Table 1: Literature review of osseous metaplasia in the renal allograft[a]

Author	Age at Tx	Specimen type	Native kidney disease	Rejection	Type of donor	Location of osseous metaplasia
Current case	35	Allograft biopsy	Chronic interstitial nephritis	No rejection	Live	Renal cortex
Bataille *et al*.[1]	21	Graft nephrectomy	Interstitial nephritis	Chronic	Deceased	Renal cortex
Azhir *et al*.[2]	28	Graft nephrectomy	Diabetic Nephropathy	Acute on chronic	Live	Renal cortex and medulla
Tousignant *et al*.[3]	15	Graft nephrectomy	Renal dysplasia	Acute on chronic	Deceased	Renal cortex
Chan *et al*.[4]	43	Graft nephrectomy	IgA Nephropathy	Chronic	Deceased	Renal parenchyma
Makhoba *et al*.[5]	11	Autopsy	Unknown	Chronic	NA	Renal parenchyma
Sanders *et al*.[6]	22	Allograft biopsy	FSGS Collapsing variant	Acute on chronic	Deceased	Renal cortex

[a]Adapted from Sanders BP *et al*. *Exp Clin Transplant*. 2014;12(4):371-373. Tx = transplant, VUR = vesicoureteral reflux, FSGS = focal and segmental glomerulosclerosis, NA = Not Available

OM in the renal allograft is rare. Though not directly implicated in the graft dysfunction, its presence in the biopsy hints toward chronic injurious stimuli like inflammation, ischemia, or infection in the allograft.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Conflicts of interest

There are no conflicts of interest.

CV Malathi[1], S Venkatesh Rajkumar[2], KS Jansi Prema[1], Anila A Kurien[1]

[1]Consultant Pathologist, Renopath, Center for Renal and Urological Pathology, [2]Consultant Nephrologist, Apollo Hospitals, Chennai, Tamil Nadu, India

Corresponding author:
Anila A. Kurien, Renopath, Center for Renal and Urological Pathology, No 27 and 28, VMT Nagar, Kolathur, Chennai, Tamil Nadu, India. E-mail: anila_abraham08@yahoo.com

References

1. Bataille S, Daniel L, Legris T, Vacher-Coponat H, Purgus R, Berland Y, Moal V. Osseous metaplasia in a kidney allograft. Nephrol Dial Transplant 2010;25:3796-8.
2. Azhir A, Riopel J, Solez K, Grynoch R, Sis B. Osseous and myeloid metaplasia in a failed renal allograft. Kidney Int 2007;71:829-30.
3. Tousignant K, Phan V, Clermont MJ, Metellus K, Perreault G, Sartelet H. Bone metaplasia associated with chronic allograft nephropathy. Kidney Int 2006;70:407.
4. Chan R, Common AA, Sugar L. Sonographic appearance of renal transplant osseous metaplasia: Case report. Can Assoc Radiol J 1999;50:390-2.
5. Makhoba M, du Toit-Prinsloo L. Osseus metaplasia in chronic renal allograft rejection. Afr J Nephrol 2017;20:45-7.
6. Sanders BP, Orlando G, Peloso A, Katari RS, Iskandar SS, Farney AC, *et al*. Osseus metaplasia in kidney allografts as a paradigm of regenerative medicine principles. Exp Clin Transplant 2014;12:371-3.

How to cite this article: Malathi CV, Venkatesh Rajkumar S, Jansi Prema KS, Kurien AA. Osseous Metaplasia in Renal Allograft. Indian J Nephrol. 2024;34:537-8. doi: 10.25259/ijn_527_23

Received: 28-11-2023; **Accepted:** 10-12-2023; **Online First:** 01-07-2024; **Published:** 30-08-2024

DOI: 10.25259/ijn_527_23

Radiolucent Calculi in Kidneys on Intravenous Urography: Red Color on Dual-Energy Computed Tomography Clinches the Final Diagnosis

A 1-year-old girl, follow-up case of bilateral hydronephrosis, underwent intravenous urography (IVU) to assess the function and drainage. The plain spot [Figure 1a] of the IVU study showed no radiopaque calculus. Subsequently, in 1-h post-intravenous contrast injection, mild bilateral hydronephrosis was present with two radiolucent filling defects seen, one each in the right and left renal pelvis [Figure 1b] suggestive of radiolucent calculi. Low-dose dual-energy computed tomography (DECT) was subsequently done for further delineation and characterization to decide upon the management. It showed bilateral nephrolithiasis with mild hydronephrosis [Figure 1c and d]. On dual energy evaluation, bilateral renal calculi were red and found to have a uric acid composition [Figure 1e and 1f].

