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Fibroepithelial ureteral polyps as a cause of ureteropelvic junction obstruction in children: A case report

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Abstract

We present a ten-year-old boy with episodic left flank pain, vomiting and microscopic hematuria. Imaging showed hydronephrosis characteristic for ureteropelvic junction (UPJ) obstruction. Pyeloplasty revealed a ureteral polyp, histopathologic examination confirmed the diagnosis of a fibroepithelial polyp. Fibroepithelial polyps of the ureter are a rare cause of UPJ obstruction in children. The most common presentation is episodic flank pain and/or hematuria. Imaging can be guiding, but pre-operative diagnosis is difficult. After surgical resection recurrence is rare.

Keywords

Ureteropelvic junction obstruction; fibroepithelial polyp; children.

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Introduction

Ureteropelvic junction (UPJ) obstruction is a common cause of hydronephrosis in children, occurring in 1/1000 to 1/2000 newborns [1]. In most cases this obstruction is due to UPJ stenosis, sometimes there is compression from crossing vessels [2]. Fibroepithelial polyps are benign tumors from mesodermal origin and can be a rare, but important cause of obstruction

of the UPJ [3]. Clinically, this pathology mimics the symptoms of UPJ obstruction; they are often undiagnosed until described intraoperatively [4].

Here we describe the case of a 10-year-old male with a history of recurrent left flank pain and vomiting found to have a fibroepithelial polyp intra-operatively.

Case Reports

A ten-year-old boy presented at the consultation with sudden onset severe pain in the left flank and vomiting. There was no fever or dysuria. Three similar episodes occurred in the past two years. There was no other relevant medical history.

Physical examination revealed tenderness in the left flank; no other abnormalities were observed. His blood pressure was within the normal range. Microscopic urine examination showed hematuria (68.7/µl) without pyuria; urine culture was sterile. Serum creatinine level was normal.

Ultrasound showed moderate hydronephrosis of the left kidney with dilatation of the left pyelon and abrupt normalization of the size of the proximal ureter, a picture characteristic for UPJ obstruction [Fig. 1].

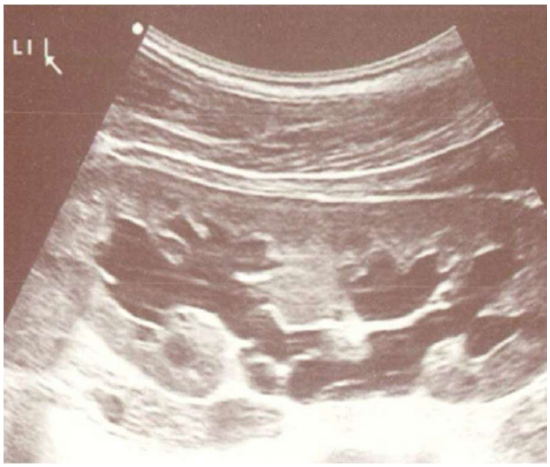

Fig. 1. Ultrasound image showing renal dilatation.

In the lumen of the proximal ureter a hypoechogenic mass without retroacoustical shadow was seen. A thrombus was suspected, but could not be confirmed. Retrograde pyelography showed mild UPJ obstruction, but no filling defect [Fig 2].

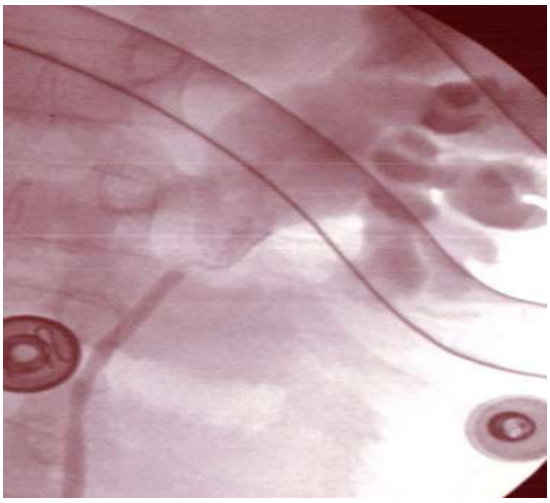

Fig. 2. Retrograde pyelography showing narrowing at the UPJ.

