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Case Report

Retropubic parasymphyseal cyst: A rare entity ☆,☆☆

Abraham Ahmed, MD, Brian J. Morse, MD, Rikesh J. Makanji, MD, Jamie T. Caracciolo, MD, Arthur Parsee, MD*

Diagnostic Imaging and Interventional Radiology, Moffitt Cancer Center, 12902 USF Magnolia Dr, Tampa, FL 33212, USA

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ABSTRACT

We report a case of a retropubic parasymphyseal cyst in a 69-year-old multiparous female with a protracted history of metastatic small bowel carcinoid (neuroendocrine) tumor. Cysts related to the pubic symphysis are uncommon, and mostly reported in subpubic location. They may be confused with primary vulvar masses, malignant bone tumors or metastatic disease. In our case, encapsulation, lack of solid components or diffusion restriction, communication with the symphysis, lack of activity on Gallium-68-Dotatate PET/CT and signal characteristics on MRI similar to those previously reported in literature for subpubic cysts all aided in eventual diagnosis. We aim to remind the reader of this rare entity and its distinguishing features on imaging.

Case report

A 69-year-old multiparous female presented with a protracted history of metastatic small bowel carcinoid (neuroendocrine) tumor. Briefly, the patient had a remotely resected left pleural mass involving the chest wall later found to represent metastatic neuroendocrine tumor, with subsequent resection of the primary terminal ileal mass. The disease later demonstrated systemic spread to the liver and mesenteric lymph nodes.

She had been started on a maintenance dose of a long acting somatostatin analog (Lanreotide). Yearly surveillance scanning with contrast enhanced CTs of the chest, abdomen and pelvis (Sensation 64, Siemens Medical Solutions) as well as gallium-68 DOTA-Tyr3-octreotate (Gallium-68-Dotatate) PET/CT imaging (Discovery MI DR, GE Healthcare) had shown stable disease at these sites since initiation of treatment in 2015. The patient was also clinically stable over that duration from her cancer with occasional cutaneous flushing and bouts of diarrhea.

Two years later, a subtle subcentimeter soft tissue density was seen along the posterior pubic symphysis, with serial growth and an enlarging central low density component over subsequent scans (Fig. 1). The rounded mass measured 1.2 cm in diameter on CT when initially discovered, then grew to 2 cm over the next year and eventually stabilized in size at 2.5 cm over the subsequent years. The patient was asymptomatic

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* Corresponding author.
E-mail address: Abraham.Ahmed@moffitt.org (A. Ahmed).
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Fig. 1 – A 69-year-old woman undergoing yearly surveillance for metastatic carcinoid tumor. Sequential pelvic CT scans with intravenous contrast performed in 2017, 2018, and 2019 show a slowly enlarging, low-density structure posterior to the pubic symphysis without solid enhancement (indicated with arrow). Note lack of aggressive osseous changes in the adjacent pubic bodies.

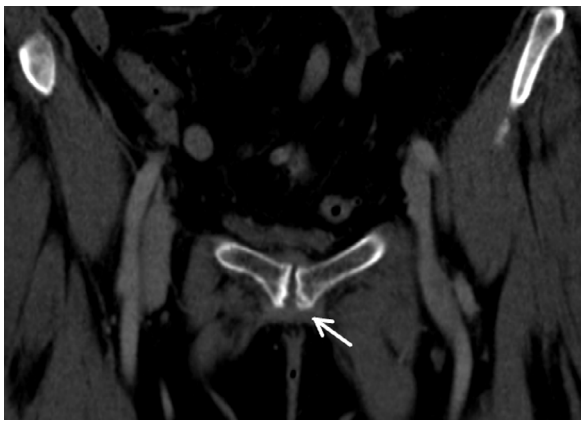

Fig. 2 – Coronal CT image demonstrates degenerative changes including narrowing at the pubic symphysis with articular surface irregularity, subarticular sclerosis and small marginal osteophytes inferiorly (arrow).

