

CASE REPORT

Open Access



Lower urinary tract symptoms in an elderly women caused by degeneration of the pubic symphysis

Kaixing He, Jinguo Wang, Haixiao Zhao and Jialin Gao*

Abstract

Background: Lower urinary tract symptoms are very common in elderly women, and transvaginal delivery and multiple deliveries have been confirmed to be risk factors. Transvaginal delivery and multiple deliveries may lead to an increase in pubic symphysis degeneration.

Case presentation: A 79-year-old woman consulted a urologist because of worsening lower urinary tract symptoms such as frequent urination and urodynia. Color ultrasound and cystoscopy suggested the possibility of a bladder mass. A lump on the anterior wall of the bladder was observed although the surface mucosa was normal. Physical examination showed obvious tenderness in the posterior area of the pubic symphysis. Further urological computed tomography (CT) and pelvic magnetic resonance imaging (MRI) showed a nodular bony protuberance in the posterior part of the pubic symphysis, which was more obvious than before, with compression changes near the anterior wall of bladder. Open pelvic surgery showed that nodular bone tissue originating from the pubic symphysis significantly oppressed the anterior wall of the bladder behind the pubic symphysis. After resection of the nodule, the lower urinary tract symptoms were relieved significantly.

Conclusions: Pubic symphysis degeneration caused by transvaginal delivery may be an important cause of lower urinary tract symptoms in women. Pelvic CT or MRI is necessary to diagnosis this condition.

Keywords: Lower urinary tract symptoms, Bladder, Pubic symphysis, Degenerative changes, Case report

Background

Lower urinary tract symptoms are important factors that affect the quality-of-life of elderly women. Urinary tract infections, an overactive bladder, and relaxation of pelvic floor muscles are common causes of lower urinary tract symptoms [1]. However, in recent years, several cases have reported abnormal changes after pubic symphysis that led to lower urinary tract symptoms in elderly women, such as a pubic symphysis cartilage cyst, abscess, or osteochondritis. The diagnosis and treatment

was complicated due to a lack of understanding of lower urinary tract symptoms caused by abnormal changes after pubic symphysis. We report a case of lower urinary tract symptoms in an elderly woman caused by retropubic symphysis degeneration, which we consider may be helpful for making the correct diagnosis and treatment strategies.

Case presentation

Two years ago the patient, a 79-year-old woman, had complained of frequent urination and urodynia for which there was no obvious cause. The painful urination resulted in continuous severe pain behind the pubic bone after urination, forcing the patient to tilt forward with flexion and not dare to straighten-up.

*Correspondence: gjl@jlu.edu.cn

Department of Urology, The First Affiliated Hospital of Jilin University, No 71 Xinmin Street, Changchun 130000, Jilin Province, People's Republic of China



The pain was relieved gradually after about 15 min, but reoccurred at the next urination. Bladder color ultrasound revealed a bladder mass, but there was no gross hematuria. One year ago, the patient was treated in our hospital, with a urinary CT and pelvic MRI identifying an anterior calcified bladder nodule, adjacent to the pubic symphysis. The nodule was considered to be a lesion occupying the pelvic space, although gynecological examination showed no abnormality. Accordingly, the patient was referred to the orthopedic department for further treatment. However, due to the close proximity of the nodule with the bladder and its special anatomical position, the patient was not treated in the orthopedic department, and was requested to attend regular rechecks. Because the above symptoms became aggravated the patient attended our hospital for further treatment. Bimanual diagnosis: Tenderness in the posterior area of the pubic symphysis was obvious. A pelvic separation test was negative. Reexamination of the pelvic CT and a cystoscopy showed nodular bony processes in the posterior part of the pubic symphysis, which were more obvious than before, with compression of the adjacent anterior wall of the bladder. However, no clear foreign body was observed in the bladder cavity and the mucosa of the protuberant part of the bladder was normal (Figs. 1, 2). The patient was asked about her medical history and described no history of either transurethral foreign body implantation, pelvic surgery, or trauma. She described a history of tuberculosis, although current examinations showed no evidence of the disease. The patient had complained of osteoporosis for 10 years and had received bone peptide injections every year. No abnormality was found in her calcium and phosphorus metabolism and serum

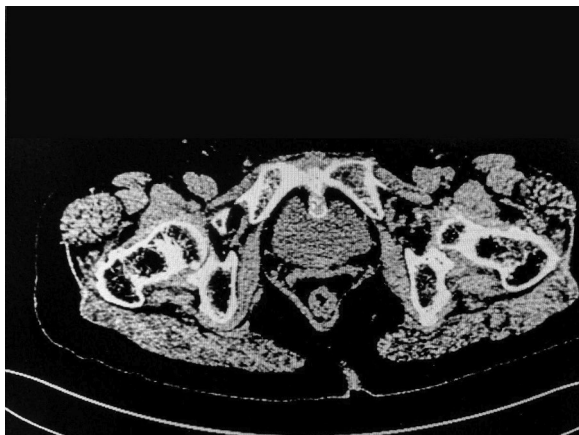


Fig. 1 CT showing abnormal changes at the back of the pubic symphysis and compression of the adjacent anterior bladder wall

