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CASE REPORT

Fibroepithelial Polyp of the Proximal Ureter Presenting as Chronic Hematuria and Hydronephrosis in an Adolescent: A Case Report

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Abstract: Fibroepithelial polyps of the ureter are rare benign lesions that can produce long-standing obstruction and hematuria and may be misinterpreted as calculi or malignancy, risking delayed diagnosis and renal injury. We report the case of a 17-year-old male with a 10-year history of intermittent left flank pain and recurrent macroscopic hematuria, whose recent symptom progression prompted imaging that revealed grade-3 left hydronephrosis and a focal intraluminal soft-tissue density at the ureteral transition zone. Diagnostic ureteroscopy demonstrated a fungating polypoid mass in the upper third of the left ureter; endoscopic biopsy and subsequent histopathology confirmed a fibroepithelial ureteral polyp. The lesion was managed by segmental ureteral excision with primary end-to-end anastomosis; postoperative recovery was uneventful and follow-up intravenous pyelography showed normal renal drainage. This case highlights the diagnostic challenge posed by ureteral fibroepithelial polyps and reinforces the role of ureteroscopic assessment with targeted biopsy to enable kidney-sparing treatment and prevent unnecessary radical surgery.

Keywords: fibroepithelial polyp, ureter, hydronephrosis, hematuria, ureteroscopy, ureteral obstruction

Introduction

Fibroepithelial polyps (FEPs) are uncommon, benign, non-epithelial tumors of mesodermal origin that arise from the stromal tissue of the urinary tract and are lined by normal transitional epithelium.[1] They are most frequently identified in the upper urinary tract, particularly in adolescent patients, and typically present as smooth, mobile, pedunculated masses with a mean diameter of less than 5 cm.[1] Within the upper urinary tract, fibroepithelial polyps are rare and account for approximately 0.5% of reported causes of ureteropelvic junction obstruction in the pediatric population.[2] These lesions are usually unilateral and demonstrate a marked left-sided predominance, with the left ureter affected nearly twice as often as the right.[1,3] Clinically, fibroepithelial polyps may remain asymptomatic or present with painless hematuria; however, progressive obstruction can result in flank pain and recurrent hematuria.[4] Initial diagnostic evaluation typically includes contrast-enhanced imaging of the urinary tract, such as intravenous urography (IVU), contrast-enhanced computed tomography (CT), or magnetic resonance imaging (MRI), with antegrade or retrograde pyelography aiding in the identification of filling defects.[5] Nevertheless, clinical presentation and imaging findings alone are often insufficient for a definitive diagnosis, which ultimately requires histopathological confirmation obtained through biopsy or surgical excision using endoscopic, laparoscopic, or open approaches.[5] Complete surgical excision remains the treatment of choice for fibroepithelial polyps.[6]

Here we present a case of a left ureteral fibroepithelial polyp causing obstructive uropathy in an adolescent male, emphasizing the challenges in diagnosis and management.

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Case Presentation

A 17-year-old Arab male presented to our Urology Department with a long-standing history of left-sided flank pain and recurrent episodes of gross hematuria that began at the age of 7 years. Throughout this period, these symptoms were repeatedly attributed to and treated as urinary tract infections, with only temporary symptom relief. The patient's condition remained relatively stable for years but progressed in severity over the preceding three months. He is a light smoker (approximately 5 pack-years). He denied any previously diagnosed chronic medical conditions and reported no prior surgeries, regular medications, or known drug allergies.

On physical examination, the patient was alert and hemodynamically stable Abdominal examination revealed a soft, non-distended abdomen, with mild left costovertebral angle tenderness as the only positive finding. No guarding, rebound tenderness, palpable masses, or suprapubic tenderness were noted. Examination of the remaining systems was unremarkable.

In the context of these findings, initial laboratory evaluation was performed, revealing gross hematuria on urinalysis. Microscopic examination of the urine sediment demonstrated numerous red blood cells (>50 RBCs/high-power field), predominantly isomorphic, without red blood cell casts, while leukocytes were scarce (≤5 WBCs/high-power field). Urine culture showed no bacterial growth.

