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Mammary-Type Myofibroblastoma of the Prostate: Case Study

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Abstract **Case Report**

Mammary-type myofibroblastoma is a very rare and benign spindle cell lesion, histologically identical to myofibroblastoma of the breast. This entity can occur in other extramammary sites. The diagnosis is based on a range of clinical and radiological arguments and is confirmed by meticulous histological and immunohistochemical analysis. Management depends on the location of the myofibroblastoma, and for those occurring in the prostate, it involves a radical prostatectomy.

Keywords: Mammary-type myofibroblastoma - histology - radical prostatectomy.

INTRODUCTION

Mammary-type myofibroblastoma is a rare mesenchymal tumor, histologically identical to myofibroblastoma of the breast, composed of a proliferation of spindle cells arranged in short, irregular bundles interspersed with hyalinised collagen bundles. It was first described in 1987 [1]. However, extra-mammary-type myofibroblastoma (MTMF: Mammary-type myofibroblastoma) was only described as a distinct entity in 2001 [2]. This entity can occur in sites other than the breast [1]. In the study by Wargotz *et al*., the mean age at diagnosis was 63 years. Extra-mammary lesions most frequently appear in older men and in different sites [1]. The study conducted by Brooke E *et al*., showed that the most common site was the inguinal/perineal region [3]. Diagnosis is suspected based on clinical and radiological arguments [1], then confirmed by histopathology, and management consists of surgical removal of the lesion.

We report a case of a patient in whom imaging revealed an unusual periprostatic image. After performing a biopsy, a radical prostatectomy was carried out, and histopathological analysis showed a mammary-type myofibroblastoma on the prostate.

The objective of this work is to describe the diagnostic, therapeutic, and evolutionary modalities of a case of mammary-type myofibroblastoma of the prostate.

CASE PRESENTATION

This case involved a 72-year-old patient with no significant medical or surgical history, who initially presented with lower urinary tract symptoms. Clinical examination revealed a patient in good general health, and a digital rectal examination (DRE) found an enlarged prostate with regular contours, which was soft and painless. The PSA level was 4 ng/ml. A prostate ultrasound was performed and revealed a suspicious periprostatic image. This was followed by a prostate MRI, which showed an adenomatous prostate with an increased volume of 95 ml, a large nodular mass on the left posterolateral side of the prostate measuring approximately 50 mm, compressing the peripheral zone, with a non-specific appearance and non-characterisable on the PIRADS (Prostate Imaging Reporting and Data System) score. (Image 1: MRI: Magnetic Resonance Imaging showing an unusual and non-characterisable image on the PIRADS score).