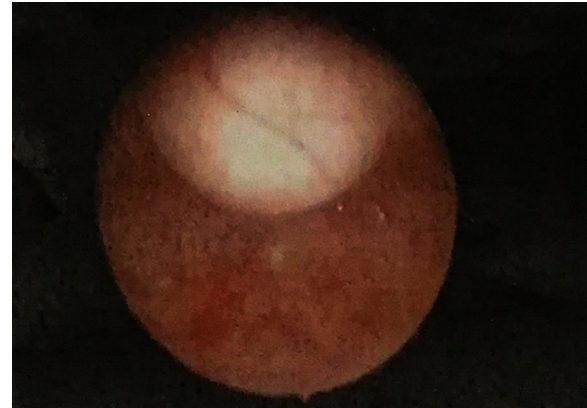


Fig. 2 Cystoscopy showing that the mucosa of the bladder triangle and posterior wall was ruddy, with a bulge of about 2.0 × 1.5 cm in size on the top wall. The surface mucosa is normal, which appears to be caused by extravascular compression

PTH level. An orthopedic consultation was arranged to consider the possibility of hyperosteogeny.

We finally decided to perform open pelvic surgery. During the operation, nodular bone tissue from the pubic symphysis was seen to be obviously oppressing the anterior wall of the bladder, surrounded by inflammatory changes that adhered to the serosa layer of the bladder with no clear boundaries (Fig. 3). The local bladder serosa layer was cut with an electric knife and after the nodule was completely exposed, a bone biting forceps was used to snip it from the basin wall of the pubic symphysis. The rough surface of the nodule was polished with a bone file until it was flush with the basin wall and then sealed with bone wax. No damage was found in the muscular layer

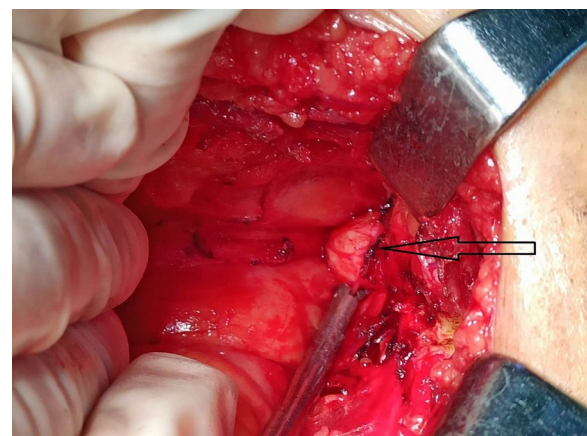


Fig. 3 Nodular and hard bone tissue from the pubic symphysis seen behind the pubic symphysis, with a size of about 1.5 cm. The surface is round and blunt, while the boundary with the bladder serosa layer is not clear. (Shown at the arrow)

of the bladder. The cut tissue was sent for pathological examination (Fig. 4). The discomfort symptoms of the patient such as frequent and painful micturition were significantly relieved after the operation. The international prostate symptom score (IPSS) score was used as the template to evaluate the symptoms of frequent, painful, and laborious micturition [2]. Before the operation the patient's score was 34 points (i.e., severe symptoms) and 4 days after the operation was 12 points (i.e., moderate symptoms).

Discussion and conclusion

Reference to relevant literature published in the last 10 years [3–8] showed more than a dozen cases of lower urinary tract symptoms caused by pubic symphysis degeneration, including 15 cases of a pubic symphysis cartilage cyst, 1 case of a pubic symphysis osteomyelitis abscess, and 1 case of pubic symphysis osteochondritis. These cases were mainly postmenopausal women, some with a history of delivery trauma and perineal trauma. The main clinical symptoms were frequent urination, pain in the retropubic region, urinary incontinence, and other lower urinary tract symptoms. The majority of these cases were diagnosed by pelvic CT or MRI, with the symptoms improving significantly after surgery. According to the literature, osteochondritis of the pubic symphysis is a self-limited disease, which can be relieved by conservative treatment such as drugs and physiotherapy, but may easily reoccur. However, surgical intervention is needed if the condition is complicated by infection and degenerative changes such as bone destruction and hyperosteoegeny [9].

Interestingly, another case of bladder pseudotumor caused by late degeneration of the pubic symphysis has been reported that was very similar to the present case

[4]. In this case, the patient was treated for symptoms of a lower urinary tract infection. Bladder color ultrasound and cystoscopy showed a lump on the anterior wall of the bladder, although the surface mucosa was normal. After transurethral resection of the bladder tumor, pathology showed that the necrotic mass was full of fibrin and had no tumor cell characteristics. However, a mass was found again at the same location 3 weeks after the operation. Further pelvic MRI examination showed progressive degenerative changes of pubic symphysis, with connective tissue formed in the anterior wall of the bladder. During the course of treatment in our patient we also considered the possibility of bladder wall tumors, and if we had not performed a pelvic CT and MRI we may have encountered the same problem. Therefore, pelvic CT and nuclear magnetic resonance examination are necessary for diagnosis and appropriate treatment of unexplained lower urinary tract symptoms, especially in patients with bladder compression.

