Images – Solitary fibrous tumor of the prostate

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Introduction

Solitary fibrous tumor (SFT) is a spindle cell neoplasm of mesenchymal origin. Although first described arising in a subpleural location,[1] with increased recognition of its histological features, SFTs have been reported to arise at many extrapleural anatomical sites.[2] SFT of the prostate is extremely rare, with fewer than 25 cases reported in the literature to date.[3-5] Due to the rarity of prostatic SFT, the variation of clinical and morphological appearances of SFT, and the large number of different soft tissue tumor types, prostatic SFT remains difficult to diagnose.[6] The majority of case reports of prostatic SFTs have short-term followup and have been reported in men between the ages of 50 and 70.[3,7]

Herein, we report the case of a 28-year-old male presenting with urinary obstructive symptoms resulting in the diagnosis of a prostatic SFT. He was treated with a simple suprapubic prostatectomy and has no evidence of local recurrence 14 years later.

Case presentation

A 28-year-old male presented with a two-year history of decreasing urinary flow and suprapubic pressure. He voided every hour and strained to pass urine. There was no hematuria, history of urinary tract infection, or nephrolithiasis. He had lost 60 pounds in the past year. There was no significant past medical history. Rectal exam revealed a very large, firm prostate without nodules or induration. Cystoscopy and a computed tomography (CT) of the abdomen and pelvis showed bladder trabeculation and significant outflow obstruction secondary to prostatic hypertrophy with a very large median lobe, with an estimated prostate volume of 120 cm^3.

A limited transurethral resection of the prostate performed for diagnostic purposes revealed a cytologically bland, moderately cellular spindle cell neoplasm with the lesional cells arranged in a haphazard or "patternless pattern" and set in a background fibrous stroma containing thick, wiry collagen bundles and numerous blood vessels that often had a branching, staghorn-like pattern (Fig. 1). Mitoses were rare (less than 1 per 10 HPF) and necrosis was not identified. Imunohistochemically, the spindle lesional cells stained strongly and diffusely positively for CD34 and failed to stain for prostate-specific antigen (PSA), S100, cytokeratin 8/18, and smooth muscle actin. Staging investigations found no evidence of metastatic disease. Magnetic resonance imaging (MRI) of the pelvis revealed a 5.8x6.4x6.5 cm solid enhancing tumor associated with the superior aspect of the prostate, bulging into the lumen of the urinary bladder (Fig. 2).

Local excision was agreed to be the most suitable course of action. After discussion with the patient regarding radical vs. simple surgical approaches, a simple suprapubic prostatectomy with suprapubic cystostomy was performed. During the procedure, the mass was excised along with a portion of the bladder neck. The surgical margins were negative. STAT6 immunohistochemical staining, performed retrospectively as this antibody was not available in our lab until 2015, was positive with characteristic nuclear staining of the lesional cells. Following the procedure, the patient was able to void normally.

Long-term clinical followup,14 years after his surgery, reveals no evidence of recurrence, with a CT scan of the abdomen and pelvis 12 years after his surgery demonstrating no radiographic evidence of local recurrence. Some urinary frequency and urgency were noted, and a rectal exam revealed a firm prostate. Cystoscopic examination was normal.

Discussion

First described in 1931 by Klemperer and Rabin, SFTs have been found to occur most frequently in the sixth and seventh decades of life, with about 80% of cases behaving in a benign manner.[8,9] SFTs can be difficult to diagnose, characterize biologically, and treat given their wide range of clinical and

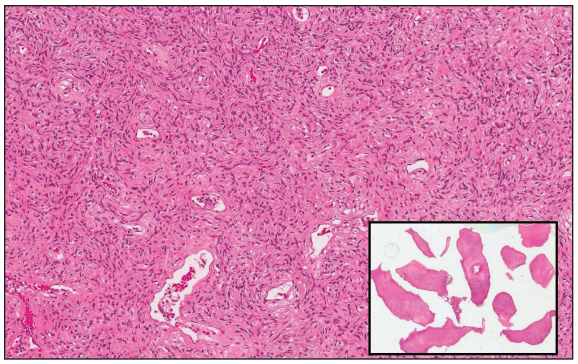

Fig. 1. Solitary fibrous tumour histology demonstrating a moderately cellular, cytologically bland spindle cell neoplasm with the lesional cells arranged in a haphazard or "patternless pattern." It is set in a background fibrous stroma containing thick, wiry collagen bundles, and numerous blood vessels that often had a branching, staghorn-like pattern.

morphological features.[4] Immunophenotypically, expression of CD34, Bcl2, and CD99 is characteristic but not specific, whereas STAT6 immunopositivity is quite specific given the presence of a NAB2-STAT6 gene fusion on chromosome 12q13 in the great majority of SFTs.[1,4]

Moureau-Zabotto reported the largest series of prostatic SFT, comprising 21 cases.[7] All patients except one presented with non-specific or obstructive urinary symptoms. All patients had normal serum PSA levels.[7] Of the 21 patients, 17 had followup that ranged from two months to 10 years. Of these 17, one patient had a local recurrence and two patients died of postoperative complications. In general, complete resection of a SFT has been found to be an important predictive factor for positive clinical outcomes.[8]

Our case is unique for both the young age of the patient, as well as its long-term followup without evidence of recurrence. The only case of a SFT in a younger patient was reported in 2002 by Grasso et al, who described a prostatic SFT that was removed via a radical prostatectomy using a bladder neck sparing technique.[10] However, no followup was provided.

Conclusions

Treatment options for SFT of the prostate include a transurethral resection of the prostate, simple prostatectomy, radical prostatectomy, pelvic exenteration, and pelvic tumor resection.[3] Although most SFTs are benign, their behavior can be unpredictable, with 10% behaving aggressively with local recurrence or distant metastasis despite the lack of conventional histological features of malignancy. As such, complete tumor resection with negative margins is advisable, with chemotherapy or radiotherapy reserved for non-resectable or metastatic tumours.[3,5,7] In our case, long-term control was achieved through a simple prostatectomy rather than a radical approach; however, we believe that treatment must be individualized.

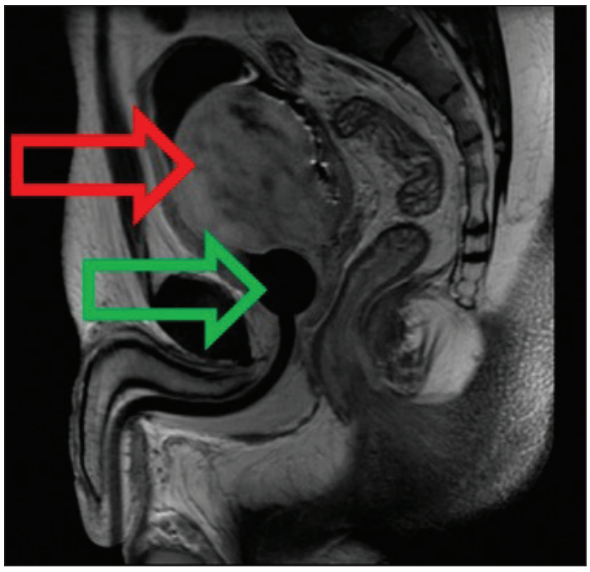

Fig. 2. Sagittal T1 post-gadolinium magnetic resonance imaging scan demonstrating the solitary fibrous tumor of the prostate (red arrow). Note the Foley catheter (green arrow) inflated in the prostatic urethra, which was subsequently advanced into the bladder.

Competing interests: The authors report no competing personal or financial interests related to this work.

This paper has been peer-reviewed

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