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CASE REPORT

Incidental prostatic stromal tumor of uncertain malignant potential (STUMP): histopathological and immunohistochemical findings

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Stromal prostate tumors are rare neoplastic proliferative lesions that have been classified into prostatic stromal tumor of uncertain malignant potential (STUMP) and prostatic stromal sarcoma (SS) based on these criteria: stromal cellularity, presence of mitotic figures, necrosis, and stromal overgrowth. A prostatic stromal tumor of uncertain malignant potential (STUMP) is a non-epithelial, mesenchymal spindle-cell tumor that can be classified as a specialized stromal tumor of the prostate. STUMPs have the capability to diffusely infiltrate the prostate gland and extend into adjacent tissues. Furthermore, they often recur and this is why they are considered as neoplastic entities. STUMPs usually tend to be not aggressive, but occasional cases have been reported with an extension into adjacent tissues. A few cases develop a sarcomatous dedifferentiation.

A 67-year-old male referred to the Department of Urology, Sapienza Rome University, with acute urinary retention (AUR) and bladder overdistention. Digital rectal examination (DRE) showed the presence of a severe prostatic hyperplasia and a transvesical prostatic adenomectomy (TVPA) was performed. The pathological evaluation performed at the Department of Pathology, Sapienza Rome University, revealed an incidental diagnosis of prostatic STUMP. The patient's follow-up is made every year with transrectal ultrasonography and nuclear magnetic resonance with spectroscopy, and every two years with a transperineal prostate biopsy to exclude a progression to a stromal sarcoma. After 5 years of follow-up the STUMP is still detectable but there is no sign of sarcoma. As a result of its relative rarity and lack of long-term follow-up, the prognosis of STUMP is unclear. Therapy varies from a wait-and-see approach to a radical retropubic prostatectomy.

KEY WORDS: *???*

PAROLE CHIAVE: *???*

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INTRODUCTION

Prostatic stromal tumor of uncertain malignant potential (STUMP) and mesenchymal spindle-cell tumor are non-epithelial lesions and are extremely rare.

Distinguishing between STUMP and stromal sarcoma of the prostate (PSS) is morphologically difficult.

Histological features depend on parameters such as cellularity, number of mitotic figures, necrosis and stromal infiltration of periprostatic tissues[1,2].

In the majority of cases STUMP does not show an aggressive behavior and just sometimes it develops sarcomatous differentiation. Exceptionally there is an extension toward adjacent tissues or recurrence after surgery[3].
In literature, since 1977 less than 100 cases of stromal prostate tumors have been described, including both PSS and STUMP. In another series, with patient's average age less than 40 years, 10 cases of STUMP are described and all of them, treated surgically, are alive and disease-free (follow-up: 27 months)[4].
This shows that such tumors are, in the majority of young patients, surgically curable. The most debated problem is that the lesion frequently recurs in a not well-established time, developing in some cases a sarcomatous dedifferentiation with incidence of metastases and death[5].
In some cases STUMPs may represent a focal incidental lesion.
Therapy varies from a wait-and-see approach to a radical retropubic prostatectomy (RRP) but their management and prognosis are still uncertain[4,5].
We describe the case of a patient that referred to the Department of Urology, Sapienza Rome University, with acute urinary retention (AUR) and bladder overdistention. The prostate, described with trans-rectal ultrasound (TRUS), presents a severe prostatic hyperplasia with a gland weight of more than 120 gr.
The patient underwent transvesical prostate adenomectomy (TVPA) and a diagnosis of incidental STUMP was made.

Case report

A 67-year-old man with good performance status referred to our institution for AUR and bladder overdistention. He had no family history of genitourinary cancer.
A urinary catheter (Mercier 16 Ch) was therefore placed to allow the discharge of about 1500 mL of urine.
The patient underwent a more accurate diagnostic and clinical evaluation.
Serum concentration of total prostate specific antigen (PSA) was regular (3.45 ng/mL), free PSA was 0.82 ng/mL and PSA ratio was 23.2%.
Digital rectal examination (DRE) showed the presence of a severe prostatic hyperplasia with no evidence of suspicious areas.
The patient, afterwards, underwent a bladder and prostate transrectal ultrasonography that showed an enlarged prostate (DT= 61 mm; DAP= 53 mm; DL= 69 mm) with no evidence of lesions suspicious for malignancy (Fig. 1).

