



Oncology

Benign ureteral polyps causing upper urinary tract obstruction

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ABSTRACT

Ureteral fibroepithelial polyps are benign, mesodermal neoplasms that can cause upper urinary tract obstruction. The preoperative diagnosis of this disease is challenging, but multidetector computed tomography (CT), particularly CT urography in the excretory phase, can be used to detect the features of ureteral polyps. We illustrated a case preoperatively diagnosed as upper ureteral tract obstruction due to ureteral tumor based on clinical presentation and CT imaging. However, the histopathological report revealed ureteral fibroepithelial polyps. Ureteral fibroepithelial polyps should be considered as a rare cause of urinary obstruction when the clinical presentation and imaging findings are atypical for more common etiologies.

Introduction

Most primary neoplasms that originate from the genitourinary system are classified as malignant tumors, and benign primary ureteral neoplasms, such as fibroepithelial polyps, which are considered to be the most common type of benign ureteral neoplasm, are relatively rare.^{1,2} Fibroepithelial polyps are typically smooth, elongating approximately 1–5 cm along the ureter, appearing as finger-like protruding inside the lumen of the ureter. These lesions are commonly identified in patients aged 20–40 years and are occasionally observed in children. The clinical symptoms associated with fibroepithelial polyps tend to be non-specific, including recurrent back pain, hematuria, or urinary tract infection.³ Ureteral fibroepithelial polyps are a rare etiology for excretory system obstruction, and preoperative imaging-based diagnosis can be difficult because obstruction due to polyps is atypical, and the findings can overlap with more common etiologies.^{4,5} Based on previous studies, the excretory phase of computed tomography (CT) urography can play a significant role in the detection of ureteral polyps, including the identification of an elongated, smooth filling defect in the ureter or a corkscrew appearance. Percutaneous nephroscopic resection is the treatment of choice for the removal of ureteral fibroepithelial polyps.^{1–5} Here, we report a case in which ureteral fibroepithelial polyps were found to

cause upper urinary tract obstruction.

Case presentation

A 27-year-old man with a history of left congenital ureteral stenosis diagnosing for 3 years was admitted to the hospital due to gradually increasing left back pain over a 3-month period. No abnormalities were identified on clinical examination. The observed left hydronephrosis had increased compared with previous reports, and no presence of urinary stones was detected on ultrasound examination.

On CT, left hydronephrosis and upper ureter dilation were observed. The wall of the remaining ureter appeared to be irregularly thickened on the solid-enhancing component of the arterial phase. Neither adjacent fat stranding nor lymph nodes were detected. The excretory phase images showed multiple, smooth, elongated filling defects along the ureteral stenosis segment (Fig. 1).

The patient underwent endoscopic surgery. Intraoperatively, the upper ureter was dilated, and stenosis was observed over a 5-cm length of the remaining segment due to the presence of multiple polyps (Fig. 2). The ureteral stricture was resected, followed by end-to-end anastomosis. The histological results confirmed the polyps to be benign fibroepithelial polyps (Fig. 3).

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Fig. 1. Fibroepithelial polyps of the left ureter on CT. (A) Coronal arterial phase. (B) Coronal venous phase, showing left hydronephrosis and the thickening and enhancement of the left pelvic ureteral segment (white arrow). (C) Axial, (D) sagittal, and (E) coronal maximum intensity projection (MIP) excretory phase imaging, showing multiple, smooth, elongated filling defects at the stenosis segment (black arrows).

Discussion

Primary tumors of the ureter are uncommon and are predominantly classified as malignant tumors.^{1–3} Benign primary ureteral tumors are rare, and fibroepithelial ureteral polyps are the most common type of benign ureteral tumor, accounting for 2%–6% of all ureteral neoplasms.^{1–3} Similar to tumors such as leiomyomas, fibroids, neurofibromas, granulomas, endometriomas, and lymphangiomas, fibroepithelial ureteral polyps derive from mesodermal tissue.^{1–5}

Ureteral fibroepithelial polyps are often observed at the ureteropelvic junction or the upper ureter; however, they are more commonly observed at the posterior urethra in children.^{4,5} These benign lesions are typically detected in young adults ranging from 20 to 40 years, although a small number of cases have been identified in children. The reported male-to-female ratio has varied across studies.^{4,5} Currently, the etiology and pathogenesis of ureteral fibroepithelial polyps are unknown, although noted risk factors have included allergy, trauma, exogenous carcinogen exposure, hormone disorders, or congenital disorders associated with disrupted mesodermal development.^{1–3}

Hematuria is the most common clinical symptom, although other symptoms include back pain and urinary tract infection, due to either ureteral torsion or intussusception caused by the polyps, and excretory

system congestion.^{1–3} Excretory system obstruction associated with ureteral fibroepithelial polyps can occur through primary and secondary mechanisms. In cases of primary obstruction, the polyps cause severe ureteral lumen stenosis, whereas the deposition of stones at less severe stenosis can result in secondary obstruction.^{1,2} The typical length of ureteral fibroepithelial polyps ranges from 1 to 5 cm, occasionally exceeding 10 cm. The lesions are typically cylindric, smooth in contour, and elongated. The preoperative diagnosis of this abnormality can be challenging and difficult to distinguish from other obstructive etiologies, including calculi, blood clots, malignant excretory tumors, inflammatory causes, and foreign bodies.

