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Inflammation and infection

Ureteric pyogenic granuloma: A peculiar case of ureteric obstruction

S.K. Tolofari*, K. Agarwal, M. Mikhail, R. Calvert

Royal Liverpool & Broadgreen NHS Trust, Prescot Road, Liverpool, United Kingdom

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Introduction

Pyogenic granulomas, also known as lobular capillary haemangiomas, are benign vascular lesions that most commonly occur in oral mucosal membranes and skin surfaces.[1] These lesions often develop secondary to recent local irritation or trauma and may develop rapidly over a course of days to weeks, typically presenting as a solitary vascular neoplasm. These lesions are more common in children, particularly toddlers and most often will be found on the gingival membranes, neck, arms and hands.[1,2]

Macroscopically, a pyogenic granuloma is a small polypoid lesion which may be friable and ulcerated.[1] They appear pedunculated and can often bleed easily. The primary aetiology of these lesions is largely unknown.[1,2] Microscopically the lesion may show well circumscribed and distinctly lobulated central vessels with peripheral capillary aggregates. There is often a mixture of acute and chronic inflammatory cell infiltrate that mimics granulation tissue.[1]

Regarding treatment of these lesions, the options include curettage, cauterisation, cryotherapy, laser ablation and full thickness excision with a linear closure. Recurrence rates can be high in the absence of complete excision or ablation with up to 45% of patients representing with new lesions.[1] In the case of full thickness excision, recurrence rates have been shown to be much lower at 15%.[1–3]

Case presentation

Here we present the case of a 68-year old retired healthcare support worker, presenting to the Urology department with microscopic haematuria and loin pain. This lady's medical background included the following co-morbidities; previous right -sided ductal carcinoma in situ of the breast, treated with wide local excision in 2013 followed by adjuvant radiotherapy, hypertension, gout and a history of recurrent urinary tract infections on a background of previous urolithiasis. Otherwise the patient was well, independent and mobile with an American Society of Anaesthesiologists (ASA) score of II. Her regular medications included Esomeprazole and Diclofenac. She was known to have a penicillin allergy.

Initially this lady presented to the Urology department with loin pain and microscopic haematuria. Computed Tomography of kidneys, ureter and bladder (CT-KUB) revealed small volume bilateral urolithiasis, with several non-obstructing renal calculi. After careful clinic discussion, this lady elected for extracorporeal shockwave lithotripsy (ESWL) to the stones in her symptomatic left kidney. Several months later, following her ESWL treatment, this lady re-presented with right sided loin pain, sepsis and acute kidney injury. Subsequent CTKUB revealed an obstructing 6 mm mid-ureteric stone (Fig. 1). Nephrostomy and right sided antegrade stenting was performed. Right sided ureteroscopy (URS) +/- laser lithotripsy was scheduled for several weeks later.

At cystoscopy, there were normal appearances of a healthy bladder. However, upon ureteroscopy a pedunculated vascular lesion was found to be extending from the distal, ventral ureteric wall. This lesion was causing an intermittent obstruction of the ureter and impeding further passage of the overlying ureteric stone. Using a combination of laser fulguration and zero-tip basket the lesion was excised and the stone subsequently fragmented. Of note, the remaining urothelium including the renal pelvis and calycesc were free of any other abnormalities.

Subsequent histological analysis of the specimen revealed an exophytic polypoid lesion of well circumscribed capillary aggregates with evidence of granulation (Fig. 2). These features were highly suggestive of pyogenic granuloma with no evidence of malignancy. The histopathogical analysis was confirmed by a second histopathologist who was in agreement with the initial findings.

* Corresponding author.
E-mail address: stolofari@doctors.org.uk (S.K. Tolofari).

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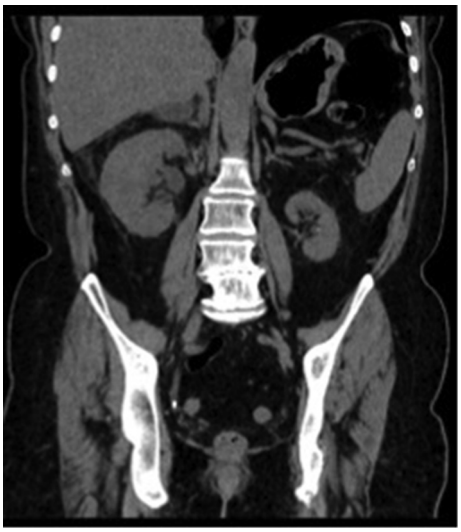

Fig. 1. CTKUB revealing some right sided perinephric standing and mild hydronephrosis with obstructing stone seen in distal ureter.