Given the presence of macroscopic hematuria and flank pain in the absence of active infection, renal ultrasonography was subsequently obtained as the first-line imaging modality. This demonstrated a normal right kidney, grade-3 hydronephrosis of the left kidney, and a normal urinary bladder; the remaining abdominal organs were reported as normal. Following ultrasound confirmation of grade-3 hydronephrosis, a non-contrast computed tomography (CT) was performed to further characterise the level and cause of obstruction and to rapidly exclude radiopaque urolithiasis. Contrast-enhanced CT urography or intravenous pyelography, while superior for lesion characterisation, were deferred at initial presentation due to both the clinical prioritisation of stone exclusion and local resource considerations. Importantly, the non-contrast CT of the abdomen and pelvis revealed a normal right kidney. The left kidney demonstrated grade-3 hydronephrosis with dilatation of the renal pelvis and proximal ureter. No radiopaque calculi were identified. A focal soft-tissue density was noted at the transition zone, raising suspicion for an intrinsic ureteral lesion. No lymphadenopathy or other intra-abdominal abnormalities were detected (Figures 1 and 2).

Given the CT findings suggestive of an intrinsic ureteral lesion, diagnostic ureteroscopy was subsequently undertaken for further evaluation and tissue diagnosis. Endoscopic inspection revealed a fungating polypoid intraluminal mass in the upper

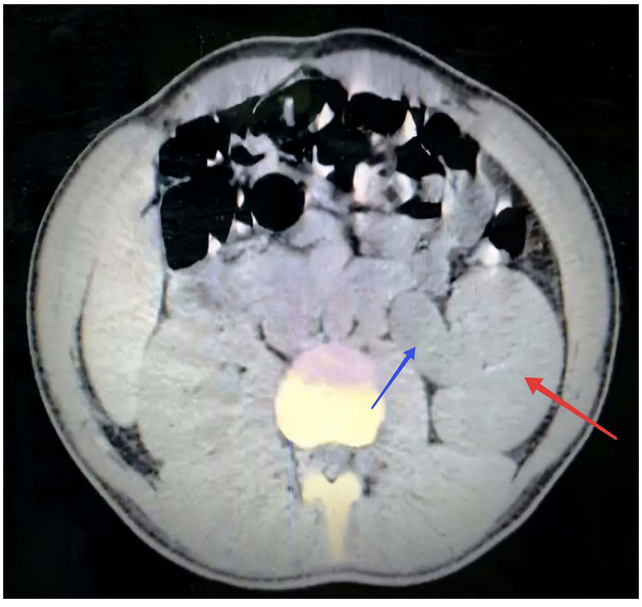

Figure 1 Non-contrast axial CT at the level of the renal pelvis demonstrating marked left hydronephrosis with dilation of the proximal ureter. No radiopaque calculi are identified. The red arrow highlights the dilated left renal collecting system. The blue arrow indicates the transition zone at the proximal ureter corresponding to the level of obstruction.