Existing reports of ureteral fibroepithelial polyps diagnosed on CT are limited. In 1989, Oesterling et al.⁴ described a case of distal ureteral polyp evaluated by multiplanar CT. In 2002, Bellin et al.⁵ reported a case in which a single ureteral polyp was detected on CT and described some suggestive features, including an elongated lesion attached to the ureteral wall surrounded by contrast material. Furthermore, ureteral fibroepithelial polyps show soft-tissue attenuation and enhancement after contrast injection and can cause ureteral stenosis and hydronephrosis. The excretory phase plays a pivotal role in the diagnosis of ureteral fibroepithelial polyps, characterized by the identification of smooth, elongated intraluminal filling defects or corkscrew

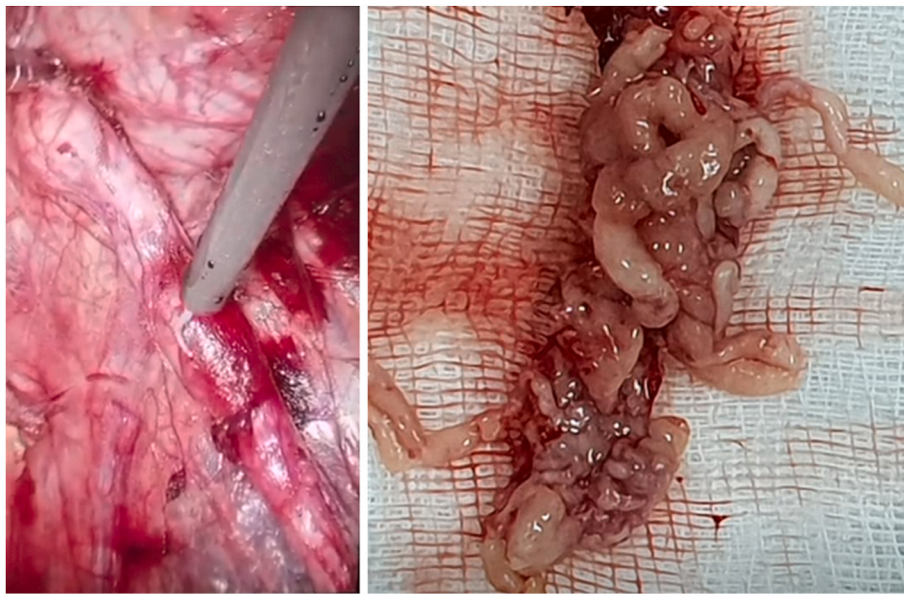


Fig. 2. Intraoperative findings of ureteral fibroepithelial polyps.

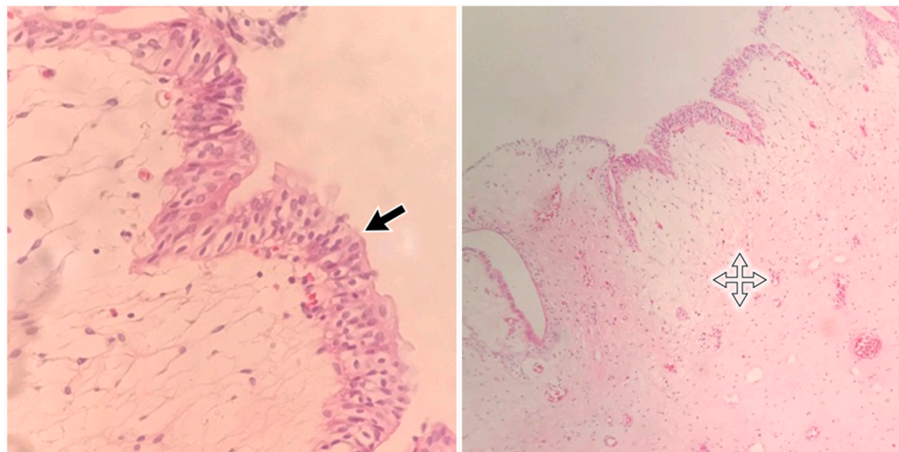


Fig. 3. Histological imaging demonstrating a thin, bland urothelial cell (black arrow) over a polypoid fibrovascular stroma (cross). No presence of malignant cells was detected.

configuration.^{4,5} In our case, the polyps were observed at the pelvic segment, which caused hydronephrosis. The lesions appeared as smooth, elongated filling defects along the stenosis segment on the excretory phase, which is similar to the findings described by previous reports.

Percutaneous nephroscopic resection is the optimal treatment method for ureteral polyps because this procedure is minimally invasive. Intravenous urography is an essential postoperative follow-up modality for recurrent lesions.¹⁻⁵

Conclusion

Ureteral fibroepithelial polyps are rare, benign tumors of the ureter. A preoperative diagnosis of fibroepithelial polyps should be considered when CT imaging reveals ureteral obstructions associated with smooth intraluminal filling defects or a corkscrew appearance on the excretory

phase and other causes of obstruction have been excluded. Percutaneous nephroscopic resection is an effective treatment method for these benign polyps.

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