Radiolucent stones constitute only 10% of urolithiasis cases. These include uric acid, cysteine, and medication-induced (such as indinavir, triamterene, sulfonamides, and amorphous silica) calculi. DECT can help to differentiate uric acid stones from non-uric acid stones (such as calcium oxalate, calcium phosphate, struvite, cystine, and hydroxyapatite) due to their material decomposition ability.[1] Uric acid stones are color-coded red, while the non-uric acid stones are blue. This is important from a management point of view, as the uric acid calculi are

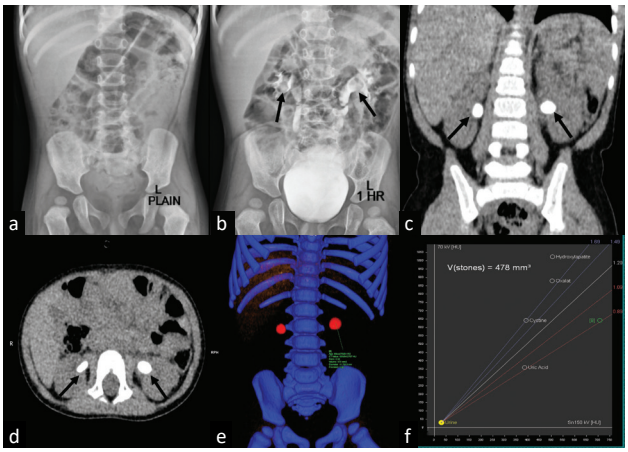

Figure 1: Plain radiograph (a) shows no radiopaque calculi in the renal fossae on either side, while post-contrast injection 1-h spot (b) shows two radiolucent filling defects in the bilateral renal pelvis (black arrows) with mild hydronephrosis. Coronal (c) and axial (d) multiplanar reformatted images of dual-energy computed tomography (DECT) scan show bilateral renal calculi (black arrows in c and d) with mild hydronephrosis. Color overlay image (e) of DECT scan shows bilateral renal calculi, which are color-coded red. On dual-energy radiograph evaluation (f), left renal calculus (region of interest shown in e) is seen to have a uric acid composition (green circle in f).

medically managed using alkalizing agents. In contrast, non-uric acid stones are treated by lithotripsy or surgery.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Conflicts of interest

There are no conflicts of interest.

Anmol Bhatia[1], Kushal Kotia[1], Ravimohan S. Mavuduru[2], Kushaljit Singh Sodhi[1], Akshay Kumar Saxena[1]

Departments of [1]Radiodiagnosis and Imaging and [2]Urology, Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India.

Corresponding author:
Akshay Kumar Saxena, Department of Radiodiagnosis and Imaging, Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh, India. E-mail: fatakshay@yahoo.com

Reference

1. Hidas G, Eliahou R, Duvdevani M, Coulon P, Lemaitre L, Gofrit ON, *et al*. Determination of renal stone composition with dual-energy CT: *In vivo* analysis and comparison with X-ray diffraction. Radiology 2010;257:394-401.

How to cite this article: Bhatia A, Kotia K, Mavuduru RS, Sodhi KS, Saxena AK. Radiolucent Calculi in Kidneys on Intravenous Urography: Red Color on Dual-Energy Computed Tomography Clinches the Final Diagnosis. Indian J Nephrol. 2024;34:538-9. doi: 10.25259/IJN_17_2024

Received: 14-01-2024; **Accepted:** 23-01-2024;
Online First: 02-05-2024; **Published:** 30-08-2024

DOI: 10.25259/IJN_17_2024