



## Anterior Urethral Cavertous Hemangioma: A Rare Cause of Painless Urethral Bleeding Following Minor Trauma

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### Abstract

Urethral cavertous hemangioma is an unusual cause of hematuria and often remains undiagnosed due to the paucity of clinical manifestations. Symptoms become apparent when the lesion breaks through the urethral mucosa due to local trauma, urinary tract infection, or after erection. Depending on whether it is located in the anterior or posterior urethra, the symptomatology varies. Cystoscopy is able to identify the vascular lesion. However, ultrasonography and MRI of the penis provide a more accurate diagnosis and better delineate the number of lesions as well as the extent of involvement. Treatment and management depend on the nature of the lesion. Asymptomatic lesions do not require treatment. Conservative management with drugs and physical therapy provides good results in symptomatic patients, but extensive lesions may require surgical treatment. We describe the case of an 18-year-old male who presented with intermittent episodes of painless bleeding per urethra after minor trauma to the penis and was detected to have an anterior urethral cavertous hemangioma.

**Keywords:** Urethral cavertous hemangioma, penile hemangioma, urethral hemangioma

### Introduction

Hemangiomas are benign vascular tumours consisting of endothelial-lined, thin-walled vascular spaces. They occur due to the failure of unipotent angioblastic cells to develop into normal blood vessels. The most common histopathological type is cavertous hemangioma. Hemangioma of the urethra is an unusual cause of hematuria and often remains undiagnosed due to the paucity of conspicuous clinical manifestations. Only about 100 cases of urethral cavertous hemangioma have been reported in the literature to date. [1] Among the documented cases, there is a notable prevalence of cavertous hemangiomas in the posterior urethra. Nonetheless, we present a unique instance of cavertous hemangioma in the anterior urethra.

### Case Report

An 18-year-old male presented to the emergency room with recurrent episodes of bleeding per urethra after minor trauma to the penis a few days ago. He did not give any history of pain at the site of trauma, fever, dysuria, or urinary retention. He does not have any similar past or family history. On physical examination, his vitals were stable; bleeding was noted from the urethral meatus, which ceased on active compression. The rest of the external genitalia appeared normal. The patient was referred to Urology for further evaluation. Routine blood investigations were normal. Flexible cystoscopy was done, which showed a vascular lesion in the submucosal plane of the penile urethra. The possibility of a vascular

malformation or an arteriovenous (AV) fistula was considered.

A doppler ultrasound of the penis was performed afterwards, which showed a longitudinally oriented cystic-appearing fusiform lesion with multiple internal septations in the region of the corpus spongiosum of the penile urethra, projecting into the urethral lumen (Figure 1). Minimal flow was noted on colour and power doppler evaluations. Hence, magnetic resonance imaging (MRI) of the penis was planned as further evaluation. MRI was performed using a 3.0 Tesla Scanner, which showed a well-defined lobulated lesion showing intermediate signal intensity on T1-weighted imaging (T1WI) and hyperintense signal on T2-weighted imaging (T2WI) with thin internal septations, involving the submucosal region of the posterior aspect of the penile urethra, reaching up to the urethral meatus (Figure 2). No evident high-velocity flow voids were noted within or adjacent to the lesion. No evident areas of restricted diffusion were noted within the lesion on diffusion weighted imaging (DWI). On the dynamic post-contrast scan, the lesion showed heterogeneous, nodular enhancement, with mild persistent enhancement on delayed images (Figure 3). No evident draining vein or feeding artery was noted. MRI features suggested the possibility of venous malformation.

An indwelling catheter was inserted, and intermittent penile compression was applied over the penile shaft. The patient was started on antibiotics and other supportive medications. He improved symptomatically, and the catheter was removed on the third day. He was discharged with oral antibiotics and was advised to review in urology outpatient departments. On follow-up he was symptomatically better and did not have any further episodes.

