

Median Raphe Cyst – Clinical Report and Immunohistochemical Analysis

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Abstract

Cysts of the median raphe are very rare. We describe a 20-year-old man with an asymptomatic nodule on the ventral surface of the penis. The nodule was surgically removed under local anaesthesia, and send to histological and immunohistochemical analysis. Immunohistologically epithelial cells appeared Cytokeratin-7 (CK7), Epithelial membrane antigen (EMA) positive and anti-S100 protein (S100), Cytokeratin-20 (CK20), smooth muscle actin (SMA) and carcinoembryonic antigen (CEA) negative. Histological and immunohistochemical findings indicate median raphe cyst.

Keywords: Median raphe cyst; Immunohistochemical analysis; Surgical treatment

Summary

Cysts of the median raphe are very rare. We describe a 20-year-old man with an asymptomatic nodule on the ventral surface of the penis. The nodule was surgically removed under local anesthesia, and send to histological and immunohistochemical analysis. Immunohistologically epithelial cells appeared Cytokeratin-7 (CK7), epithelial membrane antigen (EMA) positive and anti-S100 protein (S100), Cytokeratin-20 (CK20), smooth muscle actin (SMA) and carcinoembryonic antigen (CEA) negative. Histological and immunohistochemical findings indicate median raphe cyst.

Introduction

Median raphe cysts of the penis are benign lesions in young men [1,2]. Median raphe cyst was first described in detail by Mermet in 1895 [1,2]. These cysts are midline-developmental and can occur anywhere from the anus to the urinary meatus [1,2]. When located on the border of the meatus they are also termed as paramental cysts [3]. Lesion is usually asymptomatic, but can be complicated by infection or trauma [2,4]. It is thought that cysts of the median raphe to arise from embryologic developmental defects of the male urethra [1-3]. Histologically the cyst does not communicate with the urethra and is lined by a pseudostratified, columnar or stratified squamous cell epithelium, similar to urethral transitional epithelium [2,5]. The luminal cells may present with minimal secretion [6,7]. Therefore the lesion can be misinterpreted as an apocrine hydrocystoma or cystadenoma [6,7].

Case Report

We present a 20-year old man with an asymptomatic nodule on the ventral surface of the penis. Physical examination revealed round, painless, soft nodule, 0.9 cm in diameter on the ventral surface of the penis, just proximal to the glans (Figure 1). There was no history of trauma or infection. In this case, because of problems during sexual intercourse was treated surgically this change on the penis.

Histopathological examination showed unilocular cystic cavity within the corium, lined by columnar, partially pseudostratified epithelium with occasional mucinous cells (Figure 2). The lumen was empty. There was no epithelial atypia or inflammatory infiltrate.

Immunohistologically epithelial cells appeared EMA (Figure 3a) and CK7 (Figure 3b) positive and S100, CK20, SMA i CEA negative. Histological and immunohistochemical findings indicate median raphe cyst.

Discussion

Median raphe cysts of the penis are benign and very rare lesion [1,2]. Only a few cases have been published, mostly in dermatology journals rather than urology publications. The cysts are usually asymptomatic; hence, many cases are probably not reported. Numerous terms including mucus cyst of the penis, genitoperineal cyst of the medium raphe, paramental cyst, hydrocystoma, and apocrine cystadenoma of the penile shaft have been proposed to describe the lesion and should be regarded as synonymous [3].

Median raphe cyst is considered an embryologic developmental

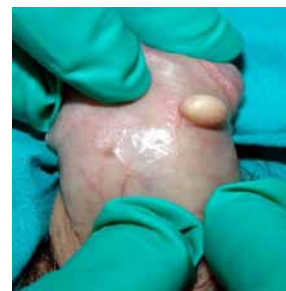


Figure 1: Ventral surface of the penis, just proximal to the glans.

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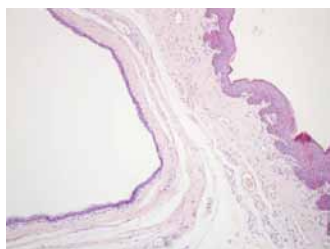


Figure 2: Histopathological examination showed unilocular cystic cavity within the corium, lined by columnar, partially pseudostratified epithelium with occasional mucinous cells.

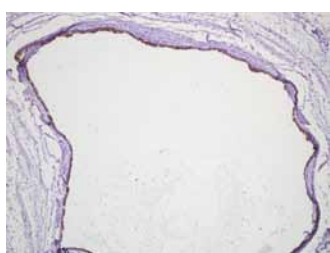


Figure 3a: Immunohistologically epithelial cells appeared EMA.

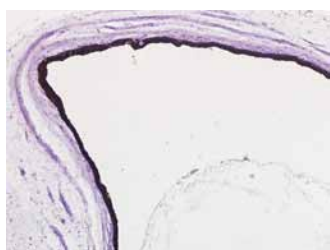


Figure 3b: Immunohistologically epithelial cells appeared CK7.

abnormality of the male genitalia [1,2,8,9]. Several histogenetic explanations have been suggested; abnormal formation of epithelial buds from the urethral epithelium that became sequestered and independent after closure of the median raphe, incomplete fusion of the urethral folds and cystic dilatations of ectopic Littre's periurethral glands [2,3].

The cysts develop mainly on the ventral surface of the penis [1,2,5], mostly near the glans, but can occur anywhere from the urinary meatus to the anus. They are seldom pigmented [8] or present as a perianal polyp [9]. Usually they are asymptomatic and complications are possible only in case of. In that case it should be (surgically treated) [2].

Differential diagnosis includes dermoid cyst or epidermal cyst, glomus tumor, pilonidal cyst, urethral diverticulum, and

steatocystoma [2]. Differentiation is possible on the base of histological findings typical for median raphe cyst, a single cystic cavity with no urethral communication and lined by a columnar pseudo-stratified epithelium [1]. However, differentiating median raphe cyst from apocrine hidrocystoma could be difficult. Several reports of apocrine cystadenoma of the penis could, in fact, represent cysts of the median raphe [6,7]. The absence of a basal layer of cuboidal, myoepithelial cells, and the absence of true decapitation secretion are very important in differentiating those two entities [10]. Apocrine cystadenomas have the presence of smooth muscle actin (SMA) positive cells, and an apical border of luminal cells and are regularly stained by anti-human milk fat globule (anti-HMFG), a peripheral layer of S100 protein [7].

The lining epithelium varies according to the segment origin of the urethra of the lesion, i.e., stratified in the distal part (ectodermal origin) and columnar pseudostratified in the remainder of the urethra (endodermal origin) [2]. In conclusion, we have presented a median raphe cyst case whose study supports its histogenetic relationship with the urothelium.

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