Magnetic resonance image (MRI) only showed hydronephrosis; there were no arguments for crossing vessels. Mercaptoacetyltriglycine (MAG3) renogram revealed an obstructive outflow of the left kidney with intact relative kidney function.

Intravenous saline and analgesia led to quick resolution of the pain.

Congenital UPJ stenosis was suspected and laparoscopic pyeloplasty was performed. This procedure revealed a polyp in the UPJ [Fig. 3].

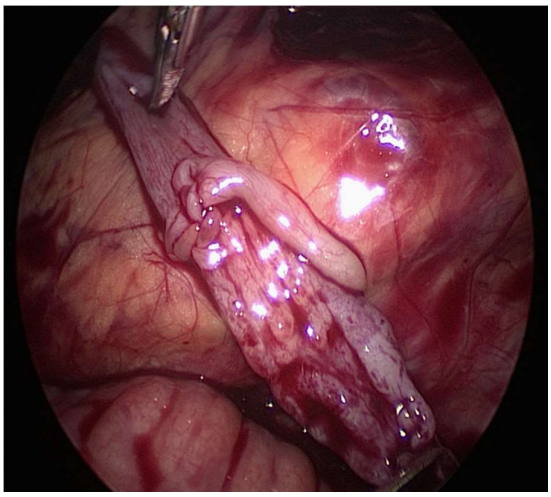

Fig. 3. Intraoperative image showing a polyp in the UPJ.

Histopathological examination after resection confirmed a fibroepithelial polyp. Post-operatively there were no complications and after 31 months of follow-up there has been no recurrence of the episodic left flank pain.

Discussion

Ureteral fibroepithelial polyps are a rare cause of UPJ obstruction in children. Initially they were considered to cause only 0.5% of UPJ obstructions [5], but recent publications report a higher incidence of around 5% [6-8]. Fibroepithelial polyps are benign tumors of mesodermal origin and consist of a fibrous core covered by normal urothelium [5,6,8,9]. Pathogenesis is not completely understood; both congenital factors and local inflammation are assumed to play a role [6,8,10,11].

The typical clinical presentation of a ureteral fiborepithelial polyp is flank pain and/or hematuria caused by obstructive hydronephrosis; this is similar to other causes of UPJ obstruction. In three recent studies, all children with fibroepithelial polyps presented with one or both of these symptoms [7-9]. There seems to be predominance for males, for the left side and for the upper ureter and UPJ without clear assertion [8,11]. A recent review of literature confirmed this and revealed that 92% of children with ureteral fibroepithelial polyps were male and 67% of polyps were found in the left ureter [6]. Mean age at diagnosis is between eight and eleven years [6-9]. Although rare, fibroepithelial polyps are the most common benign tumors of the ureter. In adults they are a little more common, with

a peak incidence in the third and fourth decades [4,10,11].

In children renal colic pain and urinary obstruction are most often caused by kidney stones. In case of obstruction of the UPJ, congenital stenosis is the most frequent cause. In some cases a crossing vessel can cause obstruction of the ureter. Malignant ureteral tumors are extremely rare in children [7].

In case of flank pain and hematuria with ureteral obstruction but without visualization of kidney stones or crossing vessels, a ureteral polyp should always be considered. Imaging can be guiding, although preoperative diagnosis is challenging. In the study by Adey et al. only 22% of cases were diagnosed preoperatively [5].

Ultrasound can show (mostly mild) hydronephrosis with abrupt normalization of the caliber of the ureter. Sometimes an intraluminal mildly echogenic focus without acoustic shadowing can be seen [7]. On ultrasound with Doppler, an area of hypervascularization can be suggestive of a tumor [12]. Retrograde pyelography can show a filling defect, but often resembles the image of other causes of UPJ obstruction [6,10,12]. Computed tomography can show soft tissue filling the UPJ and proximal ureter without periureteral invasion [8]. MRI may be able to visualize intraluminal lesions without radiation and can differentiate from aberrant vessels as the cause of UPJ obstruction [12].

Li et al. propose to perform retrograde pyelogram at ultrasound confirmed UPJ obstruction and to continue with ureteroscopy in case of a filling defect or with pyeloplasty in the absence of a filling defect [6]. Retrospectively, this algorithm was followed in our case.