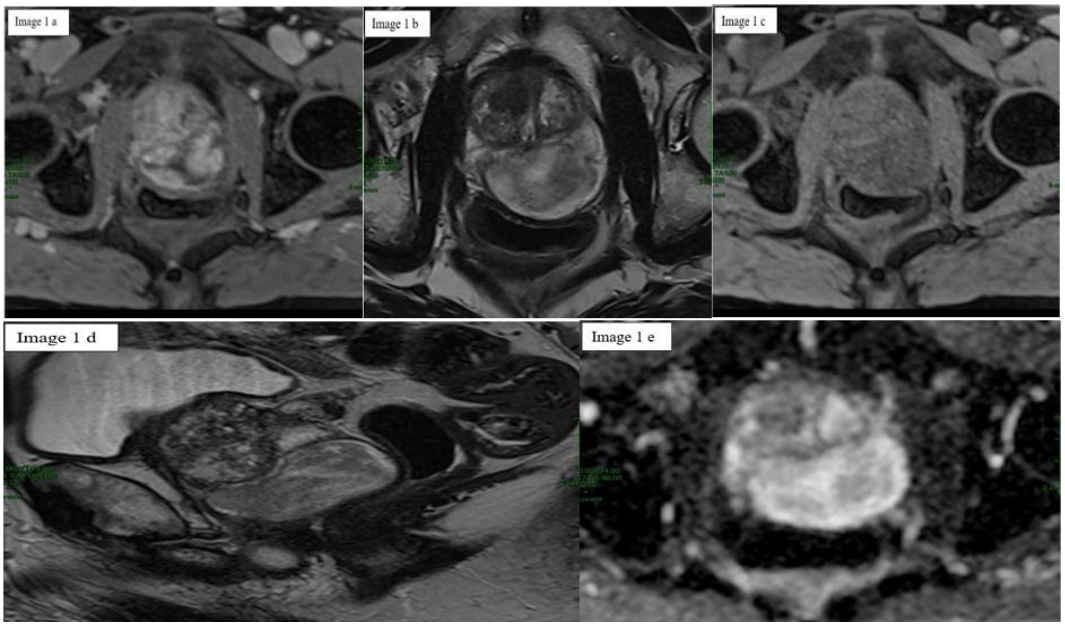

Image 1a: Axial T1 post-gadolinium (late phase)
Image 1b: Axial T2
Image 1c: Axial T1 pre-gadolinium
Image 1d: Sagittal T2
Image 1e: Axial diffusion ADC

A prostate biopsy was decided upon, which showed a mesenchymal lesion without criteria for aggressiveness, appearing periprostatic on the biopsies, initially suggesting a STUMP (stromal tumor of uncertain malignant potential) with myxoid features. Immunohistochemical analysis revealed that the cells were negative for actin, smooth muscle actin, S100, CD117, and DOG1 (excluding a GIST: Gastrointestinal Stromal Tumor) and positive for CD34 and progesterone receptors (Image 2: microphotograph of the prostate biopsy showing a spindle cell proliferation without evident atypia, in favor of a STUMP).

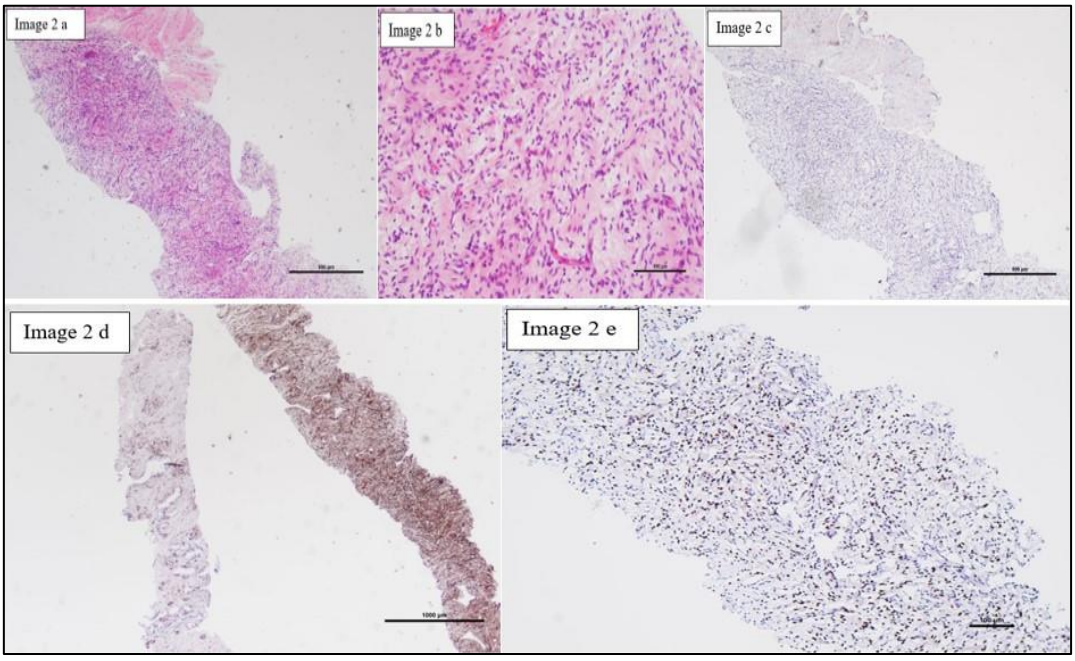

Image 2a: HE*5.jpg: Spindle cells without obvious atypia suggestive of a STUMP
Image 2b: HE*20.jpg: Spindle cells without atypia
Image 2c: panCK*5.jpg: Negative cellular proliferations
Image 2d: CD34*2.5.jpg: Expression of CD34 by tumor cells
Image 2e: RProg*10.jpg: Expression of progesterone receptors

For management, a surgical intervention in the form of a radical prostatectomy was successfully performed without any perioperative or immediate postoperative complications (Image 3).

