

# Subpubic cartilaginous cyst: an unusual cause of urinary tract infection

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## Lesson

It is important to consider alternative causes when treating refractory cases of urinary tract infection in the elderly population.

## Keywords

Subpubic cartilaginous cyst, urinary tract infection, symphysis pubis

## Introduction

A subpubic cartilaginous cyst is a rare cystic lesion closely related to the symphysis pubis which is completely benign and degenerative in nature,<sup>1</sup> but with the potential to be misclassified as a malignancy. We present a case of recurrent urinary tract infection associated with a subpubic cartilaginous cyst.

## Case report

An 81-year-old female presented to the urology clinic with a long history of recurrent urinary tract infections for which she was on long-term prophylactic antibiotics. She complained of suprapubic discomfort and urethral pain during micturition. She was otherwise well. On vaginal examination, a mass was palpable anteriorly which prompted further investigation. A transvaginal ultrasound was requested which demonstrated an iso-hyperechoic mass measuring 25 mm, closely related to the pubic symphysis containing anechoic cystic areas. The mass was thought to potentially represent a malignancy, and therefore further imaging was undertaken in the form of a computed tomography abdomen/pelvis and magnetic resonance pelvis. The computed tomography showed the lesion to be well circumscribed and hypoattenuating, again closely related to the posterior/inferior pubic symphysis. Degenerative changes were noted within the symphysis pubis (Figure 1). On magnetic resonance imaging, the lesion was seen as a well-defined, rounded mass which had a broad interface with the

symphysis. On T1 sequences, it was hypointense relative to muscle, and heterogeneously hyperintense on T2 sequences (Figure 2). Following administration of gadolinium contrast, there was a thin rim of enhancement (Figure 2) but the mass itself did not enhance.

The multidisciplinary team felt that a malignancy needed to be excluded and that compression of the urethra was contributing to the recurrent urinary tract infections. The patient therefore underwent an ultrasound-guided needle biopsy of the mass which revealed poorly cellular benign connective tissue. Initially, a repeat biopsy was planned, but after further review of the imaging, we were confident that location and features of the mass were typical for a subpubic cartilaginous cyst.

## Discussion

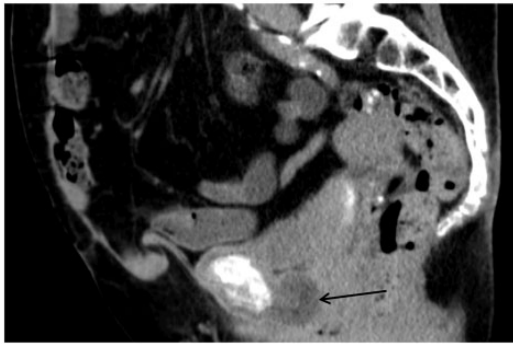
Subpubic cartilaginous cysts were first reported in the medical literature by Alguacil-Garcia and Littman,<sup>2</sup> with only 19 cases described in total (including the current case).<sup>1–16</sup> They are benign, degenerative lesions arising from the symphysis which have been predominantly observed in middle aged or elderly parous women. The published age of diagnosis ranges from 54 to 81 years old, with only two cases in male patients. The diagnosis may be difficult because of their rarity and limited documented description.

In the reported literature, subpubic cartilaginous cysts are known to present in a variety of ways, most frequently voiding difficulty, recurrent urinary tract infections, a vulval mass and suprapubic or vaginal pain.<sup>1–16</sup>