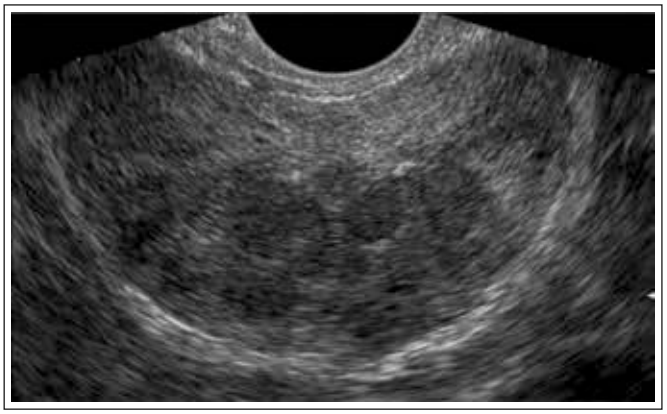

Fig. 1 - *Trans-rectal ultrasound of the prostate*

After the patient's informed consent, the transvesical prostate adenomectomy procedure was chosen in order to treat the large prostate adenoma.
Histological evaluation was performed and an incidental diagnosis of STUMP was made (Fig.2). The nuclear magnetic resonance (NMR) with spectroscopy of the prostate did not reveal any metastatic spread.
Due to the incidental diagnosis of STUMP, it was not considered appropriate to perform a RRP.
A patient's strict follow-up was applied in order to exclude a possible recurrence and a sarcomatous differentiation, and is carried out with a TRUS and NMR with spectroscopy every year, and with a transperineal prostate biopsy every two years.
5 years later, the patient is disease-free and there is no evidence of recurrence or progression to PSS.

DISCUSSION

Prostatic stromal tumors of uncertain malignant potential (STUMP) are distinct and rare lesions[4].
They are typical of the sixth and seventh decade of life, and are considered to be a neoplastic lesion with high incidence of recurrence and progression[6,7].
The etiology and the pathogenesis of STUMP are unknown and no risk factors have been associated with this proliferation. Combination with adenocarcinoma of the prostate has been reported in just a small percentage of cases.
The most common presenting signs and symptoms are acute or chronic urinary obstruction, hematuria, hematospermia,

