CASE REPORT

Rare case of bladder chondroma causing lower urinary tract symptoms

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SUMMARY

An extraosseous or soft tissue chondroma is a rare, benign cartilaginous tumour characterised by the formation of mature hyaline cartilage. The majority of osseous chondromas are located within the medullary cavity of long bones. Soft tissue chondromas are extremely rare with only five cases affecting the bladder being reported in the literature. Soft tissue chondroma of the bladder is a rare cause of lower urinary tract symptoms and abdominopelvic pain. All reported cases of soft tissue chondromas of the bladder have occurred in women in their fifth to seventh decades of life. We describe the case of a 65-year-old woman diagnosed with a soft tissue chondroma of her bladder while being investigated for lower urinary tract symptoms.

BACKGROUND

An extraosseous or soft tissue chondroma is a rare, benign cartilaginous tumour characterised by the formation of mature hyaline cartilage with the majority located within the medullary cavity of long bones.¹ Soft tissue chondromas are extremely rare with only five cases affecting the bladder being reported in the literature.^{2–6} We describe the case of a 65-year-old woman diagnosed with a soft tissue chondroma of her bladder while being investigated for lower urinary tract symptoms. To the authors' knowledge, this is the first case of a soft tissue chondroma of the bladder diagnosed in Australasia. This case was unfortunately complicated by urinary tract infection and osteomyelitis following resection, however, is important because it provides a review of the investigation, diagnosis, treatment and intermediate follow-up of a patient diagnosed with a rare pathology not well described in the literature.

Figure 2 H&E stain of histopathology sample at low power showing fragments of tumour with a focally well-circumscribed border.

CASE PRESENTATION

A 65-year-old previously fit woman was referred to the urology outpatient clinic for investigation of irritative lower urinary tract symptoms, specifically urgency and nocturia. There was no history of haematuria and no systemic features of malignancy. Apart from a previous elective cholecystectomy, there was no significant surgical or medical history, no risk factors for urological malignancy such as smoking or occupational exposure to chemicals and no known family history of malignancy.

A preliminary ultrasound identified a 15 mm mural-based mass at the right anterior bladder (figure 1).

The patient was subsequently brought to the theatre for cystoscopic examination under general anaesthesia and a small, submucosal mass was visualised at the anterior bladder just inside the bladder neck. The lesion was incompletely resected as there was a concern of bladder perforation.

Histopathology revealed multiple fragments of chondroid tissue, small numbers of isolated chondrocytes with fragments of smooth muscle bundles and fibrous stroma consistent with a benign soft tissue chondroma (figures 2,3).

At the time the bladder tumour was resected, there was a concern about a potential bladder perforation so the patient was discharged with an indwelling catheter. The postoperative recovery was subsequently complicated by the development of suprapubic discomfort with a urine sample confirming the development of an *Escherichia coli* urinary tract infection. Further radiological assessment was performed for persistent pubic symphysis discomfort with an MRI confirming the

Figure 1 Transabdominal ultrasound revealing 15 mm mural-based mass at the right bladder base.

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Figure 3 H&E stain of histopathology sample at high power showing mature cartilage with chondrocytes in lacunae and abundant chondromyxoid stroma.

development of osteomyelitis. A course of intravenous followed by oral antibiotics was administered with clinical improvement of symptoms and radiological improvement of the inflammatory phlegmon ([figure 4](#)).

Repeat flexible cystoscopy 1 month following initial resection revealed a small nodule of granulation-type tissue at the resection site but no overt evidence of recurrence and complete resolution of any bladder perforation. The patients lower urinary tract symptoms have also considerably improved with low-dose oxybutynin with complete resolution of the osteomyelitis following a prolonged course of antibiotics.

INVESTIGATIONS

A preliminary ultrasound identified a 15 mm mural-based mass at the right anterior bladder ([figure 1](#)).

Histopathology revealed multiple fragments of chondroid tissue, small numbers of isolated chondrocytes with fragments of smooth muscle bundles and fibrous stroma consistent with a benign soft tissue chondroma ([figures 2 and 3](#)).

DIFFERENTIAL DIAGNOSIS

Urothelial carcinoma of the bladder.

Non-urothelial carcinoma of the bladder.

Other soft tissue neoplasm.

Figure 4 MRI showing inflammatory phlegmon and osteomyelitic changes in pubic symphysis preantimicrobial therapy (A,B,C) and 4 weeks postantimicrobial therapy (D,E,F).

Benign polyp.

TREATMENT

The patient underwent a rigid cystoscopy under general anaesthesia and the lesion was resected. The lesion was incompletely resected as there was a concern for a bladder perforation at the time.

OUTCOME AND FOLLOW-UP

The patient underwent resection of the lesion which was unfortunately complicated by urinary tract infection and osteomyelitis. The osteomyelitis resolved following a prolonged course of antibiotics. Cystoscopic surveillance has shown no evidence of chondroma recurrence.

