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Case Report

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Male Congenital urethral diverticulum: case report and review of the literature

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Introduction

The male congenital urethral diverticulum is a rare clinical entity, sparsely referred in the literature. The pathology is more frequently described in women (Hey, 1805) (1); due to the worse anatomical support of women's urethra that causes a more common prevalence of the pathology.

Objectives

A clinical case report and literature review regarding the specific clinical entity.

Materials y methods

A review in Medline of the pertinent literature through the published articles about male urethral diverticulum, congenital urethral diverticulum and diagnosis of male urethral diverticulum.

Clinical case

The patient is a 41 years old male who refers hematospermia for the first time. His most relevant medical history facts are that he's an active smoker and he had a vasectomy 7 years prior to the consultation. Not previous end urologic manipulations. A full blood test, urine sediment, semen culture and urine culture was performed. The results of all the tests were within the normal values. We performed a transrectal ultrasonography and we observed a 17cc objective prostate and a heterogeneous cystic area in the left per prostatic region, producing an elevation of the left seminal vesicle. In spite of this finding we performed a magnetic resonance (MRI) in the pelvic area where a 9'5mm cystic lesion was observed in the base of the left seminal vesicle, and also a 15x9 mm left paraurethral cystic injury corresponding with a urethral diverculum (Figure 1). We proceeded to perform a cystoscopy to the patient with the objective of visualize the diverticular ostium where we didn't find trajectories that communicate the urethral light with the diverticulum light.

After reviewing the case and its literature, we considered some therapeutic options and, as there were no symptoms, we chose to continue with a medical follow-up without a previous surgical attitude. Nowadays the patient is still asymptomatic after 5 years of monitoring.

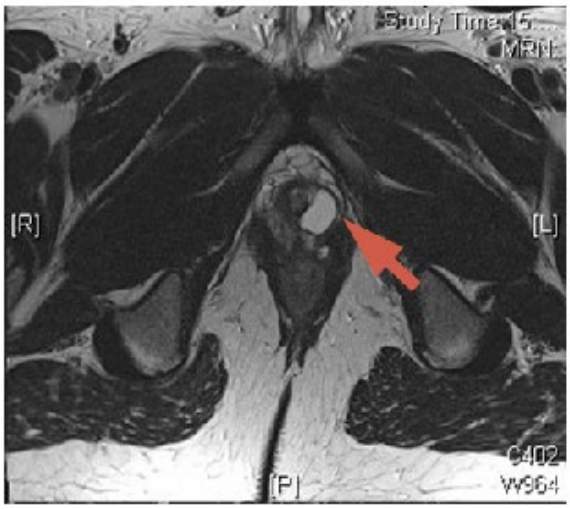

Figure 1. T2 sequence with hyperintense image of Urethral diverticulum

Discussion

The urethral diverticulum is a herniation of the mucosa through the muscular layers of the urethra that communicate with the urethral light. It's a rare clinical entity with an unknown prevalence but that some series situate around 1-6% in women, while in men this prevalence is lower. Most patients who present urethral diverticulum are between 30 and 70 years old.

Urethral diverticulum can be classified as congenital or acquired, being the later the most frequent (1). There are several theories about the development of the congenital urethral diverticulum. The most common within the scientific community are described below:

1. Defective closure of the bulbous section of the urethra due to the partial lack of the spongy tissue. It often occurs in the ventral aspect of the anterior urethra.
2. Distal obstruction of the urethral valve. (Sen et al., 1989)
3. The urethral diverticulum mainly occurs in the expansion of the cystic duct, the Cowper's gland or another cystic urethral gland (1) (2).

The congenital urethral diverticulum is defined by a real epithelial cover and a wall of muscular layers (3).

The acquired urethral diverticulum is produced in relation with stenosis, infections, traumas or after surgical procedures (hypospadias, artificial sphincter placement, prostate or bladder transurethral resection) It's characterized for being encased in granulation tissue and its wall is devoid of smooth muscular fibers. It can be often located in the posterior urethra level (4).

