

## Case Report

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# Urethral Caruncle: A Case Report

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### ABSTRACT

The urethral caruncle is the most frequent benign tumor in postmenopausal women due to their low levels of estrogen. The main differential diagnosis is the urethral carcinoma, which is why a clinical case of a patient with a urethral caruncle is presented. The clinical and radiological characteristics are reviewed to ensure an appropriate patient approach, treatment, and histopathological correlation.

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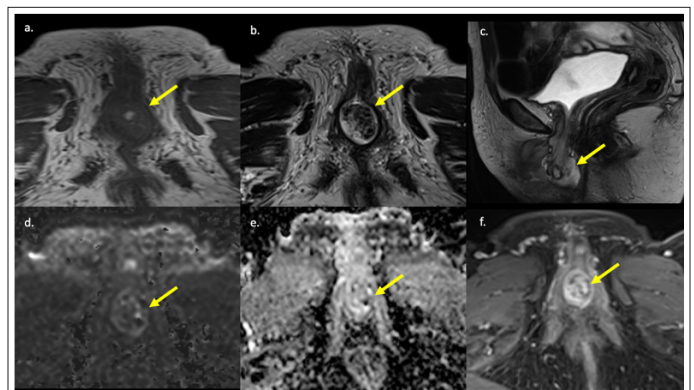
### Introduction

The urethral caruncle is the most common benign tumor in postmenopausal women, it is localized in the distal urethra, usually in the posterior labia of the urethral meatus. It develops due to hypoestrogenism, which favors a chronic inflammatory state in the urethral epithelium. Histologically, a hyperplastic squamous and transitional epithelium is observed with increased vascularization, fibrosis, and inflammation [1,2]. The urethral caruncle may be asymptomatic depending on its size, bigger caruncles can cause pain or hematuria. These small lesions are not potentially malignant and can be managed surgically or medically. When they are bigger in size or cause clinical symptoms, they suggest malignancy and require surgical excise [2]. Magnetic resonance is of great utility for evaluating the malignant characteristics that suggest an urethral carcinoma (which is the caruncle's main differential), allows to identify adjacent tissue infiltration and the presence of adenopathy. Urethral caruncle is hyperintense in T2, hypointense in T1 and usually does not present diffusion restriction because of its low cellular content, unlike malignant neoplastic lesions [3]. A case of a woman with a urethral caruncle is presented with the objective of identifying the clinical and radiological characteristics and conducting a review of literature.

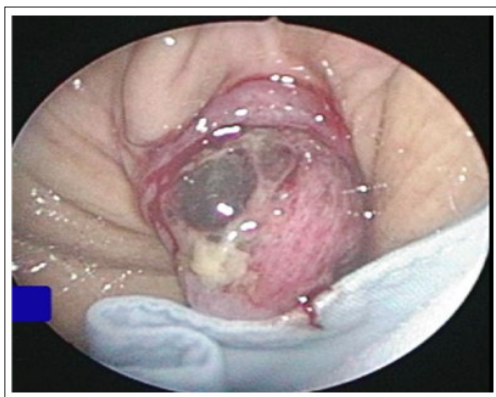
### Clinical Case

A 79-year-old woman with history of cognitive disability consults for several months of genital bleeding that has worsened in recent weeks, associated with asthenia, adynamia, and mucocutaneous pallor. She is initially evaluated by gynecology for a suspected abnormal uterine hemorrhage and vaginal prolapse, however, this specialty suggests that the origin of the hemorrhage is from the urinary tract. A simple urotomography was performed which reported poor definition of the soft tissues of the pelvic floor due to a possible mass in the vaginal canal, and it was recommended

to complement the study with a contrast enhanced magnetic resonance (MRI). The MRI identified a well-defined urethral lesion, without adjacent tissue infiltration and non – aggressive in appearance (Figure 1). No lymphadenopathy or signs of distant disease were observed. Urology performed a cystoscopy that confirmed an exophytic lesion dependent on the distal urethra with ulceration and necrosis (Figure 2). Surgical resection of the lesion was decided for two main reasons: to manage the anemizing hemorrhage and for a histopathological study to rule out malignancy. The pathology reported a urethral caruncle without dysplasia or malignancy.



**Figure 1:** Contrast enhanced magnetic resonance of the pelvis. A T1 hypointense urethral lesion with a punctate hyperintense focus due to bleeding content (a), with heterogenous signal intensity on T2 (b), located in the distal urethra, over the midline (c) without diffusion restriction (d,e) and marked enhancement after the administration of contrast material. It is a well defined lesion, without infiltration of adjacent structures or associated lymphadenopathy.



