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

S. Jeya Pragash[1], M.I.A. Che Ros[2]
[1]Department of Surgery, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia
[2]Department of Radiology, Hospital Canselor Tuanku Muhriz, Universiti Kebangsaan Malaysia, Kuala Lumpur, Malaysia

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.

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

M.I. Ahmad Sabri[1,2], A.S. Muda[3], A. Tharek[3], I. Faye[4], R.S. Perisamy[5], I.S. Abu Bakar[1,6], N, Mahfar[7]

[1]Radiology Department, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Selangor, Malaysia.
[2]Lönge Medikal Sdn Bhd, Serdang, Selangor, Malaysia.
[3]Radiology Department, Hospital Sultan Abdul Aziz Shah, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, Selangor, Malaysia.
[4]Department of Fundamental and Applied Sciences, Universiti Teknologi PETRONAS, Perak, Malaysia.
[5]Radiology Department, International Islamic University Malaysia Kuantan, Pahang, Malaysia.
[6]Radiology Department, Hospital Sultanah Aminah Johor Bahru, Johor Bahru, Malaysia.
[7]Radiology Department, KPJ Damansara Specialist Hospital, Selangor, Malaysia.

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.