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Oncology

A Mammary-type Myofibroblastoma of the Prostate: A Case Report

Aaron J. Cohen\textsuperscript{a,}\textsuperscript{*}, Graeme S. Steele\textsuperscript{a,b}

\textsuperscript{a}Harvard Medical School, 25 Shattuck Street, Boston, MA 02115, USA
\textsuperscript{b}Brigham and Women’s Hospital, Department of Urology, 75 Francis Street, Boston, MA 02115, USA

\begin{abstract}
We report the case of a 51-year-old gentleman presenting with obstructive and irritative urinary symptoms, found to have a large prostate mass on imaging. A radical prostatectomy was performed and pathological diagnosis revealed a 12 cm mammary-type myofibroblastoma replacing the entire prostate. Mammary-type myofibroblastoma is a rare lesion outside of the breast, and is considered benign. This is the first reported case of a mammary-type myofibroblastoma occurring in the prostate.
\end{abstract}

\section{Introduction}

Mammary-type myofibroblastoma is a rare, benign, neoplasm that is histologically and immunophenotypically identical to mammary myofibroblastoma, a benign breast tumor. Mammary-type myofibroblastoma was first described in 2001, in a series of 9 cases with tumors arising at extra-mammary sites.\textsuperscript{1} To date, there are only approximately 160 cases of extra-mammary myofibroblastoma reported in the literature.\textsuperscript{2} None of these cases arose in the prostate.

We present a case of a large mammary-type myofibroblastoma arising in the prostate presenting with urinary obstruction.

\section{Case presentation}

A 51-year-old man presented with bothersome lower urinary tract symptoms that were both obstructive and irritative in nature. Four months prior to presentation, he had an episode of urinary retention and presented to an outside hospital. Placement of a Foley catheter in the emergency room was unsuccessful, and eventually a Foley was placed over a guide wire at the time of cystoscopy in the operating room. MRI of the pelvis revealed an enormous lobulated mass involving the prostate gland measuring 12.7 × 7.9 × 6.7 cm (Fig. 1). The mass also involved the root of the penis and elevated the bladder base. Prostate needle biopsy was consistent with a diagnosis of mammary-type myofibroblastoma.

Gross examination revealed a 12.0 cm, multi-nodular, white mass distorting the normal prostate (Fig. 2). Histology revealed sheets of myofibroblastic spindle cells with poorly defined borders (Fig. 3A). The neoplastic cells were immunoreactive for CD 34 (Fig. 3B) and desmin (Fig. 3C). Given the morphology and immunoreactivity, a diagnosis of mammary-type myofibroblastoma involving the prostate was made. The seminal vesicles and surgical resection margins were negative for tumor. There was no evidence of prostatic adenocarcinoma. The post operative course has been uncomplicated so far.

\section{Discussion}

Myofibroblastoma was first described in 1987 as a benign, soft tissue tumor of the breast.\textsuperscript{3} The tumor is characteristically well-circumscribed, composed of uniform spindle cells haphazardly arranged in fascicles with pushing borders, separated by bands of
hyalinized collagen. It is considered entirely benign and surgical removal is curative. On immunohistochemistry, these lesions are characteristic positive for CD34 and desmin, with variable staining for smooth muscle actin.

An extra-mammary location of a myofibroblastoma is rare, and was first reported in 2001. Recently, the largest case series to date was published characterizing 143 cases of mammary-type myofibroblastoma. The mean age of diagnosis was 54 years-old with a male predominance (66%). The most common anatomic site of these tumors was the inguinal region, though there was a wide anatomic distribution. Mammary-type myofibroblastoma is thought to be a benign lesion that is curable by resection. Out of the cohort of 143 cases, 1 of the cases was reportedly a recurrence 20 years after initial excision. Even in the 8 cases with positive surgical margins, there has not been evidence of recurrence. This is the first reported case of a mammary-type myofibroblastoma involving the prostate.

Included in the differential diagnosis for mammary-type myofibroblastomas are both benign and malignant tumors. While mammary-type myofibroblastoma is most confused with spindle cell lipoma (SCL), a benign entity, the differential also includes other benign neoplasms, such as cellular angiofibroma and angiomyofibroblastoma, and malignant lesions, such as spindle cell liposarcoma and low-grade malignant peripheral nerve sheath tumor. Differentiating mammary-type myofibroblastoma from SCL is often difficult. Both lesions are benign, spindle cell neoplasms that show immunoreactivity with CD34. Subtle histological differences between the lesions do exist, as mammary-type myofibroblastomas have less fat than SCLs and contain a more prominent, hyalinized stroma. In addition, mammary-type myofibroblastomas show desmin positivity on immunohistochemistry, while SCLs do not.

The sensitivity of CD34 and desmin for detecting mammary-type myofibroblastoma is 89% and 91%, respectively. Mammary-type myofibroblastomas and SCLs also show identical cytogenetic changes, with partial loss of the 13q14 chromosomal region. Genetically, this alteration results in loss of Rb expression.

Given the benign behavior of mammary-type myofibroblastoma, it is imperative to properly distinguish it from potential malignant counterparts. Careful gross examination of the resection specimen is important to exclude malignant...
features, such as areas of hemorrhage and necrosis. In addition, careful histological and immunohistochemical analysis, in consultation with an expert in soft tissue pathology, is essential to rule out malignancy.

Conclusion

Our case is the first reported occurrence of a mammary-type myofibroblastoma arising in the prostate. Mammary-type myofibroblastoma is a rare lesion outside of the breast and has proven to be benign, with no reports of metastasis and only a single reported episode of recurrence 20 years after initial excision. It is essential to distinguish this benign entity from similar malignant lesions to avoid improper treatment and prognosis.

Disclosure

The authors declare no conflict of interest.

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