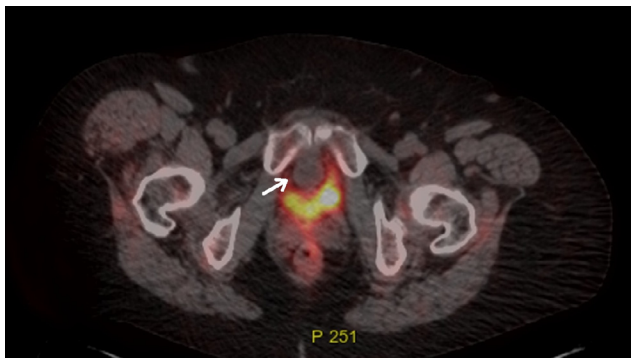

Fig. 3 – Fused axial image from Gallium-68 Dotatate PET/CT shows no radiotracer accumulation in the mass (arrow). Activity posterior to the mass is excreted radiotracer in the urinary bladder. Subarticular sclerosis is again noted in the adjacent pubic bodies.

with regards to this small mass with no complaints of pelvic or bone pain. There were degenerative changes noted in the adjacent pubic symphysis including joint space narrowing, subarticular sclerosis, articular surface irregularity, and marginal osteophytes (Fig. 2). The mass was not somatostatin receptor positive as evidenced on Gallium-68 PET imaging (Fig. 3).

To better characterize the growing mass, a contrast enhanced pelvic MRI was performed (Siemens Avanto 1.5T, Siemens Medical Solutions), and demonstrated a 25 × 17 × 28 mm rounded retropubic mass (Fig. 4). The mass was encapsulated with broad based contact with the posterior symphysis and probable contiguity with the interpubic disc. Mild mass effect was noted upon the urinary bladder without invasion. T2 weighted imaging showed the mass to be heterogeneously hyperintense and T1 weighted sequences revealed the mass to be of isointense to hypointense signal relative to pelvic musculature. A thin rim of peripheral enhancement was noted however there was no enhancement centrally on postcontrast sequences. There was also no diffusion restriction. No associated osteolysis, intraosseous signal changes, or abnormal enhancement was noted in the adjacent pubic bodies which demonstrated small osteophytes and mild joint space narrowing.

Discussion

The pubic symphysis is comprised of the articular surfaces of the pubic bodies covered with hyaline cartilage which thins with age, as well as an interpubic disc with a fibrocartilaginous core which has been anatomically compared to intervertebral discs. The articulation is stabilized by 4 pubic ligaments: anterior, inferior, superior, and posterior as listed in order of reported stabilizing contribution and overall thickness [1]. The joint resists tensile, shearing and compressive forces and is able to widen during pregnancy under the influence of the relaxin hormone through increased collagen catabolism in animal models [2]. Inflammatory arthropathies, infection, trauma, or degenerative changes are all commonly known to affect the pubic symphysis [3].

Parasymphyseal cystic masses are rare entities with only a handful of suprapubic and subpubic cysts reported in the literature [4–8]. Their pathogenesis is poorly understood. Varying sizes have been described, with the largest reported subpubic cyst measuring nearly 5 cm [8]. Given their location, they may sometimes be confused with other cystic vulvar masses, including Bartholin's or Gartner duct cysts, particularly in symptomatic patients [9,10]. They may also

