI each offer unique benefits depending on the clinical situation, resource availability, and patient-specific factors.

WHEN THE CURE TURNS CATASTROPHIC: DELAYED ANEURYSM RUPTURE AFTER FLOW DIVERTER STENTING

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Introduction: Flow diverter stenting is a popular treatment option for intracranial aneurysms. Although delayed rupture after stenting is rare, it can be catastrophic. We present a case of delayed aneurysmal rupture post flow diverter stenting.

Case Report: A 38-year-old male presented with sudden onset of headache and vomiting. CT brain revealed diffuse subarachnoid haemorrhage. Digital subtraction angiography (DSA) identified a multilobulated aneurysm at M1 segment left middle cerebral artery, measuring 2.60mm (neck), 10.37 mm (height), and 13.86 mm (width). After two weeks, the aneurysm was treated with flow diverter embolisation following antiplatelet therapy. A follow-up DSA performed three months post-procedure demonstrated reduction in aneurysm size. However, at fourth month post-embolization, the patient developed left frontoparietotemporal intraparenchymal haemorrhage. Sadly, the patient passed away the same day.

Discussion: Delayed rupture of aneurysm following flow diverter stenting has been reported in approximately 0.6% to 4% of cases. Contributing factors may include increased intra-aneurysmal pressure, weakening of the aneurysm wall due to thrombus formation, persistent residual flow within the aneurysm, large aneurysms, and mechanical irritation from the device itself. Currently, no definitive preventive strategies have been established.

Conclusion: This case highlights the critical importance of appropriate patient selection and necessity of comprehensive pre-procedural counselling.

RUPTURED ANEURYSM OF THE ARTERY OF DAVIDOFF AND SCHECHTER IN FALCOTENTORIAL DURAL ARTERIOVENOUS FISTULA: A CASE REPORT

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Introduction: The artery of Davidoff and Schechter (ADS) is a rare meningeal branch originating from posterior cerebral artery (PCA), often found in pathology like dural arteriovenous fistulas (DAVFs). We report an unusual case of ADS aneurysm found during an episode of subarachnoid haemorrhage (SAH), which aggravated a high-grade falcotentorial DAVF.

Case Report: A 45-year-old man with no significant medical history experienced a sudden tonic seizure followed by severe headache. Non-contrast CT of the brain showed extensive SAH in the basal cisterns. CTA indicated a potential left PCA aneurysm and a complex vascular malformation. DSA confirmed a high-grade, high-flow DAVF at the midline occipital region near the falcotentorial junction, with drainage into the vein of Galen, consistent with Galenic subtype of tentorial DAVF. Vertebral artery angiography revealed a large, 5.6 mm irregular aneurysm arising from the P1 segment of the left PCA, suspected to be a pathologically dilated left ADS.

Discussion: Treatment involved coil embolization of the aneurysm and parent artery sacrifice, as well as liquid embolization of the DAVF. The patient tolerated the endovascular procedure well without complications.

Conclusion: This case illustrates the rarity of ADS aneurysms, highlighting the need for high suspicion of ADS in complex vascular malformation, which influences treatment strategies.

TEMPERING THE TUBE: HEAT ASSISTED MODIFICATION OF PIGTAIL CATHETER

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Introduction: Pigtail catheters are essential in percutaneous drainage procedures, yet the high cost and limited availability of commercially pre-modified catheters remain significant barriers, especially in resource-limited settings. To optimize drainage performance, interventional radiologists often modify these catheters by creating additional side holes. However, conventional mechanical methods such as scalpel or needle perforation pose risks of catheter wall damage, inconsistent hole quality, and reduced structural integrity. A heat-assisted modification technique may offer a more precise and reproducible alternative.

Method: This technique utilizes the blunt trocar of an 18G Chiba needle, heated using a torch lighter until it glows cherry red. Under aseptic conditions, the heated trocar is applied to the wall of thermoplastic polyurethane pigtail catheter. Controlled perforations are made at pre-marked locations, with 1–2 cm spacing between holes. The applied heat cauterizes each opening, reducing the risk of fraying and maintaining catheter structure. Following the procedure, catheters are flushed with saline to confirm patency and inspected for uniformity in hole shape and size.

Discussion: The heat-assisted method successfully produced uniform, circular side holes measuring approximately 1.0–1.5 mm in diameter. The openings were smooth and cauterized, with no evidence of structural damage or deformation. Compared to traditional mechanical techniques, this method showed improved consistency and safety. It requires minimal equipment, making it suitable for low-resource environments. However, the technique demands precise temperature control; excessive heat may compromise the catheter material, while insufficient heating may result in incomplete perforations. Additionally, flow efficiency and potential for turbulence at punched sites warrant further evaluation.

Conclusion: The heat-assisted modification technique is a practical, cost-effective alternative for customizing pigtail catheters. With proper technique and training, it enhances procedural adaptability where pre-modified catheters are not readily available. Further studies are needed to optimize outcomes and assess long-term efficacy.