Discussion

Upon reviewing the current literature, there is a lack of evidence reporting cases of pyogenic granuloma in the urinary tract. It would appear that there are currently no reported cases of pyogenic granuloma in the ureter with only a small number of case reports documenting pyogenic granuloma within the bladder. The evidence in the literature suggests that haemangiomas within the urinary bladder are rare, accounting for 0.6% of all bladder tumours.[3–5] Of these, the cavernous subtype of haemangioma is most common, with the capillary subtype being far much rarer.[4,5] Many reported cases of urothelial haemangiomas may coexist with cutaneous haemangiomas or be associated with Klippel-Trenaunay-Weber syndrome, a rare congenital condition characterised by malformation of blood and lymph vessels.[5] Specifically looking at our case, systemic examination was unremarkable, and there was no known history of any congenital disease.

As ureteric pyogenic granuloma has so far not been reported within the literature, we can only draw evidence from those similar presentations of haemangiomas within the bladder. Evidence would suggest that patients most typically present with haematuria and as part of the diagnostic evaluation for haematuria, a polypoid or sessile lesion is found incidentally extending from the urothelium, either on contrast-CT scanning as a filling defect or endoscopically.[2–5]

Pyogenic granulomas are often related to local trauma. In our case the patient had recently had a ureteroscopy and recent ureteric stenting. She also had a stone, which may have acted as a nidus for urothelial injury, and as such may have led to proliferation of the granuloma.

There is no reliable follow up data for haemangiomas within the urinary tract. Evidence suggests that excisional biopsy is essential for diagnosis. Once diagnosis is confirmed, follow up would presumably be cystoscopic or ureteroscopic on a case by case basis. There would also be a role for follow up CT urography in our case, however the interval remains unclear. These lesions are benign, however atypical. The literature has not shown any recurrence at one year follow up for the few cases documented.[2–5] In our case, follow up 12 months is still awaited.

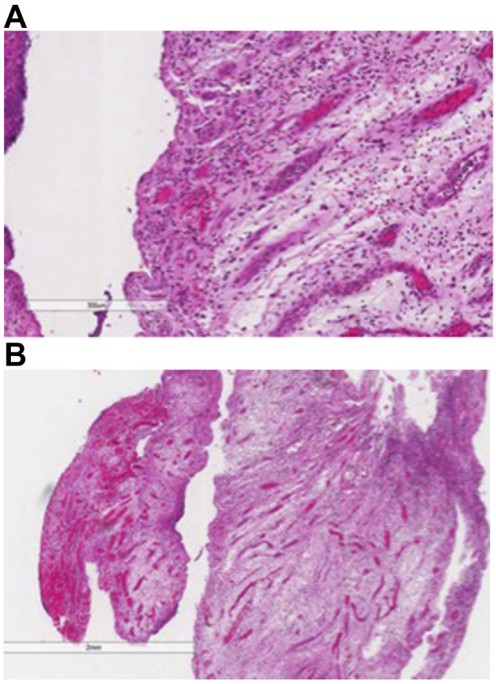

Fig. 2. Ureteric biopsy section. Haematoxyline & Eosin section illustrating features of capillary haemangioma and granulation tissue, highly suggestive of pyogenic granuloma. (Acknowledgement; Dr M Mikhail, consultant Uro-histopathologist, Royal Liverpool & Broadgreen NHS Trust).

Conclusion

In summary, pyogenic granuloma is a rare benign capillary haemeangiomatous condition often presenting in the skin and oral mucous membranes. There is a paucity of evidence reporting pyogenic granuloma anywhere along the urinary tract, we believe that this is the first confirmed case of pyogenic granuloma in the ureter, which has been managed successfully thus far with local excision, however follow is best managed in a case by case basis.

Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.eucr.2018.02.009.

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