Dermatology Practical & Conceptual

Diagnosis and Management of Penile Median Raphe Cysts: A Comprehensive Review

Julia Nowowiejska[1], Vincenzo Piccolo[2], Dirk Van Gysel[3,4], Ramon Grimalt[5], Mario Cutrone[6]

1 Department of Dermatology and Venereology, Medical University of Bialystok, Poland
2 Dermatology Unit, University of Campania, Naples, Italy
3 Interdisciplinary Unit of Pediatric Dermatology, Vrije Universiteit Brussel (VUB), Universitair Ziekenhuis Brussel (UZ Brussel), Brussels, Belgium
4 Department of Pediatrics, O.L. Vrouw Hospital Aalst, Aalst, Belgium
5 Universitat Internacional de Catalunya, Barcelona, Spain
6 Ambulatorio di Dermatologia Pediatrica, Centro di Medicina Mestre Venezia, Italy

Key words: Penile Median Raphe Cyst, Pediatric Dermatology, Penile Lesion, Differential Diagnosis Penile Cysts, Penile Pathology

Citation: Nowowiejska J, Piccolo V, Van Gysel D, Grimalt R, Cutrone M. Diagnosis and Management of Penile Median Raphe Cysts: A Comprehensive Review. *Dermatol Pract Concept*. 2025;15(3):5288. DOI: https://doi.org/10.5826/dpc.1503a5288

Accepted: January 22, 2025; **Published:** July 2025

Funding: None.

Competing Interests: None.

Authorship: All authors have contributed significantly to this publication.

Corresponding Author: Assist. Prof. Julia Nowowiejska, MD, PhD, Medical University of Bialystok, Poland, Zurawia 14 St, 15-540 Bialystok, Poland. E-mail: julia.nowowiejska@umb.edu.pl

Introduction

Penile median raphe cysts (PMRC) are a benign, rare condition characterized by the development of cystic structures along the midline of the penis, typically observed from birth or early childhood [1]. Although these cysts are usually asymptomatic and non-cancerous [1], they can sometimes cause concern due to their appearance or location.

Case Presentation

An otherwise healthy 3-year-old boy presented with a persistent painless cutaneous lesion on the penis, noted since birth. The mother reported an uncomplicated, full-term pregnancy. There were no other similar lesions visible along the scrotal or perineal raphe. The lesion appeared as a moderate-sized cyst located along the median raphe on the ventral surface of the penis. It showed no signs of redness, tenderness, or discharge. No other visible abnormality was noted (Figure 1A).

Conclusion

PMRC develops along the median raphe, a line that runs from the urethral opening along the underside of the penis to the scrotum. This line marks where the two sides of the embryonic genital tubercle fused during fetal development. If portions of this tissue fail to completely close or fuse, a small pocket, or cyst, may form, filling with fluid or epithelial cells [1]. The exact cause of PMRC is not fully understood, though they are generally considered congenital conditions resulting from incomplete closure of the median raphe