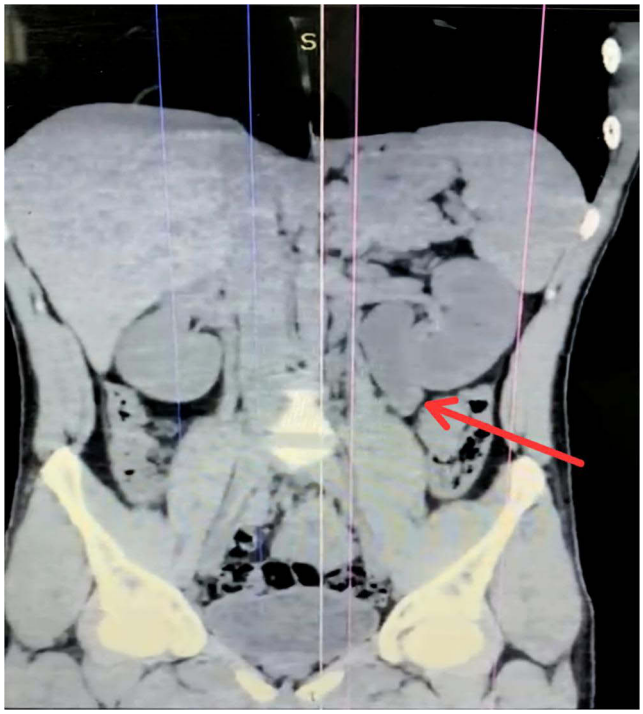

Figure 2 Non-contrast coronal CT reformats showing pronounced left hydronephrosis with proximal ureteral dilatation. The arrow indicates a focal intraluminal soft-tissue density within the upper ureter associated with proximal ureteral dilatation.

third of the left ureter causing significant luminal narrowing; the adjacent ureteral mucosa was intact, and no ureteral calculi were identified. Targeted biopsies of the lesion were obtained and submitted for histopathological examination. Histopathological examination of the endoscopic biopsy revealed a polypoid lesion lined by intact, unremarkable urothelium without dysplasia or malignancy. The underlying stroma consisted of loose fibrovascular connective tissue with scattered inflammatory cells, findings consistent with a fibroepithelial ureteral polyp (Figure 3A and B).

In light of the imaging, endoscopic and biopsy findings indicating a benign but obstructing ureteral polyp, definitive surgical management was undertaken. Intraoperatively, following exposure of the proximal ureter, a well-circumscribed mass corresponding to the previously identified lesion was found in the upper third of the left ureter. The affected ureteral segment containing the polyp was resected with macroscopically clear margins (Figures 4 and 5); a primary end-to-end ureteral anastomosis was performed and a double-J (DJ) ureteral stent was placed for internal drainage. The excised specimen was submitted entirely for histopathological evaluation. Gross examination revealed a ureteral segment measuring 4.5 cm in length and weighing 6 g, containing a tan-white polypoid lesion measuring 1.5 cm in greatest dimension. Microscopic examination of the excised ureteral segment confirmed the prior endoscopic biopsy findings, consistent with a benign fibroepithelial ureteral polyp.

The postoperative course was uneventful. The surgical drain was removed and the patient was discharged on postoperative day 3. The double-J stent was removed 6 weeks postoperatively. Follow-up intravenous pyelography (IVP), performed 4 weeks after stent removal, demonstrated normal renal drainage with no radiological evidence of ureteral obstruction (Figure 6).

Discussion

Fibroepithelial polyps are uncommon benign mesodermal tumors of the urinary tract.[5] They typically consist of a fibrovascular core covered by normal urothelium,[7] and their etiology remains uncertain; proposed contributors include chronic irritation/inflammation, infection, congenital/developmental factors, trauma, and allergic mechanisms.[8] Symptoms are driven by intermittent obstruction and mucosal irritation, so patients commonly present with flank pain or colic, hematuria,

