# Fibroepithelial Polyp of the Bladder

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## Abstract

Fibroepithelial polyp of the bladder is a rare benign tumor affecting the urinary tract. While they most commonly occur in the upper ureter, polyps have been identified throughout the urinary tract from the renal pelvis through the bladder. Patients typically present with hematuria. Radiological diagnosis is difficult due to the rarity of the lesion and the similarity with other types of lesions. Thus, the diagnosis is ultimately made via made by histopathology.[2] Minimally invasive surgical techniques can be curative in children.

**Keywords:** benign neoplasm, bladder

## Case Summary

A teenage male presented for ultrasound imaging after two episodes of painless, gross hematuria.

## Imaging Findings

Ultrasound of the bladder (Figure 1) showed a lobular mass arising from the wall near the left ureterovesicular junction. The mass was isoechoic to the bladder wall and had only minimal internal color Doppler flow.

## Diagnosis

Fibroepithelial Polyp (FEP) of the bladder.

The differential diagnosis includes rhabdomyosarcoma, which is the most common bladder neoplasm in children.[1,2] Benign lesions such as blood clots, stones, infection, and foreign bodies can cause focal bladder wall thickening that can mimic a neoplasm.

## Discussion

FEPs are benign tumors originating from the mesoderm.[1] They are composed of mesodermal tissue with a superficial layer of normal transitional epithelium.[3,4] FEPs usually present in the upper urinary tract of children.[5] In more than 80% of cases, FEPs are in the renal pelvis and distal ureter but are occasionally found in the bladder and proximal ureter.[4]

In the pediatric population, bladder FEPs are rare.[1] The mean age of FEP onset is 9 years, with males affected disproportionately.[1] In one 21-year study, bladder FEP was identified as the second most common pediatric bladder lesion after rhabdomyosarcoma.[6] During this timeframe, only seven urothelial tumors were identified.[6]

The pathogenesis of FEPs has not been determined.[1] Possible etiologies include trauma, obstruction, infection, and urinary stone disease.[4] In a recent study, Eckstein et al proposed that DICER1 mutations may be an important precedent of urinary FEPs.[5]

Patients with FEPs may present with painless gross hematuria although microscopic hematuria may occur as well as abdominal or flank pain.[2,4] Patients may also complain of frequent urination and dysuria.[4] Bladder FEPs can be located at the bladder neck or the prostatic urethra.[7] They tend to produce worsening symptoms including hematuria, dysuria, acute urinary retention, and urinary tract infections as they enlarge.[7]

Ultrasonography (US) imaging is the initial modality of choice for diagnosis[4] since it can demonstrate the pathologic findings, while avoiding radiation exposure. US, magnetic resonance urography, and computed tomography urography can all contribute to the identification of FEP.[1] Furthermore, ureteral FEPs can be identified by smooth filling defects on an intravenous urogram.[2] There are no radiologic features specific to FEP.[1] Thus, radiologic imaging is often insufficient for a histologic diagnosis and should be followed by endoscopic techniques, treatment, and tissue diagnosis.[1]

On cystourethroscopy, the characteristic smooth-surface finger-like projections

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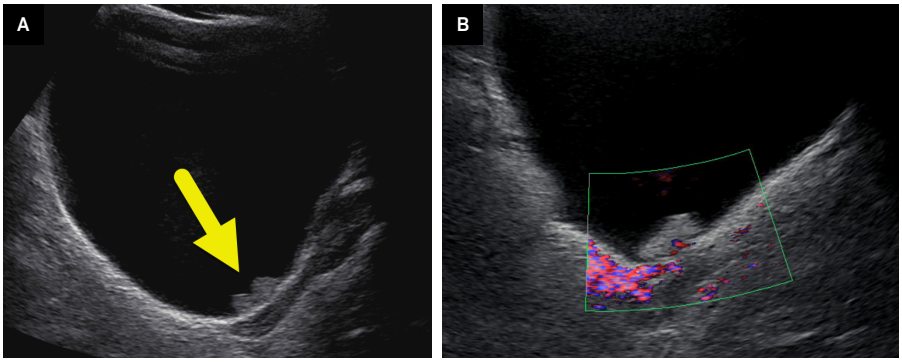
**Figure 1.** (A) Longitudinal ultrasound of the bladder shows a lobulated mass (arrow) arising near the left ureterovesicular junction. (B) When color Doppler was applied, the mass had minimal internal blood flow near its base.




of mobile FEPs can be noted, and a tissue can be obtained for diagnosis at the same time.[1-4] The final diagnosis is confirmed at histopathology where FEP is distinguished from rhabdomyosarcoma.[3] On histopathology examination, an FEP is organized in relatively hypocellular fibrovascular bundles.[7] Rhabdomyosarcomas appear differently with a cellular subepithelial cambium layer consisting of small round blue cells.[4] Furthermore, areas of mucous and edema can be seen among large, atypical cells.[4]

FEPs are resected via electrocautery or laser ablation.[1,2] Transurethral operations are preferred as they induce less trauma, and patients recover faster than traditional surgery methods.[2] FEPs are benign and do not progress to urothelial cancers. They are typically considered to be treated once resected. In a 13-year retrospective study consisting of 2653 children with hydronephrosis, 48 children had FEP. Of these, no cases of recurrent polyps were seen following surgical resection.[8] Although the recurrence rate of FEP is low, follow-up until adolescence is recommended.

## Conclusion

FEP is a rare benign tumor affecting the urinary tract. While they most commonly occur in the upper ureter, polyps have been identified throughout the urinary tract from the renal pelvis through the bladder. Patients typically present with hematuria. Radiological diagnosis is difficult due to the rarity of the lesion and the similarity with other types of lesions. Thus, the diagnosis is ultimately made via made by histopathology.[2] Minimally invasive surgical techniques can be curative in children.

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