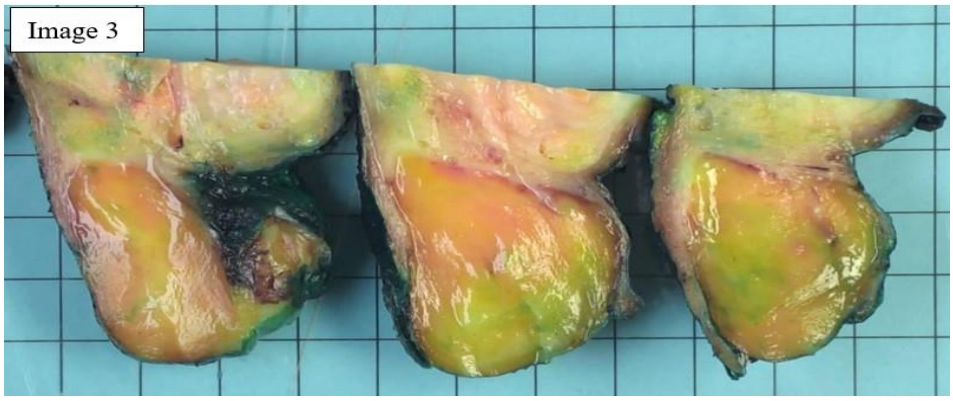

Image 3: Surgical specimen: homogeneous, solid, beige/yellow nodular tumor on the left posterolateral side, measuring 60 x 55 x 40 mm

Regarding the histopathology, the IHC (immunohistochemistry) performed showed that the tumor cells were AML focally +, desmin + heterogeneously, caldesmon + focally, PS100-, cytokeratin AE1/AE3-, CD34 diffusely +, CD117-, DOG1-, STAT6-, MDM2-, Bel-2 diffusely +, and androgen receptors diffusely + (100 % of nuclei marked with intensity 3+). The immunohistochemical profile of this tumor excluded a smooth muscle tumor, a solitary fibrous tumor, and a GIST-type tumor.

At the molecular level, a FISH (fluorescent in situ hybridization) technique revealed a heterozygous deletion of the RB gene (AN21005865), which is consistent with the diagnosis of myofibroblastoma.

The morphological appearance, IHC profile, and molecular findings were indicative of a "mammary-type" myofibroblastoma, 60 x 55 mm in size, with no malignancy criteria, coming into contact with the left lateral resection margin. Image 4 includes histopathology photos showing myofibroblastoma slides occurring on the prostate.

