

Renal vein thrombosis in neonates with acute kidney injury; optimizing doppler ultrasound to facilitate early detection

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Background: Renal vein thrombosis (RVT) usually presents in the first month of life and is associated with acute kidney injury (AKI). This case series examines five cases of RVT that occurred in a large tertiary neonatal intensive care unit in the Northwest of England between 2019 and 2022.

Methodology: Retrospective data was gathered using the Badgernet EPR and PACS electronic system.

Results: Initial indications for the renal ultrasound (USS) range from an echo showing an inferior vena cava (IVC) thrombus (n=2) to left renal flank mass (n=1) to reduced urine output and rising creatinine (n=1) to the thrombus being an incidental finding (n=1). AKI occurred in 3 cases. The median day of AKI diagnosis was day 12.5 (11-14), the median age of the 1st USS in these cases was day 18 (7-18) and the median age for the diagnosis of RVT was day 18 (8-27). The cardinal features of RVT triad only presented in one patient. Two cases had USS done after a 2nd episode of AKI. One patient was a female, the rest were males. 60% (n=3) of the patients were born prematurely, median gestation of this group was 31+4 weeks (23+2-37+3). In two cases, there was bilateral RVT with an occlusive IVC thrombus, both had USS after second episode of AKI. Three cases required anticoagulation or thrombolysis with no immediate treatment complications. One patient developed subretinal haemorrhages and bruising whilst on subcutaneous enoxaparin. One patient never received heparin due to thrombocytopenia and subsequent death.

Conclusions: The data imply that there should be a higher index of suspicion and an earlier USS and doppler in cases of AKI. A prospective study with larger number of patients is required to confirm this relationship.