Sonographic features of penile-gland lithiasis

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KEYWORDS

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Abstract A 52-year-old man presented with a small, red, tender swelling near the penile frenulum at the lower edge of the base of the glans. Lower urinary tract symptoms were absent. Ultrasonography revealed a stone lodged in the distalmost portion of the glands of Littre. Combined with a good knowledge of penile anatomy, use of this simple imaging tool allows reliable diagnosis of even the rarest cases of penile pathology.

Sommario Un uomo di 52 anni presenta una piccola tumefazione dolente e rossastra, situata in prossimità del frenulo penieno, sul margine inferiore della base del glande, insorta da alcuni giorni, non rispondente a terapia antibiotica, in assenza di sintomatologia ostruttiva delle basse vie urinarie.

L'indagine ecografia rivela la presenza di un calcolo dell'estremo distale di una ghiandola del Littre. L'asportazione della formazione litiasica risolve immediatamente la sintomatologia dolorosa e il paziente viene dimesso dopo 72 ore di terapia antibiotica.

Il nostro è il primo e unico caso, descritto in letteratura, di litiasi della ghiandola del Littre. Una buona conoscenza anatomo-patologica e clinica unita alla corretta applicazione delle potenzialità delle apparecchiature ecografiche consente di giungere a diagnosi difficili e misconosciute.

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Introduction

Littre's glands (also known as Morgagni's glands) are described in the literature [1] as structures composed of

mucus-secreting cuboid epithelial cells that are organized into branching ducts and terminal alveoli. In human embryos, these glands are usually located in the anterior two-thirds of the pelvic wall. They originate from the genital bud, which also gives rise to the urethra through the formation of a ventral depression. In adult males, the glands of Littre are found in the penis, alongside the spongy urethra, from its base to the external orifice. They are particularly numerous around the urethral bulb. These intraepithelial glands can also arise from deeper glands situated in the lamina propria, where they are surrounded by a rich vascular network [1].

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Anatomically, the glands of Littre need to be distinguished from the Cowper's glands, the accessory Cowper's glands, and the lacunae of Morgagni. The Cowper glands are located below the prostate on either side of the membranous urethra. Their ducts extend alongside the urethra, giving off branches that open directly into the lumen of the urethra or drain into the main duct. The accessory Cowper glands were first described by Lichtenberg [2] in 1906 as glands situated in the bulbar portion of the urethra, just behind the orifices of the ducts of the true Cowper glands. They run parallel to the former ducts, terminating in several branches. The lacunae of Morgagni do not possess secretory cells. During sexual arousal, they excrete mucus that lubricates the glans and becomes part of the spermatic fluid.

The glands of Littre are not well known, and they are often ignored in daily clinical practice, although they may be affected by various pathological processes, including cyst formation, inflammation, lithiasis, and neoplasia.

Johnson [1] was the first to describe cases of ductal epithelial cysts located on the ventral surface of the penis. They can be distinguished from urethral diverticulosis by the fact that they do not originate from the urethral epithelium.

Paslin [3] reported a similar case involving cysts located on the ventral surface of the penis that were mainly composed of intraepithelial mucous cells.

Other authors [4] observed a case of chronic inflammation of the periurethral glands of Littre, which was found to be caused by a subfrenular nodule of the penis.

Two interesting and very rare cases of urethral adenocarcinoma were described by Sacks et al. [5] and Dobos et al. [6]: the malignant lesions included the distal portion of the spongy urethra.

Thus far there have been no reports of lithiasis of the glands of Littre or descriptions of the diagnosis of this condition by ultrasonography.

Case report

A 52-year-old Caucasian male presented with recent onset of a small, red, tender swelling near the penile frenulum at the inferior margin of the glans. The lesion had not shown any response to antibiotic therapy. The patient was afebrile and denied micturition difficulties. He reported that he had begun to experience pain at the base of the penis approximately 2 months prior to our observation. The pain was recurrent and was especially intense during sexual stimulation, making coitus impossible. He had previously undergone surgery for hemorrhoids. Laboratory testing revealed only moderate leukocytosis (9500 cells/ μ L).

An ultrasonographic scan of the penis was obtained with an Esaotebiomedica Eidos II scanner (Genoa, Italy) and a 13-MHz linear transducer. The scan showed a 2-mm stone characterized by mild posterior shadowing within a faded hypoechogenic area. Adjacent to the stone was a fluid-filled lingular extroflexion that extended proximally for approximately 7 mm (Figs. 1 and 2).

The sonographic diagnosis was probable lithiasis of the distal portion of the glands of Littre associated with

Fig. 1 An oblique sonographic scan of the distal portion of the glands of Littre, where inflammation was most intense, clearly reveals the stone, which is surrounded by fluid and purulent material.

ectasia of the glandular duct and inflammatory phenomena.

A meatal incision was made with a Martin scalpel (no. 21). The stone was easily removed, and a moderate amount of green, foul-smelling pus was expressed from the duct. After the procedure, the painful symptoms promptly disappeared, and after 72 h of a broad-spectrum antibiotic therapy, the patient was clinically cured.

Ethical approval for this study was granted by the Medical Research Ethics Committee of our Institute, and informed consent was obtained from the patient.

Conclusions

The nonspecific symptoms reported by this patient could have been ascribed to a generally normal inflammatory

Fig. 2 Transverse-oblique scan of the base of the glans shows a well-defined stone surrounded by a hypoechoic halo representing inflammation. Color Doppler studies revealed low-intensity peripheral vascular signals. Proximally, the lumen of the gland displays ectasia.

reaction. This fact, together with most practitioners' limited awareness of the Littre's glands and the absence of any literature of Littre-gland stones, could have made the differential diagnosis in this case very difficult. A good knowledge of pathology and clinical medicine played an important role in this case, but exploitation of the enormous diagnostic potential of ultrasonography played an essential role in the diagnosis of this patient's problem.

The advantages of the use of this simple, noninvasive, and relatively inexpensive tool are clear: within a few days, ultrasonography allowed us to define and diagnose a condition that has not been previously reported, i.e., lithiasis of the glands of Littre. The patient's satisfaction is a factor that should not be underestimated.

In conclusion, this report highlights the importance of ultrasonographic imaging in daily clinical practice and defines the ultrasound findings associated with a new disease affecting the glands of Littre.

Conflict of interest statement

None declared.

References

- [1] Johnson FP. The later development of urethra in the male. *J Urol* 1920;4:447–502.
- [2] Lichtenberg A. Abschnitten I und II. *Anat. Heft*. 1906;Xxi:65–196.
- [3] Paslin D. Urethroid cyst. *Arch Dermatol* 1983 Jan;119(1):89–90.
- [4] Krawitt LN, Schechterman L. Inflammation of the periurethral glands of Littre simulating tumor. *J Urol* 1977;118(4):685.
- [5] Sacks SA, Waisman J, Apfelbaum HB, Lake P, Goodwin WE. Urethral adenocarcinoma (possibly origin in the glands of Littre). *J Urol* 1975;113:50–5.
- [6] Dobos EL, Downing SW, Ashe SM. Primary carcinoma originating in the Littre glands. *Cancer* 1954 May;7(3):539–48.