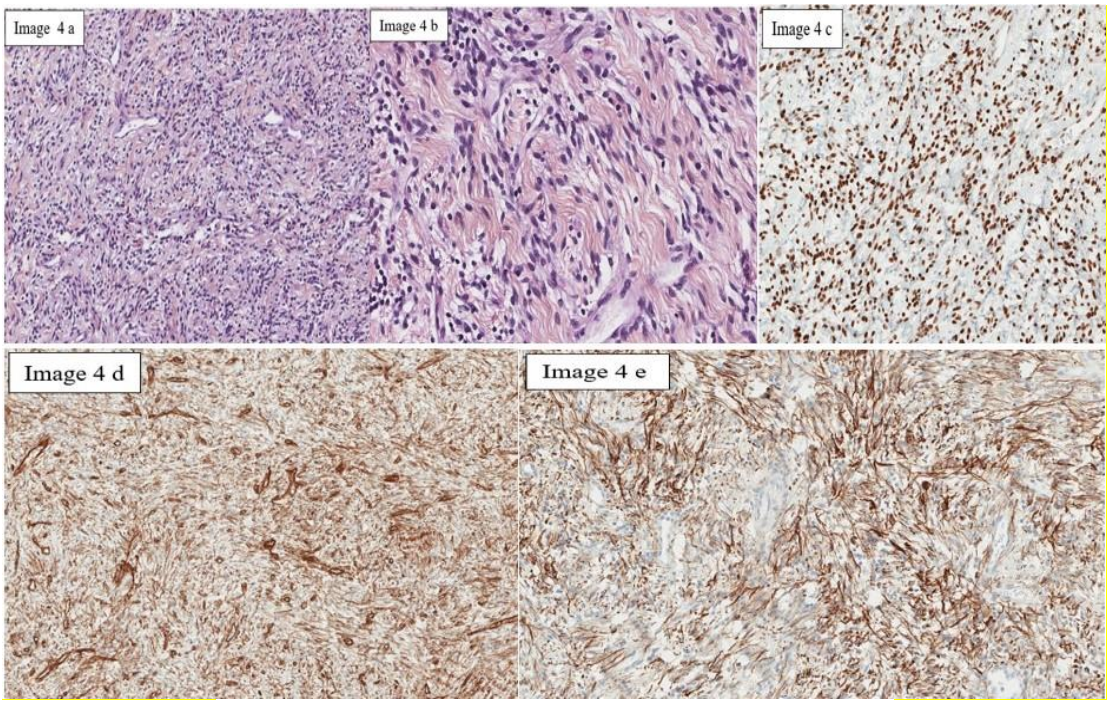

Image 4a: AN21004956-00-24-HPS*40 spindle cells without atypia
Image 4b: AN21004956-00-25-HPS*40 spindle cells without atypia
Image 4c: AN21004956-00-00-AR*40 intense and diffuse staining of androgen receptors
Image 4d: AN21004956-00-00-CD34*20 expression of CD34 by tumour cells
Image 4e: AN21004956-00-00-DESM*40 desmin staining

The long-term outcome has been favorable without complications, as the patient is almost perfectly continent and his PSA (prostate-specific antigen) is undetectable. Postoperative surveillance MRI and TAP (thoracic-abdominal-pelvic) scans showed no abnormalities.

DISCUSSION

Mammary-type myofibroblastoma was first described in 1987 as a benign soft tissue tumor of the breast [1]. Immunohistochemically, these lesions are typically positive for CD34 and desmin, with variable staining for smooth muscle actin [4]. The sensitivity of CD34 and desmin for detecting mammary-type myofibroblastoma is 89 % and 91 %, respectively [2]. An extramammary location of mammary-type myofibroblastoma is rare and was first reported in 2001 [1]. The differential diagnosis of mammary-type myofibroblastoma includes both benign and malignant tumors. While mammary-type myofibroblastoma is most commonly confused with spindle cell lipoma (SCL), a benign entity, the differential diagnosis also includes other benign neoplasms such as cellular angiofibroma and angiomyofibroblastoma, as well as malignant lesions such as low-grade spindle cell liposarcoma [1].

In our case, the tumor was found in blocks 22, 24, 25, 26, and 28 to 30. This tumor consisted of alternating cellular and myxoid, paucicellular areas. The tumor cells were ovoid with elongated nuclei, showing fine chromatin with one or more small nucleoli. A significant amount of collagen was interspersed among the tumor cells, and there was a well-developed lymphocytic inflammatory infiltrate. The mitotic activity was likely very low, as no mitotic figures could be identified. There was no necrosis.

CONCLUSION

Mammary-type myofibroblastoma is a rare and benign lesion located outside the breast. The diagnosis relies on clinical and radiological findings but must be confirmed by histological analysis. It is important to distinguish this benign entity from similar malignant lesions to avoid inappropriate treatment and prognosis. Management consists of surgical removal of the lesion.

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