CLINICAL CASE

Ectopic prostate tissue in the urinary bladder


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Abstract  The case of a 46-year-old man with a history of eight months of lower urinary infections is reported herein. Cystoscopy showed a pale, yellowish, nodular mass with smooth edges in the bladder trigone that was transurethrally resected. The histologic and immunohistochemical study reported ectopic prostate tissue.

PALABRAS CLAVE
Próstata, tejido ectópico, vejiga, Costa Rica.

Tejido prostático ectópico en la vejiga urinaria

Resumen  Se presenta el caso de un hombre de 46 años de edad, con historia de ocho meses de infecciones urinarias bajas, en quien una cistoscopia mostró una masa nodular amarillenta pálida, de bordes lisos en el trigono de la vejiga, que se resecó transuretralmente, y en su examen histológico e inmunohistoquímico, reveló la presencia de tejido prostático ectópico.

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Introduction
The finding of ectopic prostate tissue is rare and very few cases have been reported in the medical literature. Eighty-five percent of the time, this ectopic prostate tissue is found in the bladder.\(^1\) There are two main hypotheses for explaining this event: an embryologic origin and a result of metaplasia.\(^2\)

Case presentation
A 46-year-old man with a past medical history of recurrent lower urinary infections with no gross hematuria sought medical attention at the Urology outpatient service of the Hospital San Juan de Dios, Costa Rica, in August 2011. An ultrasound study revealed a mass in the bladder trigone near the left ureteral orifice. Cystoscopy showed a non-papillary polypoid mass at that site, which was endoscopically resected.

The histologic examination revealed a morphologically normal urothelium that was raised by a nodule with well defined edges present in the lamina propria that corresponded to benign prostate tissue ectopically located in the bladder mucosa (Figures 1 and 2). The histochemistry study identified proteins that are normally found in the prostatic epithelium, basal cells were observed through the use of high molecular weight cytokeratin (HMWCK), and prostate specific antigen (PSA) was also expressed, confirming benign prostatic tissue determination.

Discussion
Very few cases of prostate tissue have been reported in the genitourinary and extra-genitourinary locations, such as the spleen, intestinal wall, pericolic fat, anus, seminal vesicle, urethra, ureter, testis, and presacral region. The urinary bladder has been the most frequent site.\(^3,4\) This tissue has also been described in women in the uterine neck, vagina, and ovary and at least 2 cases of prostate adenocarcinoma arising from ectopic prostate tissue have been reported, one of which was located in the bladder dome.\(^5\)

The main symptoms are hematuria and dysuria and on occasion there are symptoms of obstruction and urinary infection.

Figure 1  A) Prostatic glands in the lamina propria of the bladder mucosa. B) The same image at medium enlargement showing the presence of corpora amylacea.
The prostate urothelium and epithelium have specific intermediate filaments in their cytoskeleton called cytokeratins and their various types are differently expressed in diverse types of epithelium. When they become malignant they retain their pattern of cytokeratin expression.\(^6,7\)

The HMWCK antibody is directed against various antigens of several cytokeratins present in the basal cells of the stratified epithelium, such as that of the prostate.\(^7\) The absence of its expression is used to diagnose prostate adenocarcinomas because they lack basal cells.\(^6\)

Cytokeratin 7 (CK7) is present in the transitional epithelium, among other types of epithelium (Figure 3A), and its expression aids in distinguishing urothelial carcinoma from prostate carcinoma.\(^8\)

PSA is a marker that is present in both benign prostate epithelium and prostate adenocarcinoma and it is absent in the urothelium and in transitional cell carcinoma.\(^8\)

In our case, PSA expression was observed in the luminal cells of the glands studied (Figure 2B) and basal cells were observed in all of them through the use of HMWCK (Figure 3B), together confirming the identification of benign prostatic glands.

In 1967, Gutiérrez and Nesbit reported a case in Ann Arbor, Michigan and suggested the two main hypotheses for explaining prostate tissue ectopia: the first with an embryologic explanation and the second with a metaplastic one.\(^2\) The first posits that progenitor cells of the prostate are anomalously located in the bladder and the second refers to the change of mature urothelium into mature prostate tissue.

In our case, we were not only able to confirm the continuity of the bladder mucosa urothelium with the ectopic prostate glands and their corresponding stroma, but also that the prostate epithelium shared the presence of urothelial cells and CK7 expression, therefore making a metaplastic origin possible.

**Conflict of Interest**

The authors declare that there is no conflict of interest.
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References


Figure 3  A) Generalized cytokeratin 7 (CK7) expression in the superficial urothelium and partially expressed in the prostatic glands (immunoperoxidase). B) High molecular weight cytokeratin (HMWCK) expression in the basal cells of the prostatic basal glands (immunoperoxidase).