



Rapid growth of a large penile median raphe cyst

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ABSTRACT

A 57-year-old male presented to the emergency department due to sudden growth of a penile mass. On physical exam, the mass was located on the ventral surface of the penis at the level of the corona and measured 7cm × 4cm x 3.5cm. Ultrasound suggested that it was cystic in nature. The mass was surgically removed, and final pathology revealed a median raphe cyst.

1. Introduction

Median raphe cysts (MRCs) are rare midline cysts that can occur anywhere from the urethral meatus to the anus. They are likely due to a defect in embryological development or closure of the median raphe; however, other theories of origin have been proposed. Often these cysts go unnoticed, since they typically enlarge slowly, and the average size is less than 1 cm.¹ When patients are symptomatic, they usually present with pain, difficulties with urination or intercourse, or an increase in size.

2. Case presentation

A 57-year-old male presented to our emergency department after significant enlargement of a growth on the ventral surface of his penis at the level of the corona (Fig. 1). The patient noticed a several millimeter growth for many years; however, over the prior two weeks it increased in size substantially. The patient denied urinary difficulties and was afebrile. He reported mild pain in the area of the growth. On physical exam a mass was visualized at the corona of the penis on the ventral surface, measuring 7cm × 4cm x 3.5cm. It was completely covered by skin, there was no erythema, and no evidence of drainage. On palpation the mass was tense and felt fluid filled. Ultrasound suggested that it was a unilocular cyst.

The patient was brought to the operating room for excision of the

cyst. A ventral incision was made along the foreskin and the mass was dissected from the skin and the corpus spongiosum. Prior to removal, a urethroscopy was performed and did not identify any obvious connection between the cyst and the urethra. Following removal of the cyst, we distended the distal urethra with saline and saw no extravasation further suggesting that there was no fistula present. Due to the proximity of the surgical site to the urethra a Foley was left in place post-operatively.

After removal of the intact cyst (Fig. 2), it was opened which revealed a slightly thick, light opaque fluid that did not appear to be grossly infected or inflammatory. The fluid was sent for gram stain, culture, and AFB smear, all of which were negative. The tissue from the cyst was sent to pathology. Final pathology revealed a benign cystic structure lined by both pseudostratified columnar epithelium and squamous epithelium consistent with MRC (Fig. 3).

The patient was seen in the office on post-operative day 3. At the time, all of his suture lines were intact and there was no evidence of infection. The patient had edema on the ventral surface of his penis surrounding the skin flap that had been covering the cyst consistent with normal post-operative edema. His foley catheter was removed and patient was able to void without difficulty.

3. Discussion

MRCs are rare lesions that develop in males on the median line anywhere from the anus to the urethral meatus. They usually are seen in

Abbreviations: MRC, Median Raphe Cyst.

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Fig. 1. Cyst prior to excision.



Fig. 2. Intact cyst post-excision from skin and corpus spongiosum.

a bimodal age distribution during childhood when discovered by parents or in adult males aged 20–30 years due to infection or trauma causing the cysts to become symptomatic, or for cosmetic purposes. A majority of these cysts are less than 1 cm in size.¹ There are under 200 cases reported to date.²

To our knowledge, this case is one of the largest reported MRCs. A review by Shao et al., in 2012 reported 55 cases ranging from 0.2 cm to 2.1 cm with a mean size of 0.88 cm. This is similar to prior reports stating that MRCs on average remain below 1cm.^{1,3} This case is an example of both, how large and how quickly these cysts can grow even after a long period with no noticeable growth. Additionally, this patient is older than the typical age at presentation.

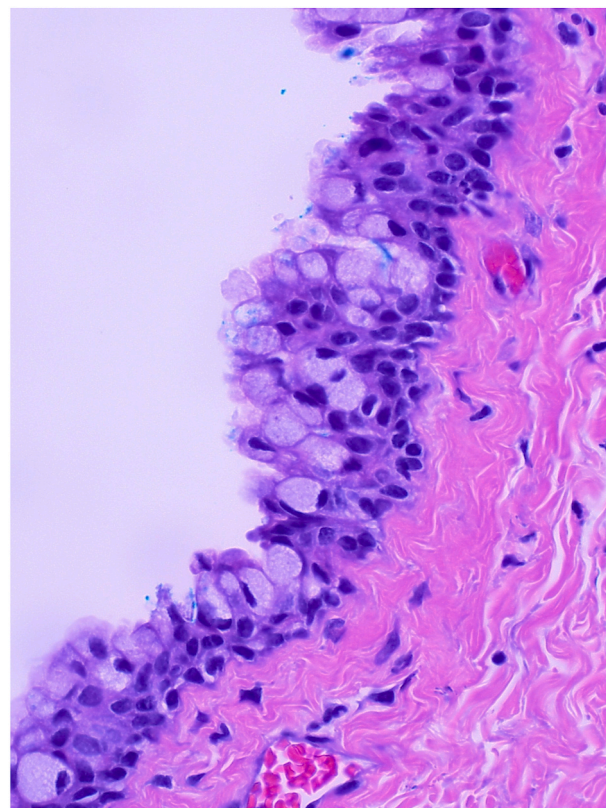


Fig. 3. H&E (20× magnification) demonstrating pseudostratified columnar epithelium and squamous epithelium consistent with median raphe cyst.

There are several theories surrounding the pathogenesis of MRCs. The theory with the most support is incomplete closure of the genital or urethral fold which gives rise to an epithelial rest that then can form a cyst or canal. Embryologically, a cyst could also form after primary closure from outgrowths of embryonic epithelium. The “tissue trapping” theory of pathogenesis has also gained some support. It suggests that during fusion of the median raphe, epithelial cells can get buried and further evolve into a cyst or canal.¹ Additional theories have been proposed, but none have strong supporting evidence.

Treatment options for MRCs are variable and primarily depend on the size and whether or not the cyst is symptomatic. In small, asymptomatic cysts, observation is a reasonable option for management. Larger cysts are more likely to rupture, become infected, or cause other symptoms such as those that impact urinary or sexual function. Excision of the cyst, such as what was performed in this case, has the best results. Studies have shown no evidence of recurrence following excision of MRCs in patients with up to 4 years of follow-up.¹ There are rare reports of malignant transformation in MRCs, but none reported thus far in penile MRCs.⁴

4. Conclusion

In summary, we present a case of a rapidly growing penile MRC, a rare, benign cyst likely due to a defect during embryological development. To our knowledge, this is one of the largest penile MRCs reported and it occurred in a patient that does not fall in the age groups that most commonly present with these cysts. Here we describe excision of a large penile MRC, which appears to be the best treatment modality. Additionally, we demonstrate the importance of maintaining MRC in the differential diagnoses when working up a cystic mass present anywhere from the anus to the urethral meatus in male patients.

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Declaration of competing interest

The authors declare no conflict of interest.

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