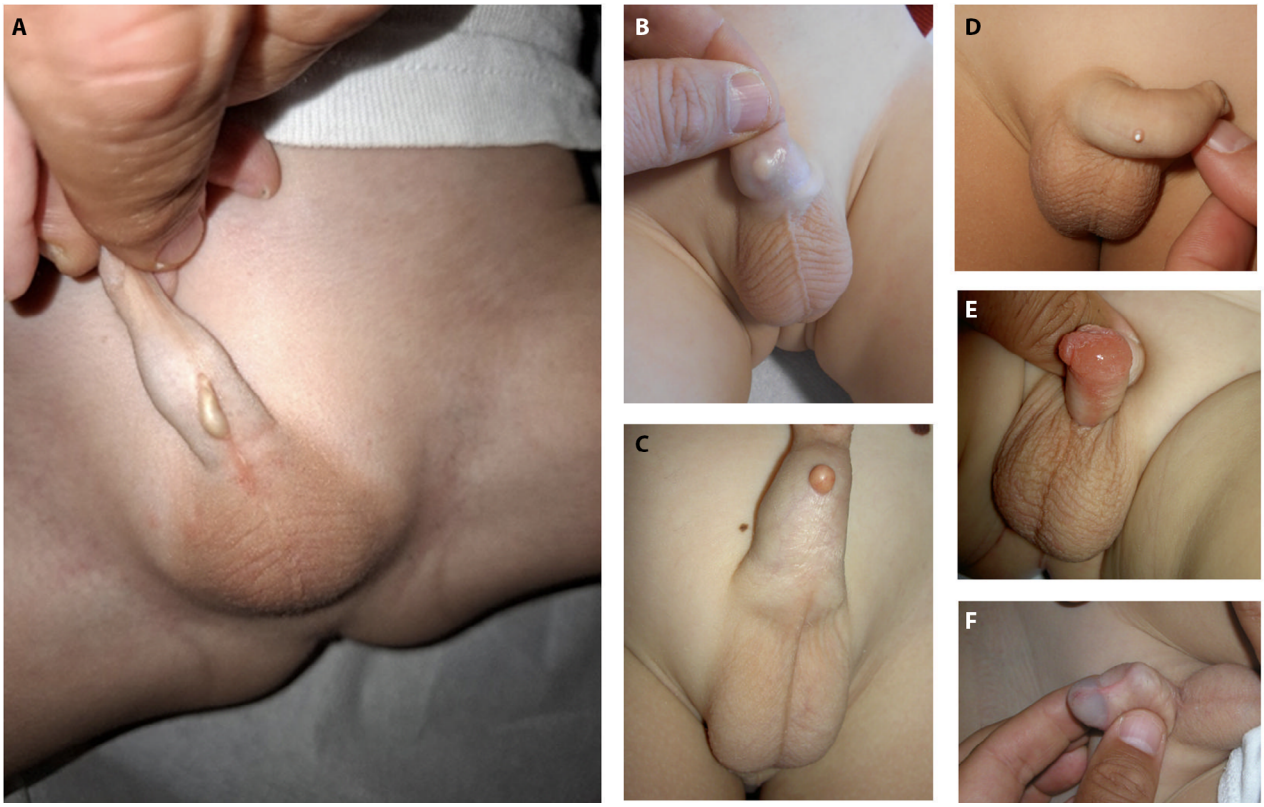

Figure 1. (A) The penile median raphe cyst in the described patient and other possible differential diagnoses for this condition: (B) smegma pocket, (C) juvenile xanthogranuloma, (D) molluscum contagiosum, (E) staphylococcal infection, and (F) dermoid cyst.

Table 1. Possible Differential Diagnoses for Penile Median Raphe Cyst.

Possible Differential Diagnosis	Differentiating Features
Smegma pocket (Figure 1B)	Whitish, transient
Juvenile xanthogranuloma (Figure 1C)	Yellow/orange nodule, self-resolving over years
Molluscum contagiosum (Figure 1D)	Papule, umbilicated, transient
Staphylococcal infection (Figure 1E)	Painful blister, fast healing after antibiotic therapy
Dermoid cyst (Figure 1F)	Subcutaneous nodule, solid, persistent

during development. Some research suggests these cysts may arise from ectopic urethral epithelial cells trapped in the raphe during development, creating a fluid-filled sac [1,2,3].

PMRC are typically small, painless, and generally unnoticed unless they increase in size or become infected [3]. They are usually located on the ventral surface of the penis, anywhere along the median line from the glans to the perineum, appearing as small, soft nodules or slightly raised areas [2]. While usually asymptomatic, such cysts can occasionally cause mild discomfort. In rare cases, infection or inflammation can result in redness, tenderness, swelling, or fluid drainage [1].

PMRC is typically diagnosed by clinical examination [1]. Imaging or laboratory tests are usually unnecessary unless the cyst shows unusual features, such as rapid growth, pain, or signs of infection. When warranted, an ultrasound can assess the cyst's size and structure, distinguishing it from other conditions [1]. Differential diagnoses are presented in Table 1 and Figure 1, B-F. In uncertain cases, biopsy may be performed [1,2].

Most PMRC require no treatment due to their benign nature and lack of symptoms. However, for patients experiencing discomfort or cosmetic concerns, several treatment options are available. In asymptomatic cases, observation is often the best approach, as such cysts usually remain stable or may regress over time. If the cyst causes discomfort, aesthetic concerns, or has become infected, surgical removal may be considered. When the cyst is inflamed or infected, drainage and aspiration may provide temporary relief, though this approach may not fully resolve the issue. For infected cysts, antibiotics may be prescribed [1,2].

PMRC typically do not lead to complications. There is no evidence to suggest that PMRC have a genetic component or predispose individuals to future urological or reproductive conditions [3].

References

1. Syed MMA, Amatya B, Sitaula S. Median raphe cyst of the penis: a case report and review of the literature. *J Med Case Rep*. 2019;13(1):214. DOI: 10.1186/s13256-019-2133-5.
2. Kumar P, Das A, Savant SS, Barkat R. Median raphe cyst: report of two cases. *Dermatol Online J*. 2017;23(2):13030/qt2fx2x9b0.
3. Navalón-Monllor V, Ordoño-Saiz MV, Ordoño-Domínguez F, Sabater-Marco V, Pallás-Costa Y, Navalón-Verdejo P. Median raphe cysts in men. Presentation of our experience and literature review. *Actas Urol Esp*. 2017;41(3):205-209. DOI: 10.1016/j.acuro.2016.06.008.