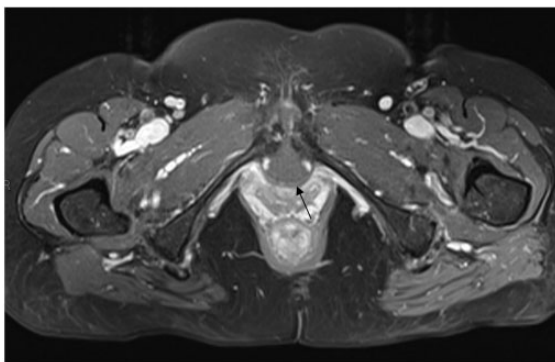
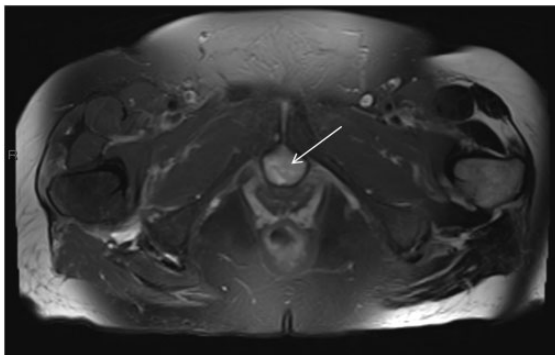
The symphysis pubis is a secondary cartilaginous joint consisting of a central fibrocartilaginous disc between the pubic bones covered by a thin layer of fibrocartilage. The key feature of the subpubic cartilaginous cyst is the close relationship to the symphysis pubis. They usually originate from the inferior aspect of the symphysis and have a wide interface with the

joint. On pathological examination, they consist of a dense fibrocartilaginous capsule internally covered by a thin layer of degenerate fibrocartilage. The lumen is

**Figure 1.** Sagittal computed tomography demonstrating a hypo-attenuating mass (black arrow) closely related to the pubic symphysis.



**Figure 2.** Magnetic resonance imaging sequences – axial T2-weighted image demonstrating a heterogeneous mass with high signal intensity (white arrow) and gadolinium contrast axial T1-weighted fat saturated image showing faint peripheral enhancement (black arrow).



filled with acellular debris and further degenerate fibrocartilage with mucin deposits.<sup>2</sup>

Imaging is central to a confident diagnosis and may avert biopsy and surgical intervention. On plain radiography, non-specific degenerative changes are seen in the symphysis pubis consisting of marginal irregularities and sclerosis.<sup>1</sup> Transvaginal ultrasound demonstrates a mass closely related to the pubic symphysis with cystic components.<sup>1,6</sup> On computed tomography, the mass has a soft tissue density,<sup>1</sup> and one case has described a central gas ‘vacuum’ phenomenon. Magnetic resonance imaging is the most useful imaging modality to distinguish the anatomical relationships and specific signal characteristics. The features are those of a cystic structure with generally hypointense signal intensity on T1-weighted and heterogeneously hyperintense signal intensity with T2-weighted sequences. The mass will often show mild peripheral enhancement, but no internal enhancement, and no abnormal signal in the adjacent bone.

The differential diagnosis for our case includes other perineal/vulval masses such as Bartholin cysts, solid neoplasms arising from the clitoris or urethra and benign or malignant bony lesions. None of these alternative lesions are so closely related to the pubic symphysis. A primary bony tumour or metastasis would be a possibility, but the position would be unusual and the imaging characteristics different. From the literature available, it seems that the imaging characteristics of the subpubic cartilaginous cyst are sufficiently unique to confidently distinguish from other diagnoses.

Treatment of the subpubic cartilaginous cyst is far from established due to the rarity of the condition. In the reported cases, 12 have undergone surgical excision, with no recurrence demonstrated at up to three years’ follow-up. Excision may be useful if there are troublesome symptoms and signs. Successful conservative management has also been reported. In addition to our case, two further cases underwent initial biopsy and/or aspiration,<sup>1,11</sup> with stable appearances up to two years later. Four reported cases have been diagnosed at imaging alone with no needle biopsy, these remained stable at up to six months, with two showing regression when followed up to 48 months.<sup>5,12,15,16</sup> To date, our patient has been managed conservatively, follow-up magnetic resonance imaging at 12 months showed no significant interval change and she continues on long-term prophylactic antibiotics to manage the recurrent urinary tract infections.

## Conclusion

The subpubic cartilaginous cyst is a rare benign mass lesion that can cause urinary symptoms in middle

aged and elderly women. Early and confident diagnosis with imaging can avert undue anxiety and facilitate appropriate management.

#### Declarations

**Competing Interests:** None declared.

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**Ethical approval:** Written informed consent for publication was obtained from the patient.

**Guarantor:** GP, TM and SC.

**Contributorship:** TM and SC identified the case for publication. SC provided initial draft. GP performed literature search and developed further drafts. All authors contributed to further drafts and approved final version.

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