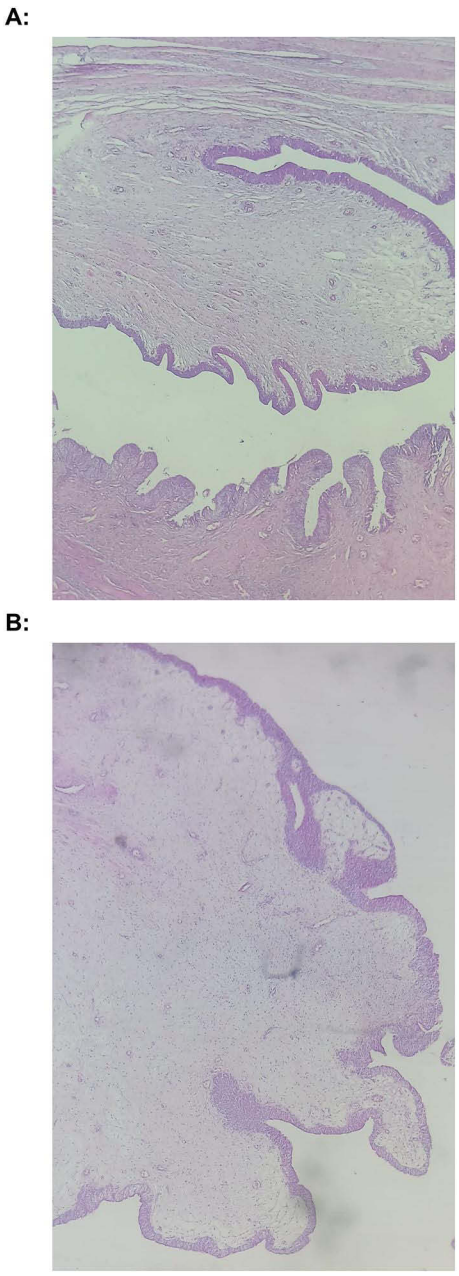

Figure 3 (**A** and **B**). Hematoxylin & eosin–stained sections of the lesion. (**A**) Polypoid architecture projecting into the ureteral lumen. (**B**) A polypoid ureteral lesion lined by intact, non-dysplastic urothelium, with an underlying loose fibrovascular stroma containing scattered blood vessels and mild inflammatory infiltrates.

recurrent urinary tract symptoms, and/or hydronephrosis.[9] Consistent with this pattern, our patient had long-standing episodic left flank pain and gross hematuria with progressive worsening and ultrasound-confirmed hydronephrosis.

Preoperative diagnosis can be tricky because imaging findings are often nonspecific and may resemble upper-tract urothelial carcinoma. Classically, excretory urography or retrograde pyelography demonstrate a smooth, mobile filling defect; CT urography, including multiphase CT intravenous urography or multidetector computed tomography, is frequently used to further characterize the lesion and evaluate the upper urinary tract.[7,10,11] However, imaging may underestimate polyp length, miss small or multiple lesions, or yield equivocal results, particularly when symptoms mimic stones or UPJ obstruction.[2] Accordingly, ureteroscopy is central: it allows direct visualization, assessment of morphology and mobility, targeted biopsy, and often definitive endoscopic treatment. Benign fibroepithelial polyps are typically smooth, pedunculated mobile lesions, in contrast to the papillary irregular appearance often described with upper-tract

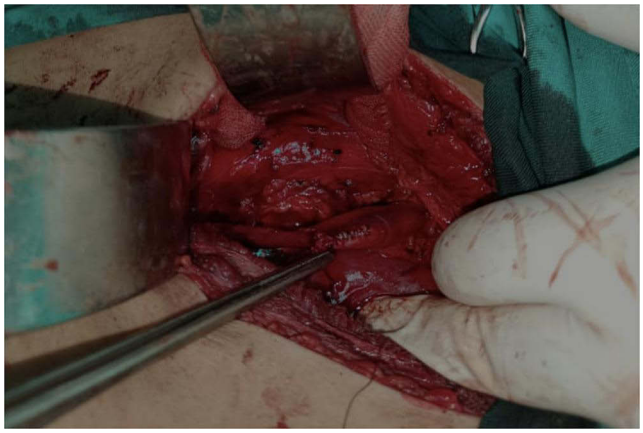

Figure 4 Intraoperative retroperitoneal exposure demonstrating isolation of the diseased ureteral segment prior to resection; the instrument tip indicates the diseased segment/level of obstruction.