A previous study reported that about 55.5% of Chinese adult women have at least one lower urinary tract symptom, with an increase in the number of vaginal deliveries and deliveries confirmed to be risk factors for these symptoms [10]. Therefore, degeneration of the pubic symphysis caused by transvaginal delivery may be an important cause of female lower urinary tract symptoms.

Pathology suggested that urate deposition may have been a possible pathogenic factor in our patient despite her uric acid level being normal. Relevant literature reports that urate deposition is related closely to hyperuricemia and occurs rarely in patients with a normal serum uric acid level. Hyperuricemia often involves distal hand and foot soft tissue and joints and although it is common for uric acid crystals to invade cartilage, this is rare in the pubic symphysis [11, 12]. Due to a lack of



Fig. 4 Pathological specimen: The texture of the nodule is white and slightly soft compared with the bone. Pathological report: Degenerative cartilage tissue, in which radial fine needle like crystals are seen that have destroyed the cartilage tissue with formation of local calcification. These changes may be caused by urate deposition

relevant literature, there is no further discussion on hyperuricemia in this paper (Additional file 1).

In conclusion, female lower urinary tract symptoms are often encountered by urologists and the present case provides relevant experience on the diagnosis and treatment of female lower urinary tract symptoms (Additional file 2).

Abbreviations

CT: Computed tomography; MRI: Magic resonance imaging; PTH: Parathyroid hormone; IPSS: International prostate symptom score.

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12894-022-01052-1>.

Additional file 1. CARE checklist.

Additional file 2. Pathological report.

Acknowledgements

The authors would like to express their gratitude to EditSprings (<https://www.editsprings.cn/>) for the expert linguistic services provided.

Author contributions

KH: made substantial contributions to the conception and design of the work, acquisition, analysis, and interpretation of data and preparing the manuscript. JW: made substantial contributions to the interpretation of data and has substantially revised it. HZ: made substantial contributions to the data collection and picture editing. JG: critically reviewed and revised the manuscript. All authors read and approved the final manuscript.

Funding

The authors did not receive any funding.

Availability of data and materials

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Competing interests

The authors declare that they have no competing interests.

Received: 20 October 2021 Accepted: 30 June 2022

Published online: 06 July 2022

References

1. Sun YH. Wu Jieping Urology. Beijing: People's Health Publishing House; 2019. p. 2447–52.
2. Bayoud Y, de la Taille A, Ouzzane A, et al. International Prostate Symptom Score is a predictive factor of lower urinary tract symptoms after radical prostatectomy. *Int J Urol*. 2015;22(3):283–7.
3. Klemme M, Kowalski JT. Rare subpubic cartilaginous cyst presenting with lower urinary tract symptoms. *Int Urogynecol J*. 2021;32(2):465–7.

4. Szopiński TR, Sudol-Szopińska I, Furmanek MI, Dzik T, Chłosta PL, Borówka A. Degeneration of the symphysis pubis presenting as a submucosal urinary bladder tumour. *Wideochir Inne Tech Maloinwazyjne*. 2012;7(1):55–8.
5. Pimentel Torres J, Morais N, Cordeiro A, Lima E. Abscess originating from osteomyelitis as a cause of lower urinary tract symptoms (LUTS) and acute urinary retention. *BMJ Case Rep*. 2018;2018:bcr2018224559 (Published 2018 June 21).
6. 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(9):562–4.
7. Elmelund M, Thind P, Klarskov N. Retropubic cartilaginous cyst presenting as stress urinary incontinence. *Int Urogynecol J*. 2015;26(3):455–7.
8. Zhang XY, Hu GF, Feng SR, Mao ZM, Luo SL, Liu XB. Imaging manifestations of osteochondritis of pubic symphysis. *J Contemp Med*. 2013;19(35):67–9.
9. Zheng SX, Li QC, Li T, Xu H, Cai WX, Jiang ZC. Treatment of osteochondritis of pubic symphysis: a case report. *Chin J Ethnomed Ethnopharmacol*. 2017;26(06):92–3.
10. Zhang LA. Population-based epidemiology survey of the lower urinary tract symptoms in adult Chinese women. Beijing: Peking Union Medical College; 2015.
11. Qian K, Zhang YY, Li CM, Xu WY, Gu BJ, Chen XG. To investigate the changes and significance of IL-6, IL-1 β and inflammatory factors of gouty arthritis with low uric acid. *Label Immunoass Clin Med*. 2018;25(02):183–5.
12. Zhang B, Cui Y, Wu JP, Liu Y. Regularity of urate crystal deposit in hands and feet. *Chin J Surg Integr Tradit West Med*. 2013;19(06):627–30.

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Ready to submit your research? Choose BMC and benefit from:

- fast, convenient online submission
- thorough peer review by experienced researchers in your field
- rapid publication on acceptance
- support for research data, including large and complex data types
- gold Open Access which fosters wider collaboration and increased citations
- maximum visibility for your research: over 100M website views per year

At BMC, research is always in progress.

Learn more biomedcentral.com/submissions