## Discussion

Urethral hemangiomas are usually asymptomatic. These can be identified in any age group but are mostly found in young adults, predominantly males, with a male:female ratio of 9:1. [1] These are usually isolated lesions but may also be associated with other congenital disorders like Klippel-Trenaunay syndrome, Sturge-Weber syndrome, or systemic angiomas. [2,3] However, symptoms become apparent when they breach the urethral mucosa due to local trauma, urinary tract infection, or after

erection. The clinical symptoms are nonspecific, and the condition is often misdiagnosed as seminal vesiculitis, urethritis, or prostatitis. [4] Posterior urethral hemangiomas are more common than anterior urethral hemangiomas. Depending on the location of the hemangioma, the presenting symptoms can vary. Hemangiomas of the anterior urethra may present with urethral bleeding, and those located in the posterior urethra usually present with painless hematuria, urinary retention, and blood clots. [5] It can also present as bleeding from the urethra after erection, hematospermia, or hematuria after ejaculation. [1,5]

Cystoscopy may reveal a vascular lesion in the urethra or leakage of blood. When cystoscopy is performed, examination of the urinary bladder and the ureteral orifices is necessary to exclude other causes of hematuria. Radiological investigations like doppler ultrasonography and MRI have the added advantage of detecting the presence of multiple lesions, delineating the size and extent of involvement, and also ruling out other causes of hematuria. In this particular case, MRI effectively eliminated the possibility of an AV fistula and directed towards the diagnosis of a venous malformation.

There are no specific treatment guidelines for the management of urethral hemangiomas. Conservative management would suffice in most cases. The common treatments include drugs, endoscopic electrocautery, laser ablation, cryotherapy, or open surgery. [6] Intralesional injections of triamcinolone and pingyangmycin have been found to be effective in some cases. [4,7] Intermittent penile ligation increases the pressure at the bleeding site and might prevent further bleeding through the urethra. [8] Transurethral Holmium laser therapy is also suitable for the treatment, with few complications and a reduced likelihood of recurrence. However, excision and urethral reconstruction may be required for extensive lesions. [9]

## Conclusion

Hemangiomas are an infrequent aetiology of painless urethral bleeding, especially in patients with a history of trauma. Cystoscopy plays an essential role in diagnosis and at times management. Radiological assessment aids in ascertaining the underlying cause and aids in the formulation of an appropriate

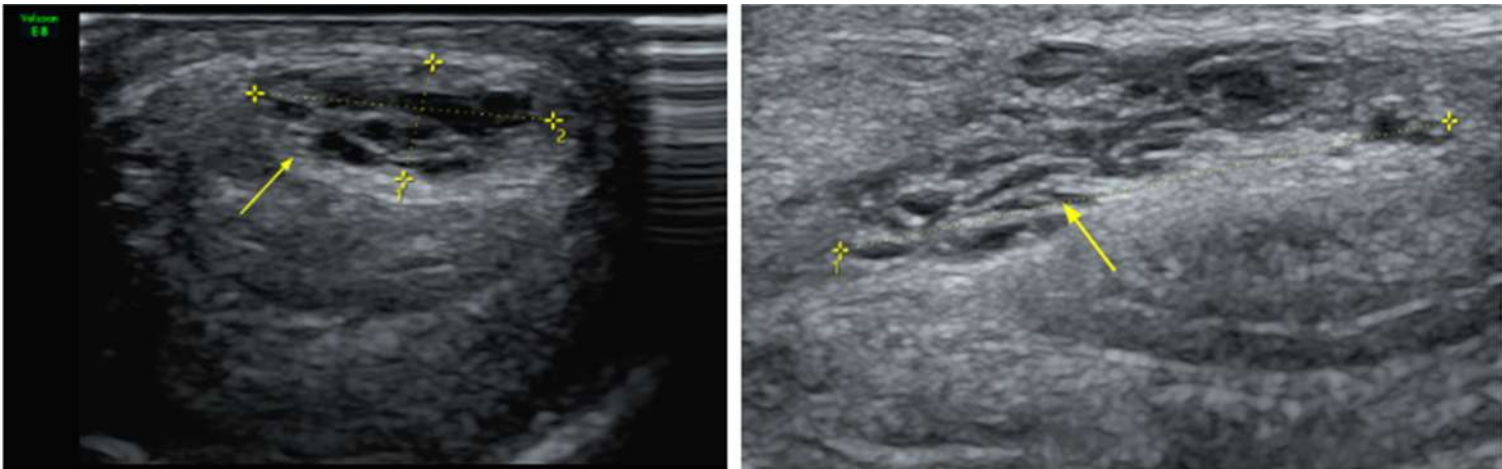
treatment plan. Conservative management is often adequate for most cases, reserving surgical intervention for extensive lesions.