The signs and symptoms of the presence of the diverticulum are diverse: pelvic pain, urethral pain, dysuria, frequent urination, urgent urination, incontinence, feeling of incomplete urine emptying, urination difficulty, double urination, recurring urinary infections, hematuria, urinary retention, even though the classic presentation has been described as dysuria, dyspareunia and post micturition drip (5).

As many of these symptoms and signs aren't specific, many times patients can be treated for non-related pathologies for years before they are diagnosed of urethral diverticulum.
At the time of performing a diagnosis of male urethral diverticulum, the previous history of the patient can lead to the diagnosis.

The physical exam is going to provide information, to a lesser extent in the case of women. In the case of male urethral diverticulum, the radiology studies (intravenous urography (IVU), re-regraded urethrogram, ultrasound and MRI, as well as the urethral cystoscopy will help us to set a diagnosis. Also, they provide an accurate reflection of the anatomy of the urethral diverticulum and its relation with the urethra and the bladder neck (6).

The retrograde urethral cystoscopy was the optimal technique for the diagnosis, providing us with images of the urethra and the diverticulum, and, unlike the serial voiding urethrographic, it doesn't depend on the patient to successfully urinate during the study; but it has been lately replaced by the ultrasound and the MRI.

The ultrasound gives us information about the size and location of the diverticulum in the urethra. The diverticulum appears as an anechoic or hypoechoic area. The advantages of this tech-unique are the lack of patient's exposure to radiation and that it doesn't require the patient to urinate in order to get the images, but, as a drawback, it doesn't produce high resolution images neither show the precise surgical anatomy.

The MRI is slowly becoming the technique of choice because it provides high resolution images of the diverticulum of the urethra non-invasively. The diverticulum appears as a decreased signal area in T1 in comparison with the soft surrounding tissues, and it has an intensified signal in T2 (Figure 1). Also, it presents the advantage that it's completely independent from urination in or- der to obtain the diverticular images and also that is free from ionizing radiations.

The treatment of the diverticulum will depend on its features and the clinical findings.
In the case of asymptomatic patients, as in our case, it's better to choose a conservative treatment and a follow up.

In symptomatic patients it's possible to offer a surgical resection. There are several therapeu-tic approaches:

- Transurethral, open
- Marsupialization
- Endoscopic deroofing
- Fulguration
- Surgical cut and obliteration with oxidized cellulose or polytetrafluoroethylene
- Coagulation
- Resection with reconstruction. Nowadays this technique is the most common surgical approach for urethral diverticulum.

The cases of male congenital urethral diverticulum cases found in literature are set out in the follo- wing chart:

Table 1. Cases of male congenital urethral diverticulum cases found in literature

AGE		LOCATION	SYMPTOMS	STUDIES	TREATMENT
CASE 1 Shuzhu, Chen et al. (4)	37	Anterior spongy urethra	Infertility Ejaculation not satisfactory Dysuria Weak jet Post micturition drip Hematuria	MRI Ultrasound	Resection with recon- struction
CASE 2 Thakur, Naveen et al. (6)	30	Anterior de ureth- ra bulbar	Lower urinary tract obstruction Weak jet urination difficulty	Ultrasound IVU Urethra cistoscopy	Resection with recon- struction
CASE 3	41	-	hematospermia	Ultrasound MRI Urethra cistoscopy	Medical follow- up

Conclusion

The male congenital urethral diverticulum is a rare clinical pathology, sparsely referred in the literature. There are several reports that have tried to establish its true prevalence, within a range of 0'6% - 3%. Because its symptoms are unspecific, many times they go unnoticed and the diagnosis is therefore delayed. There are several therapeutic options that go from observation to surgery. In asymptomatic patients it's possible to choose a follow up, as it has been our case. The surgical attitude is reserved for patients with important symptomatology.

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