

Bouquet of flowers: Clue to medullary sponge kidneys

B. Sureka, K. Bansal, V. Jain¹, A. Arora

Departments of Radiology/Interventional Radiology and ¹Renal Transplant and Urology, Institute of Liver and Biliary Sciences, New Delhi, India

A 19-year-old female was worked up for recurrent urinary tract infection. Ultrasonography revealed bilateral enlarged echogenic kidneys with simple cysts and focal caliectasis [Figure 1]. CT urography revealed cortical as well as medullary cysts, medullary calcifications, enlarged kidneys, and retention of contrast within the renal papillae giving a striated appearance with papillary blush pattern [Figure 2]. Based on the imaging findings, a diagnosis of medullary sponge kidney (MSK) was made.

Medullary sponge kidney is a sporadic condition characterized by congenital malformation of the precalyceal collecting tubules in the medullary and papillary portions of the kidneys.^[1] The incidence of MSK is estimated at ≈1:5000.

Most cases of MSK are diagnosed during the workup of renal stones. However, a subset remains clinically silent, and the diagnosis is incidentally picked up on renal imaging for other indications. The strong association of MSK with nephrolithiasis, especially calcium stones, is explained by the tendency of urinary stasis in the ectatic collecting ducts.

On imaging, clusters of pyramidal medullary calcifications are diagnostic. Ultrasonography demonstrates echogenic medullary pyramids. Post-contrast delayed CT or intravenous pyelogram demonstrates a “paint brush” appearance or “bouquet of flowers” in the renal medullary regions due to pooling of contrast material within the dilated ectatic papillary ducts. Recognized associations

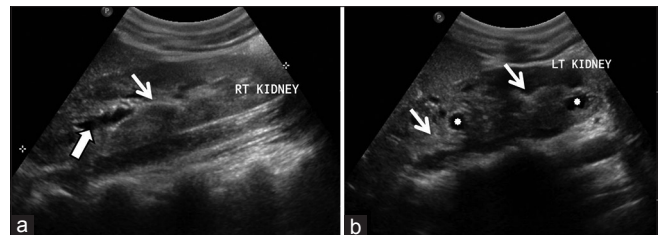


Figure 1: (a and b) Ultrasound images showing bilateral enlarged kidneys, echogenic medullary regions (arrows), cortical cysts (asterix) and caliectasis (arrowhead)

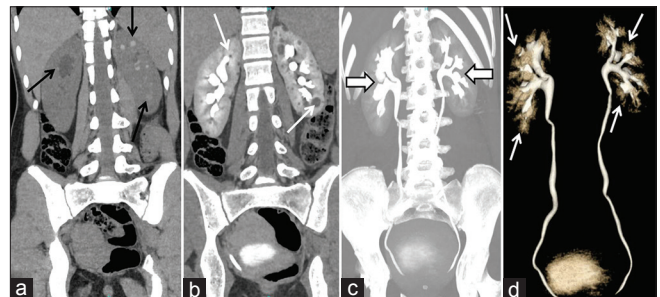


Figure 2: (a) Coronal noncontrast computed tomography (CT) image showing medullary calcifications in bilateral kidneys (black arrows) (b) coronal contrast-enhanced CT scan showing cysts in bilateral kidneys (white arrows) (c) thick-maximum intensity projection coronal sections showing papillary-blush pattern (arrowheads) (d) volume-rendered CT image showing bouquet of flowers appearance in the region of papilla in bilateral kidneys (arrows)

with MSKs include Ehlers–Danlos syndrome, Caroli’s disease, and Beckwith–Wiedemann syndrome.

Treatment of MSK is related to the management of associated metabolic abnormalities. Potassium citrate has been shown to be effective in reducing stone risk.^[2]

Address for correspondence:

Dr. B. Sureka,
Department of Radiology/Interventional Radiology, Institute of Liver and Biliary Sciences, New Delhi - 110 070, India.
E-mail: binitsureka@hotmail.com

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