Inflammatory Myofibroblastic Tumor of the Urinary Bladder: A Case Report

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A B S T R A C T

Inflammatory myofibroblastic tumor is a rare but benign clinical entity. Its ability to mimic malignancy poses a diagnostic challenge. Here, we report the first case in Australia, of inflammatory myofibroblastic tumor in the bladder in a 40-year-old male, removed via transurethral resection.

Introduction

Inflammatory myofibroblastic tumor (IMT) often presents a diagnostic challenge due to its obscure pathogenesis and ability to mimic malignancy. The first case series reported, involving lung, was described by Brunn in 1939. Since then, involvement of other organs, including genitourinary tract, have been reported. Here, we report a case of IMT in the bladder in a 40-year-old male, removed via transurethral resection. To the best of our knowledge, this is the first case of IMT reported in Australia.

Case presentation

A 40-year-old male was referred to urology clinic with hematuria, dysuria, and abdominal pain localized to the suprapubic region. Initial investigation of renal tract ultrasound showed a 4.1 cm right-sided bladder wall mass. His medical history included hypertension, type 2 diabetes mellitus, and hypercholesterolemia. He was an ex-smoker, had a BMI of 32, and had worked in the paint industry for 10 years. He had no prior surgical history or history of malignancy.

On examination, tenderness was elicited in the suprapubic region, but no masses were detected. Bladder scan demonstrated 80 mL residual volume. His renal function was normal, with creatinine 50 µmol/L, and estimated glomerular filtration rate >90 mL/min. Urine microscopy demonstrated microscopic hematuria. Urine culture showed no significant growth. He was referred for computed tomography urography (CTU) scan, which revealed a large right-sided bladder malignancy, protruding into the bladder lumen (Fig. 1). No upper tract masses were identified.

He subsequently underwent cystoscopy and transurethral resection of bladder tumor (TURBT). Intra-operative findings showed a large solid bladder mass, measuring approximately 5 cm, involving the right lateral wall. This was clear of the ureteric orifices. Its smooth surface was not typical of urothelial carcinomas. On bimanual examination, there was no evidence of extra-vesical extension. Subsequent staging computed tomography chest scan showed no intrathoracic metastatic disease.

Histopathology result demonstrated features consistent with IMT. Bladder tissue, including muscle, was widely infiltrated by lesion comprising cellular fascicles of spindle cells in mixed edematous, myxoid and fibrous stroma. The cells showed moderate nuclear atypia in areas, with nuclear size variation, and scattered cells had single prominent nucleoli. Mitotic activity was inconspicuous (<1 mf/10 hpf), with no atypical mitotic figures identified. Throughout the lesion, there were foci of necrosis and hemorrhage. The surface urothelium showed areas of cystitis cystica/glandularis, but no papillary neoplasia was seen, and no urothelial carcinoma-in-situ was identified. Immunohistochemical staining was positive for cytokeratin AE1/3, vimentin (Fig. 2), actin, ALK (Fig. 3), and desmin.

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Findings were discussed at a multidisciplinary meeting, and decision made for close follow-up with imaging. At the time of article submission, our patient had been referred for repeat CTU and urology follow-up review at 6 months post-operation.

Discussion

IMT of the urinary bladder was first reported by Roth in 1980. It has been associated with trauma, surgery and infection, but majority occur spontaneously. It is more common in children and young adults, but can occur at any age. Histologically, IMT is characterized by proliferation of atypical spindle cells and infiltration of inflammatory cells. Histologically, IMT can mimic sarcomatoid carcinoma, leiomyosarcoma, or rhabdomyosarcoma, making diagnosis difficult.

ALK, a protein over expressed in anaplastic large-cell lymphoma, is over expressed in IMTs and is a useful marker to differentiate IMTs from other malignant spindle-cell tumors. In our case, indeed tumor tissue was ALK-positive.

A systematic review by Teoh et al evaluated IMT cases from January 1900 to June 2013, which included 182 patients with mean age 38.9 ± 16.6 years. The commonest presentation was hematuria (71.9%) and dysuria (19.8%). Most patients underwent TURBT (60.8%); others had partial (29.2%) and radical cystectomy (9.2%). Of the 182 patients, 5 had local recurrence. Two of these occurred within 6 months, requiring repeat TURBT. While partial or radical cystectomy ensures complete resection of IMT, TURBT is also suitable given the benign course of IMT. Regular follow-up is required, including cystoscopy and CTU, for monitoring of recurrence, and distance metastases.

Despite tending to a benign course, 4% of tumors may recur following excision. Thus far, 1 case of metastases has been reported in the literature, involving a 71-year-old male with IMT of the bladder, who developed metastases to multiple lymph nodes, bone, and soft tissue.

Conclusion

In conclusion, IMT is a rare but benign clinical entity. It is often adequately managed with TURBT, followed by interval clinical and radiological monitoring for local recurrence and distant metastases. To the best of our knowledge, our case of IMT of the bladder is the first reported case in Australia, contributing to the literature of global case series and reports.

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None.

References