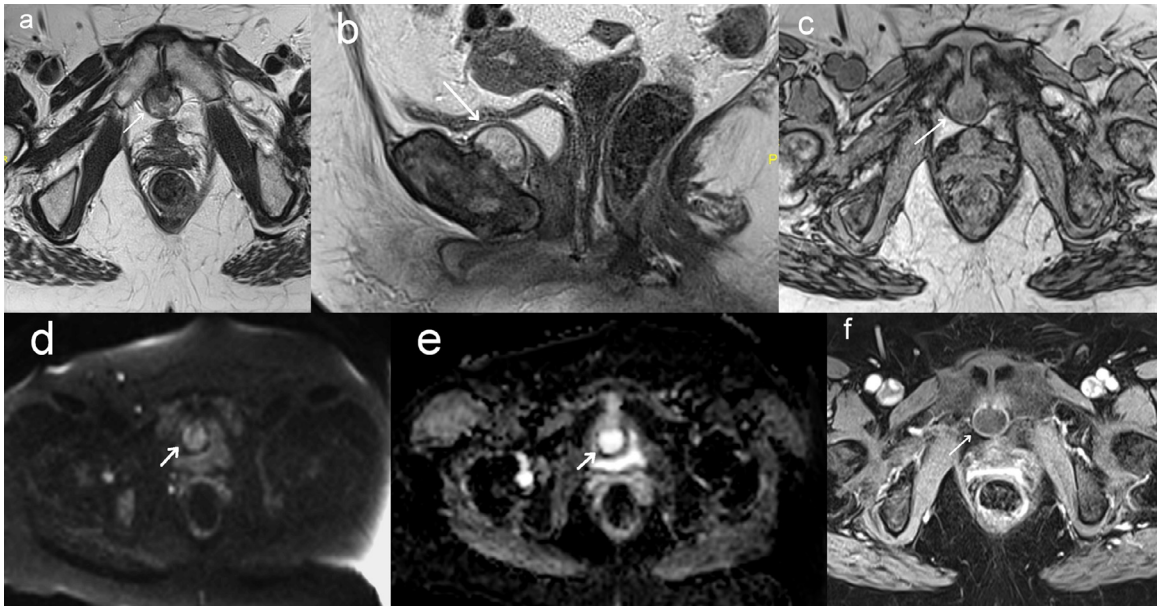

Fig. 4 – Contrast enhanced pelvic MRI demonstrating a 25 x 17 x 28 mm rounded retropubic mass. (a) Axial and (b) Sagittal T2-weighted single-shot fast spin echo images show heterogeneous increased T2 signal in the mass and apparent contiguity with the interpubic disc. (c)Axial Dixon T1-weighted out-of-phase image shows signal intensity similar to or slightly less than skeletal muscle. No aggressive marrow signal changes were noted in the adjacent pubic bodies which demonstrate mild narrowing and osteophytes. (d) Axial diffusion-weighted (b value 800) and (e) ADC map images show there is no restricted diffusion in the mass. (f) Axial T1-weighted fat-suppressed postcontrast image shows rim enhancement but no solid enhancement within.

be incidentally discovered in routine oncologic surveillance, making distinction from metastatic disease crucial.

In the past these cysts have been excised in symptomatic patients and revealed benign cartilaginous tissue with reactive changes at the periphery and central cystic degeneration [7]. There appears to be a preponderance in multiparous postmenopausal women. Some authors have hypothesized that these may represent mucinous degeneration of the supporting ligaments with cartilaginous metaplasia [4].

To our knowledge, this is the first report of MRI characterization with serial CT evolution of a retropubic parasymphyeal cyst. Broad based contact with the symphysis and probable contiguity with the interpubic disc, lack of diffusion restriction, or solid enhancement, encapsulated nature and lack of aggressive osseous change in the adjacent pubic bodies all exclude a malignant etiology such as chondrosarcoma. The MRI signal characteristics are also identical to those previously described for subpubic cysts [5,7]. The location and imaging appearance would exclude other cystic vulvar masses (Bartholin's and Gartner duct cysts) as well as solid perineal masses such as lipomas or fibromas from the differential. In our particular case, imaging differentiation from a metastatic neuroendocrine tumor deposit (lack of activity on Gallium-68 PET/CT, lack of enhancement or restricted diffusion) was critical to guide clinical treatment and avoid aggressive measures.

Informed consent

Informed consent was obtained and a copy is available upon request. The case was anonymized, with exemption from institutional IRB approval.

Ethical treatment of human subjects

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

REFERENCES

[1] da Rocha RC, Chopard RP. Nutrition pathways to the symphysis pubis. J Anat 2004;204:209–15.
[2] Samuel CS, Coghlan JP, Bateman JF. Effects of relaxin, pregnancy and parturition on collagen metabolism in the rat pubic symphysis. J Endocrinol 1998;159:117–25.

[3] Gamble JG, Simmons SC, Freedman M. The symphysis pubis anatomic and pathologic considerations. A Publication of The Association of Bone and Joint Surgeons® | CORR®; 1986. p. 203.
[4] Alguacil-Garcia A, Littman CD. Subpubic cartilaginous cyst: report of two cases. Am J Surg Pathol 1996:20.
[5] Bullock RW, Soares DP, Shah S. Subpubic cartilaginous cyst: an unusual cause of a vulval mass. BMJ Case Rep 2009;2009 bcr11.2008.1232.
[6] Ergun T, Lakadamyali H, Aydin O. Subpubic cartilaginous cyst: incidental finding detected by abdominopelvic computed tomography. Radiat Med 2008;26:46–9.
[7] Kim CE, Beasley HS. MRI diagnosis of subpubic cartilaginous cyst. Am J Roentgenol 2004;182:144–6.
[8] Gadde S, Brisson M, O'Donnell P. Sub-pubic cartilaginous cyst–diagnostic utility of CT-guided contrast injection. Skeletal Radiol 2011;40:1095–8.
[9] Judson PL, Ivy JJ, Zwolak P, Manivel JC, Clohisy DR. A suspicious vulvar mass diagnosed as a subpubic cartilaginous cyst. Arch Gynecol Obstet 2009;280:107–9.
[10] Lee HN, Ahn SE, Park JS, Park SY, Jin W, Ryu KN. Sonographic appearance of a cartilaginous cyst from the symphysis pubis mimicking a mass in the urinary bladder. J. Clin. Ultrasound. 2014;42:562–4.