**Figure 2:** Cystoscopy: Exophytic Lesion Dependent of the Distal Urethra with Ulceration and Necrosis

### Discussion

Urethral abnormalities in women are wide and have a variable spectrum. The most common benign tumor involving the urethra in postmenopausal women is the caruncle, and therefore, it is essential to consider it in this population for proper characterization. The main differential diagnosis is urethral carcinoma, which is not always distinguishable by imaging [3].

A urethral caruncle is an exophytic, fleshy mass protruding from the urethral meatus, and in most cases, it is asymptomatic. The diagnosis is usually incidental and is based on physical examination findings, which consist of a pink, sessile, or pedunculated mass protruding from the urethral meatus and generally measuring less than 2 cm; when larger, it should not be confused with genital prolapse [4]. When the lesions are large, they may present with multiple symptoms. After reviewing the clinical characteristics of 41 women with urethral caruncle, Miriam R et al, [1]. found that 32% of them were asymptomatic, compared to 37% with pain, 27% with hematuria, and 20% with dysuria.

When physical examination findings are doubtful, imaging studies or histological confirmation after surgical resection are recommended. Histologically, it is composed of hyperplastic epithelial tissue with inflammatory infiltrate, fibrosis, and high vascularity. Diagnostic imaging allows surgical planning by providing key information about the origin of the lesion, its local and distant extension [5].

Although there is currently a significant deficit in the literature on the management and diagnosis of urethral caruncles, there are several case reports, such as that of Kento Sonoda et al, [6]. where they reported the case of a woman with urinary tract bleeding from a probable urethral caruncle on physical examination, who underwent magnetic resonance imaging that showed a mass in the distal urethra with high signal intensity on T2, without tissue restriction or local extension. Histopathological study confirmed the diagnosis of urethral caruncle.

Magnetic resonance is the imaging modality of choice when evaluating urethral lesions, allowing detailed characterization of the lesion, its origin and infiltrative behavior. Urethral caruncle is a lesion with low signal intensity on T1, high signal intensity on T2, and usually does not show restriction on diffusion sequences. Occasionally, they may appear heterogeneous on T1 and T2 sequences when they contain necrotic or hemorrhagic content, as in the case of our patient. In our case, there was a punctate focus of hemorrhagic-proteinaceous content, hyperintense on T1

and with tissue restriction, however, the rest of the lesion did not show restriction on diffusion sequences [7]. Due to the increased vascularity of these lesions, enhancement is marked after contrast administration as demonstrated in the exposed images.

The main differential diagnosis of urethral caruncle is urethral carcinoma, which is an uncommon neoplasm that mainly affects postmenopausal women. The most common subtype is squamous cell carcinoma (70% of urethral carcinomas), usually located in the distal third and external urethral meatus. Magnetic resonance imaging findings manifest with low signal intensity on T1, high signal on T2, and heterogeneous enhancement after contrast administration. Diffusion-weighted imaging (DWI) and ADC mapping sequences show diffusion restriction in addition to an aggressive behavior that infiltrates soft tissues and adjacent structures. Other differential diagnoses include leiomyomas, which are hypointense on T1 and variable signal on T2, with homogeneous enhancement and well-defined borders; endometriotic implants characterized by hypointense foci on T1 and irregular margins; cystic lesions (Skene's gland cysts, Bartholin's gland, Gartner's duct cysts); and urethral diverticula [3, 7].

The treatment of urethral caruncle depends on the symptoms and size of the lesion. In asymptomatic patients without suspicion of malignancy, no treatment is required. When symptoms are mild, conservative management with analgesia, sitz baths, anti-inflammatories, and topical estrogen therapy for 4-8 weeks is performed. In cases where conservative management does not improve symptoms, thrombosis, persistent pain, hematuria, or urinary retention, definitive surgical management is recommended. [8].

### Conclusion

Knowing the most common benign urethral tumor in postmenopausal women allows a wider clinical suspicion of this entity beyond urethral carcinoma. It is a common pathology but can go unnoticed because it can be asymptomatic relative to its size; identifying it from diagnostic images guides the clinician in managing this entity and in making therapeutic decisions.

### Disclosures

#### Human Subjects

Consent was obtained or waived by all participants in this study. Research and Research Ethics Committee issued approval Act 21-2023. The letter to the ethics and research ethics committee of the Pablo Tobón Uribe Hospital was responded to granting permission for this publication, as recorded in act 21/2023.

#### Conflicts of Interest

In compliance with the ICMJE uniform disclosure form, all authors declare the following:

#### Payment/Services Info

All authors have declared that no financial support was received from any organization for the submitted work.

#### Financial Relationships

All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work.

#### Other Relationships

All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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