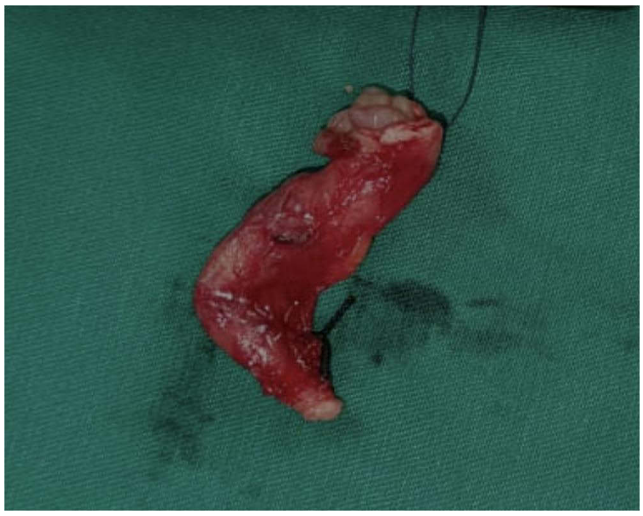

Figure 5 Gross specimen photograph of the excised ureteral segment with attached polypoid intraluminal lesion. A stay suture is present for orientation.

urothelial carcinoma; this distinction, combined with biopsy, supports kidney-sparing management and helps avoid unnecessary radical extirpative surgery (eg, nephroureterectomy).[5,12,13] In our case, computed tomography excluded radiopaque stones but identified a focal soft-tissue intraluminal density at the ureteral transition zone, prompting diagnostic ureteroscopy. Endoscopy demonstrated a polypoid mass in the upper third of the left ureter causing significant narrowing, and histopathology confirmed a benign fibroepithelial polyp.

When a ureteral filling defect or obstructing lesion is identified, the differential diagnosis remains broad and includes malignant causes such as upper tract urothelial carcinoma and, less commonly, ureteral metastases, which can mimic benign obstruction (eg, presumed calculi); thus, persistent hydronephrosis despite suspected stone disease should prompt endoscopic evaluation with biopsy in appropriate clinical contexts.[14,15] Benign mimics include blood clots, radiolucent stones, inflammatory/polypoid ureteritis, sloughed papillae, fungal balls, and other intraluminal debris, which may resemble fibroepithelial polyps on imaging and are often distinguished only by ureteroscopy and histopathology.[7,12] Long pedunculated polyps may also prolapse distally and mimic bladder pathology, further complicating diagnosis.[16]

Current management favors minimally invasive, organ-sparing approaches whenever feasible. Endoscopic polypectomy often using laser energy such as Holmium:yttrium-aluminum-garnet (Ho:YAG) is widely reported and is typically followed by temporary ureteral stenting to prevent ureteral stricture, which remains a recognized complication after laser excision, particularly when extensive coagulation or deeper wall injury is required. Nevertheless, surgical excision (open,

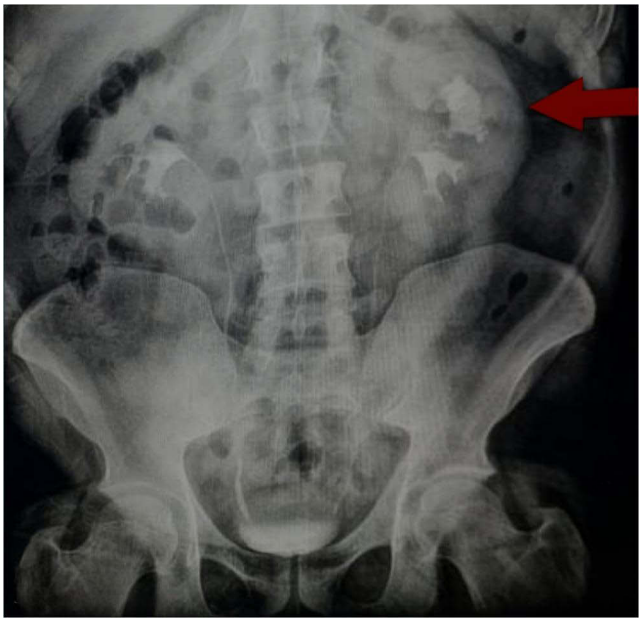

Figure 6 Follow-up intravenous pyelography performed four weeks after double-J stent removal. The red arrow indicates prompt opacification of the left collecting system, with contrast passing freely into the bladder, consistent with restored unobstructed drainage. No radiologic evidence of residual ureteral obstruction is seen.

