

Soft-tissue rim sign

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A useful clue during CT evaluation of urinary tract calculi, the soft-tissue rim sign represents ureteral wall edema surrounding a calculus at the level of stone impaction. Circumferential soft tissue surrounds the high attenuation calculus (Fig. 1) [1, 2].

This rim sign can be helpful in distinguishing ureteral calculi from venous calcifications (phleboliths) that typically lack a circumferential soft-tissue margin, but instead have a “tail” of soft-tissue attenuation thought to represent the thrombosed parent vein—one of the several “comet-tail” signs (Fig. 2) [3]. These clues are particularly helpful in patients with a paucity of intra-abdominal fat, in whom the ureter is difficult to identify.

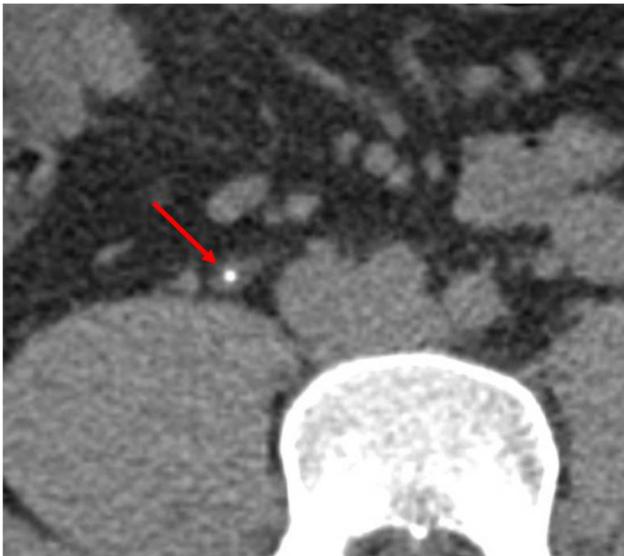


Fig. 1. Axial non-contrast CT at the level of the mid-right ureter. Note the circumferential soft-tissue rim (*red arrow*) surrounding the high attenuation ureteral calculus.

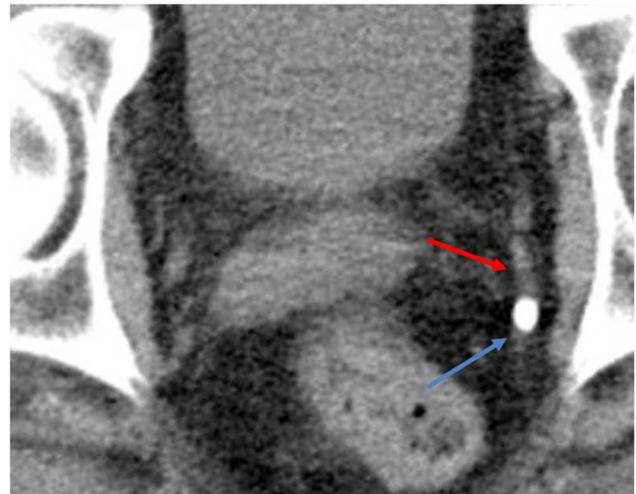


Fig. 2. Axial non-contrast CT at the level of the left distal ureter. The left pelvic phlebolith (*blue arrow*) lacks the circumferential soft-tissue rim typical of a ureteral calculus. Note the “tail” of soft tissue extending to the calcification (comet-tail sign, *red arrow*).

Unfortunately, the rim sign can be absent with ureteral calculi larger than 4 mm or when the calculus lodges at the ureterovesicle junction [1].

References

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3. Boridy IC, Nikolaidis P, Kawashima A, et al. (1999) Ureterolithiasis: value of the tail sign in differentiating phleboliths from ureteral calculi at nonenhanced helical CT. *Radiology* 211(3):619–621