DISCUSSION

A chondroma is a benign cartilaginous tumour characterised by the formation of mature hyaline cartilage with the majority of chondromas identified within the medullary cavity of long bones.¹ Soft tissue chondromas are rare extraosseous lesions histologically comprising chondrocytes in a hyaline cartilage matrix which may be partly or completely surrounded by a condensed fibrocollagenous pseudocapsule.^{1 7} The aetiology of soft tissue chondroma remains uncertain with the lesions potentially developing from residual embryonal tissue or chronic inflammation stimulating metaplastic differentiation of pluripotent mesenchymal cells.⁸ Soft tissue chondroma may be associated with clonal chromosomal abnormalities including monosomy 6, trisomy 5 and rearrangements of chromosomes 11 and 12.⁷ Excision of soft tissue chondroma is considered to be curative with recurrence seen in 15%–20% of cases.^{7 9} Malignant transformation of soft tissue chondroma has not been identified and is considered to be of negligible risk.⁷

Soft tissue chondromas identified in all locations are usually diagnosed in the fourth to seventh decades of life and have been noted to occur in both men and women with equal frequency.⁸ Soft tissue chondromas have been reported in pelvic organs including the prostate, scrotum and testis; however, there have only been five reported cases of soft tissue chondroma of the bladder.^{2–6 8}

All published cases of soft tissue chondroma of the urinary bladder have occurred in women in their fifth to seventh decades with the lesion identified at the anterior wall of the bladder in four cases and at the ventral dome of the bladder in one case.^{2–6} All cases of soft tissue chondroma of the bladder have been diagnosed during the investigation for abdominal or pelvic pain or lower urinary tract symptoms.^{2–6} A single reported case of soft tissue chondroma of the bladder was identified in a patient with a recent diagnosis of high-grade urothelial carcinoma of the bladder.³ Due to its rarity, there remains limited evidence to suggest an association between soft tissue chondroma and malignant differentiation.⁴ [Table 1](#) summarises all currently reported cases of bladder chondroma.

Benign cartilaginous lesions such as chondroma can be difficult to differentiate from malignant lesions such as chondrosarcoma with diagnosis often requiring a combination of clinical, radiological and histological findings.¹ Histologically, chondrosarcoma can be differentiated from chondroma by its higher cellularity, nuclear pleomorphism, larger or double nuclei and usual lack of mitoses.¹ Less than 10 cases of chondrocarcinoma have been reported in the literature, with all patients dying within 1 year of diagnosis.¹⁰ Bladder chondrosarcoma is another recognised malignant neoplasm which has also been recognised

Table 1 Published bladder chondroma cases

Publication year	Journal	Author	Gender	Age	Signs and symptoms	Chondroma location	Lesion size	Management
1998	<i>Virchows Arch</i>	Pauwels <i>et al</i> ²	Female	63	Abdominal pain	Ventral dome	Not documented	Transurethral resection
2012	<i>Virchows Arch</i>	Perrino <i>et al</i> ³	Female	62	Abdominal pain, dysuria, frequency, nocturia	Anterior bladder wall	30 mm	Transurethral resection
2015	<i>Can Urol Assoc J</i>	Carter <i>et al</i> ⁴	Female	54	Abdominal pain	Anterior bladder wall	13 mm	Transurethral resection
2017	<i>Case Rep Urol</i>	Tamayo-Jover <i>et al</i> ⁵	Female	67	Persistent non-visible haematuria	Anterior bladder wall	14 mm	Transurethral resection
2017	<i>Urology</i>	Tazeh <i>et al</i> ⁶	Female	72	Non-visible haematuria, frequency and urgency	Anterior bladder wall	20 mm	Transurethral resection

to occur as a heterologous component within sarcomatoid urothelial carcinoma of the bladder.¹¹ Sarcomatoid urothelial carcinoma of the bladder has a poor median cancer-specific survival of approximately 14 months.¹²

In conclusion, soft tissue chondroma of the bladder is extremely rare. All documented cases of soft tissue chondroma of the bladder have occurred in women in their fifth to seventh decades and have been diagnosed during investigation of lower urinary tract symptoms or abdominopelvic pain. As with all previously documented cases, resection and cystoscopic surveillance provided the basis of treatment in this particular case which was unfortunately complicated by the development of urinary tract infection and osteomyelitis.

Learning points

- Soft tissue chondroma of the bladder is a very rare cause of lower urinary tract symptoms and abdominopelvic pain.
- All cases of soft tissue chondroma of the bladder have occurred in women in their fifth to seventh decades of life
- Malignant transformation of soft tissue chondroma is believed to be non-existent with resection and cystoscopic surveillance providing the recommended modality of treatment.
- Unfortunately, this particular case was complicated by urinary tract infection and osteomyelitis which is a recognised although very rare complication of inadvertently deep resection of bladder lesions.

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manuscript draft and providing the pathology photos. All authors (SN, SM, CF, JM) have approved the final draft and have agreed to be accountable for the article and ensure that all questions regarding the accuracy or integrity of the article are investigated and resolved.

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