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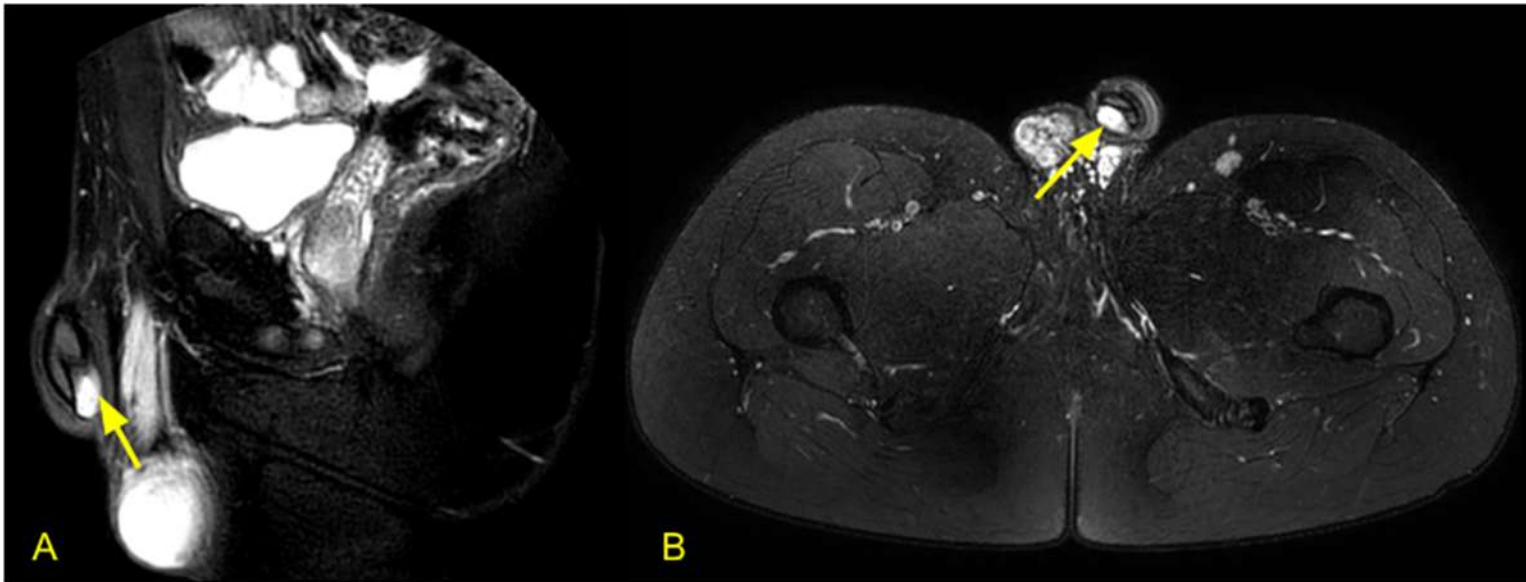
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### Figures

**Figure 1: High resolution ultrasound of the penis shows a cystic-appearing lesion with multiple internal septations in the region of the corpus spongiosum of the penile urethra, as shown by the yellow arrows.**



**Figure 2: T2FS sagittal (A) and axial (B) images show a well-defined hyperintense lobulated lesion involving the submucosal region of the posterior aspect of the penile urethra, reaching up to the urethral meatus as shown by the yellow arrows.**



**Figure 3: Delayed post contrast T1FS sagittal image shows persistent enhancement of the lesion, as shown by the yellow arrow.**