Standard treatment for ureteral polyps is resection and dismembered pyeloplasty. Historically, this was done by Anderson-Hynes open pyeloplasty [12]. Recent reports describe successful laparoscopic resection and pyeloplasty [9,13]. For single, pedunculated ureteral polyps endoscopic laser treatment is an option as well [6,14]. Early treatment can avoid loss of kidney function and subsequent need for ureteronephrectomy. After resection recurrence is rare [9,14,15].

Conclusion

Ureteral polyps are a rare cause of UPJ obstruction in children. Since they are difficult to diagnose pre-operatively suspicion should always be high in children with (episodic) flank pain and/or hematuria. Imaging can be suggestive, but can rarely confirm the diagnosis, which is eventually made by histopathological examination after surgical resection. Recurrence is rare.

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References

1. Wang Y, Puri P, Hassan J, Miyakita H, Reen DJ. Abnormal innervation and altered nerve growth factor messenger ribonucleic acid expression in ureteropelvic junction obstruction. J Urol. 1995;154(2Pt2):679–83.
2. Kaya C, Bogaert G, de Ridder D, et al. Extracellular matrix degradation and reduced neural density in children with intrinsic ureteropelvic junction obstruction. Urology. 2010;76(1):185–9.
3. Ezekiel A, Agrawal V, Romero E, Smith-Harrison LI. Benign Fibroepithelial Polyps: A Rare Cause of Ureteropelvic Junction Obstruction in Children. Urol Case Rep. 2015;3(4):111-3.
4. Cassar Delia E, Joseph VT, Sherwood W. Fibroepithelial polyps causing ureteropelvic junction obstruction in children--a case report and review article. Eur J Pediatr Surg. 2007;17(2):142-6.
5. Adey GS, Vargas SO, Retik AB, Borer JG, Mandell J, Hendren WH et al. Fibroepithelial polyps causing ureteropelvic junction obstruction in children. J Urol. 2003;169(5):1834-6.
6. Li R, Lightfoot M, Alsyouf M, Nicolay L, Baldwin DD, Chamberlin DA. Diagnosis and management of ureteral fibroepithelial polyps in children: a new treatment algorithm. J Pediatr Urol. 2015;11(1):22.e1-6.
7. Wang XM, Jia LQ, Wang Y, Wang N. Utilizing ultrasonography in the diagnosis of pediatric fibroepithelial polyps causing ureteropelvic junction obstruction. Pediatr Radiol. 2012;42(9):1107-11.
8. Niu ZB, Yang Y, Hou Y, Chen H, Wang CL. Ureteral polyps: an etiological factor of hydronephrosis in children that should not be ignored. Pediatr Surg Int. 2007;23(4):323-6.
9. Dai LN, Chen CD, Lin XK, Wang YB, Xia LG, Liu P et al. Retroperitoneal laparoscopy management for ureteral fibroepithelial polyps causing hydronephrosis in children: A report of five cases. J Pediatr Urol. 20151(5):257.e1-5.

10. Childs MA, Umbreit EC, Krambeck AE, Sebo TJ, Patterson DE, Gettman MT. Fibroepithelial polyps of the ureter: a single-institutional experience. J Endourol. 2009;23(9):1415-9.
11. Romesburg JW, Stein RJ, Desai MM, Lagwinski N, Ross JH. Treatment of child with bilateral ureteropelvic junction obstruction due to fibroepithelial polyps and review of the literature. Urology. 2009;73(4):929.e9-11.
12. Shive ML, Baskin LS, Harris CR, Bonham M, MacKenzie JD. Ureteral fibroepithelial polyp causing urinary obstruction. J Radiol Case Rep. 2012;6(7):23-8.
13. Iwatsuki S, Kojima Y, Mizuno K, Tozawa K, Kohri K, Hayashi Y. Laparoscopic management for fibroepithelial polyp causing ureteropelvic junction obstruction in a child. Urology. 2010;76(1):146-8.
14. Kojima Y, Lambert SM, Steixner BL, Laryngakis N, Casale P. Multiple metachronous fibroepithelial polyps in children. J Urol. 2011 Mar;185(3):1053-7.
15. Ruíz-López MJ, Ramírez-Garrido F, Nogueras-Ocaña M, Muñoz-Hoyos A, Martín A. Recurrent ureteric fibroepithelial polyp in a child. Eur J Pediatr. 2004;163(2):124-5.

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