laparoscopic, or robotic) remains appropriate in selected situations, including large or elongated lesions, proximal ureter or ureteropelvic junction involvement with significant obstruction, uncertainty regarding complete endoscopic removal, or when concomitant reconstruction (such as pyeloplasty or segmental ureterectomy with re-anastomosis) is required.[8,17]

Although an open approach provides direct access for definitive excision and reconstruction, it is associated with greater postoperative morbidity than minimally invasive techniques.[18] In a comparative series of open versus laparoscopic pyeloplasty, open surgery was linked to higher postoperative pain scores, greater analgesic requirements, a substantially larger incision, longer hospitalization, and a higher overall complication rate, including wound-related morbidity such as abdominal wall herniation.[18] Accordingly, minimally invasive ureteral reconstruction (laparoscopic/robotic) represents an important alternative—particularly when segmental excision must be combined with precise reconstruction.[19] In a 2025 systematic review/meta-analysis of adult ureteral reimplantation, robotic-assisted surgery was associated with fewer postoperative complications, shorter length of stay, and lower transfusion requirements than open surgery, with no significant difference in reintervention rates; however, key challenges include platform availability, cost, and the learning curve, and the comparative evidence base remains largely retrospective with limited long-term follow-up.[19] Consistent with these broader reconstructive data, several published reports specifically support the feasibility of minimally invasive excision and reconstruction for ureteral/UPJ fibroepithelial polyps: Arda et al described successful laparoscopic excision of a ureteral polyp presenting as UPJ obstruction in a child combined with dismembered pyeloplasty, with an uncomplicated postoperative course and sustained functional improvement on follow-up imaging,[20] while Cattaneo et al reported robot-assisted laparoscopic management of a "giant" UPJ fibroepithelial polyp following endourologic diagnosis, performing excision with Anderson–Hynes pyeloplasty and documenting favorable perioperative and follow-up outcomes.[8] However, a laparoscopic or robotic-assisted approach was not pursued in our case because the required equipment and infrastructure were not available at the treating hospital at the time of management.

Because FEPs can masquerade as malignancy, radical surgery is a real risk when diagnosis is uncertain; reports emphasize that better endoscopic access and diagnostic ureteroscopy can reduce unnecessary nephroureterectomy performed for presumed Upper Tract Urothelial Carcinoma.[10,11] Our operative approach—segmental excision with macroscopically clear margins followed by primary end-to-end ureteral anastomosis—aligns with the paradigm of definitive reconstruction for an obstructing proximal ureteral lesion. This strategy was particularly appropriate given the well-localized nature of the mass and the objective of achieving durable ureteral patency.

There is no universally standardized follow-up schedule, but many case reports/series use post-treatment imaging and/or endoscopic reassessment to confirm ureteral patency. Recurrence appears uncommon, yet surveillance is generally advised—particularly when lesions are large, multiple, or treated endoscopically.[9] In our case, postoperative surveillance was conducted using intravenous pyelography, which demonstrated unobstructed ureteral passage and normal renal drainage, in keeping with the follow-up strategies reported in the literature.

Conclusion

Fibroepithelial ureteral polyps are rare benign lesions that can cause long-standing hematuria and obstructive symptoms, often leading to misdiagnosis. This case highlights the importance of considering intrinsic ureteral pathology in young patients with persistent hematuria and unexplained hydronephrosis. When feasible, minimally invasive approaches (laparoscopic or robot-assisted) provide effective kidney-sparing management with reduced perioperative morbidity and faster recovery. However, open surgical excision with primary ureteral reconstruction remains a definitive and durable option for proximal lesions or when minimally invasive techniques are not available.

Ethical Approval

Institutional Review Board (IRB) approval is not required for de-identified single case reports or case histories, in accordance with institutional policies.

Patient Consent

Written informed consent for publication of this case and any accompanying images was obtained from the patient's parent/legal guardian. The patient provided assent.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

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