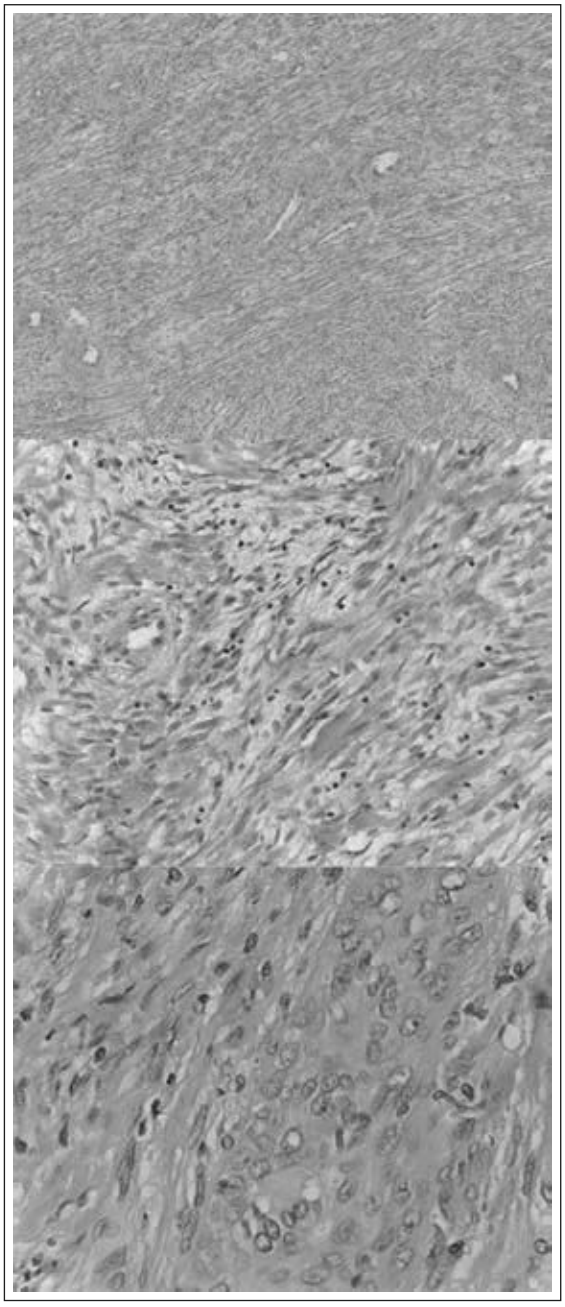

Fig. 2 - *Histological findings (4x – 20x – 40x)*

dysuria and rectal dysfunction/fullness. An abnormal digital rectal examination or an elevated prostate-specific antigen level is possible but not constantly present[7].

The prostate specific antigen, in fact, is a glycoprotein belonging to the family of kallikreins produced by prostate epithelial cells in contrast with the peculiar cell of STUMP that, as mentioned, is stromal or mesenchymal, not causing a rising in PSA.

Even thought literature data report that the diagnosis of STUMP is usually incidental and is made after TURP or TVA surgery for obstructive prostatic disease, there are cases where the diagnosis is made with a biopsy performed after rising blood PSA and in presence of a suspicious TRUS lesion. There is also the description of some patients with a concomitant prostate adenocarcinoma.

Our patient, with severe lower urinary tract symptoms, was submitted to trans-vesical adenomectomy and the presence of an incidental prostate STUMP was confirmed by the histological evaluation.

STUMP has the potential to infiltrate the entire prostate gland and the adjacent tissues[6]. Both transitional and peripheral prostate zones, and predominantly the latter, have been described to be involved by the lesion. The majority of prostatic STUMP cases may behave in an indolent way, however, local recurrence may occur rapidly or frequently after resection and occasionally can invade the contiguous organs and metastasize to the lung and bone and transform into prostatic stromal sarcoma (PSS) ([6-9]).

Literature data report that 46% of patients with STUMP will develop local recurrence ([7, 10]) and 5% will progress to PSS ([7, 9]).

Prostatic STUMP originates from specialized hormonally-responsive mesenchymal cells of the prostate and these tumors are grouped into two categories: prostatic stromal tumor of uncertain malignant potential (STUMP) and prostatic stromal sarcomas (PSS), on the basis of hypercellularity, the presence of mitotic figures, necrosis and stromal overgrowth ([7]).

Generally, PSS shows greater cellularity, mitoses, necrosis and stromal overgrowth than prostatic STUMP ([7]).

Gaudin et al, on the basis of stromal cytologic atypia and the presence/appearance of an associated non-neoplastic glandular component, identified four histological patterns of prostatic STUMP: 1) hypercellular stroma with scattered cytological atypia associated with benign glands; 2) hypercellular stroma with minimal cytological atypia associated with benign glands; 3) hypercellular stroma with or without cytological atypia associated with benign glands in a "leaf-like" growth pattern that resemble phyllodes tumors; 4) hypercellular stroma without cytological atypia and without glands ([6-8]).

Histological pattern acknowledgement is helpful to identify these lesions, but there is no association of histological pattern with aggressive local growth or progression to sarcoma.

Previous studies showed that prostatic STUMP typically expresses progesterone and estrogen receptors, and focally can express desmin ([1, 7, 11, 12]). The immunohistochemical profile of STUMP demonstrates positive reactivity for CD34, which may aid in distinguishing it from other prostatic mesenchymal tumors such as rhabdomyosarcoma or leiomyosarcoma ([7, 9]).

Conversely, some other profiles report a negative immunohistochemical staining for CD34 ([13]).

Bearing in mind the risk of recurrence and the possibility of progression to a malignant PSS, a close surveillance involving long-term follow-up and appropriate urological investigations or procedures is required ([10]).

Fortunately, to date, our patient has not shown any evidence of recurrence or progression to malignant PSS.

Since there is no definitive treatment guideline in prostatic STUMP, further research and reports characterizing these lesions and their behavior are required to provide better understanding and insights in the development of an optimal therapy ([6]).

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