

# Osteitis pubis following laparoscopic Burch colposuspension: A case report

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## ABSTRACT

Osteitis pubis is a condition which predominantly affects young athletes. However, it may also occur following uro-gynecological interventions. We report a case of osteitis pubis following laparoscopic Burch colposuspension. There are several theories on the pathogenesis of postoperative osteitis pubis and a wide variety of treatment options have shown inconsistent outcomes. In our case, the condition was diagnosed radiologically and was managed with antibiotics and analgesics, which resulted in complete recovery.

## 1. Introduction

Burch colposuspension is considered as the “gold standard” treatment for stress urinary incontinence. An open Burch procedure for stress urinary incontinence was originally described in 1961 and it was a major breakthrough in the treatment of stress urinary incontinence [1]. Laparoscopic Burch colposuspension, which was first described by Vancaille and Schuessler, is gaining popularity as it provides the generic advantage of minimal-access surgery and it avoids the complications associated with mesh. During laparoscopic Burch colposuspension, while operating in the space of Retzius, non-absorbable sutures are placed paraurethraly anchoring paravaginal tissues to Cooper's ligaments to prevent excessive mobility of the urethra [2].

Osteitis pubis is an inflammatory process involving the pubic symphysis and its surrounding attachments, including cartilage, ligaments, muscles, and the pubic rami [3]. It is a rare complication following urinary incontinence or pelvic reconstructive surgery [4]. We present the first published case of osteitis pubis following laparoscopic Burch colposuspension.

## 2. Case presentation

A 56-year-old woman underwent laparoscopic Burch colposuspension for stress urinary incontinence. Intravenous co-amoxiclav 1.2 g was given prophylactically prior to general anesthesia. The laparoscope was inserted through infraumbilical incision and three accessory ports were placed (two on the left and one on the right of the abdomen). The space of Retzius was approached intraperitoneally. After confirming that the pelvic anatomy was normal, the parietal peritoneum was opened

approximately 2 cm above the bladder fold, and the space of Retzius was entered by dissecting the bladder down and away from the symphysis pubis. Burch urethropexy was followed as closely as possible with minimal dissection within 2 cm of the urethrovesical junction. Full-thickness sutures were placed through the shiny white paravaginal fascia with two nonabsorbable (proline 2.0) sutures on each side. One was placed 2 cm lateral to the urethrovesical junction, and the other 2 cm lateral to the mid-urethra. An assistant kept a swab on a sponge forceps vaginally, to elevate the anterior vaginal wall in order to facilitate the dissection and placement of sutures in the paravaginal fascia. Excessive tension on the vaginal wall was avoided when tying the sutures; a suture bridge of approximately 2 cm was used. A Foley catheter was kept in place for 12 h. The patient was observed for a trial without catheter for 12 h and was able to pass urine without any voiding symptoms. A trans-abdominal ultrasound scan prior to discharge showed there was no residual volume. She was discharged on the following day and did not have stress urinary incontinence. The peri-operative period was uncomplicated.

One week postoperatively, the patient presented with suprapubic pain, worse during walking. Examination revealed tenderness over the symphysis pubis. She reported that the suprapubic pain had started few days after the operation and gradually worsened over the week. The pain limited her mobility and it was relieved by non-steroidal anti-inflammatory drugs. Initial investigations revealed a raised C-reactive protein level of 192 mg/L and erythrocyte sedimentation rate of 129 mm/h and a normal white cell count. Urine culture was negative.

A provisional diagnosis of osteitis pubis was made. However, pubic osteomyelitis was also considered as a differential diagnosis at presentation and she was commenced on analgesics and intravenous

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**Fig. 1.** X-ray of the pelvis showing blurring of bone margin more prominent on the left side suggestive of bone edema and inflammation of the pubis symphysis (white arrow).

antibiotics. Initially she was treated with intravenous co-amoxiclav 1.2 g eight hourly for 8 days. However, despite symptomatic relief following analgesics and antibiotics, her C-reactive protein level was rising. An X-ray radiograph of pelvis showed blurring of the bone margin suggestive of bone inflammation (Fig. 1).

A magnetic resonance imaging (MRI) scan of the pelvis showed high T2 and short-T1 inversion recovery signal intensity with contrast enhancement involving the symphysis pubis, surrounding soft tissues and muscles, including their attachments to the pubis. Joint margins were smooth and regular, and no joint effusion or degenerative changes were evident. The MRI appearance was suggestive of osteitis pubis.

Subsequently, co-amoxiclav was omitted and was started on intravenous vancomycin 1 g twice daily and intravenous ciprofloxacin 400 mg twice daily for 14 days.

Follow-up MRI 17 days after the initial MRI revealed high T2 signal intensity with contrast enhancement involving symphysis pubis, pubic bones, surrounding soft tissues and muscles. Indicative of inflammation. Cortices of the pubic bones were indistinct (Fig. 2).

There was a  $1.4 \times 0.7 \times 1$  cm focal area which was isovolumetric

on T1WI and high signal intensity on T2WI. It was suggestive of fluid effusion possibly secondary to abscess formation. She underwent ultrasound guided drainage of the collection, which contained a serous fluid; fluid culture was negative.

With antibiotic therapy, she recovered completely, with improvement of symptoms and normalization of C-reactive protein level.

### 3. Discussion

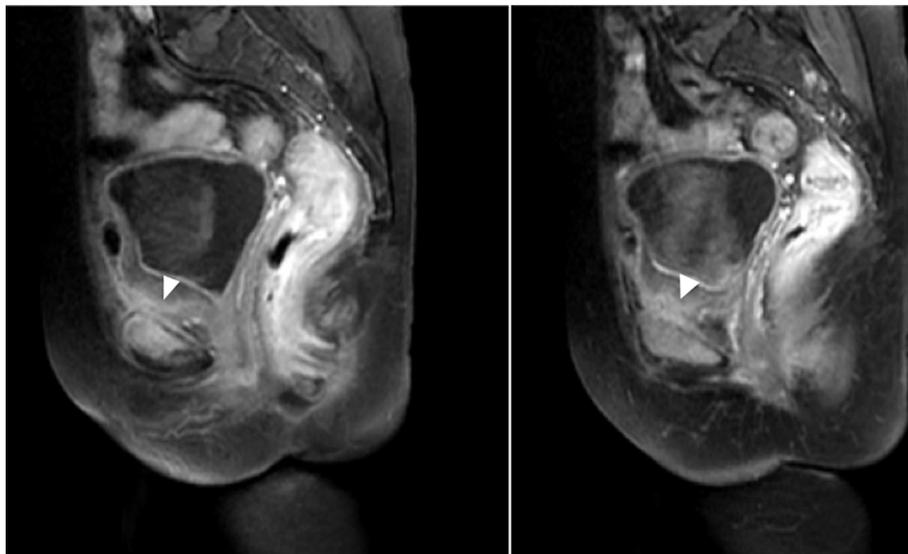
Osteitis pubis has been described as a noninfectious, self-limited inflammatory condition of the symphysis pubis. It is associated with urologic and gynecologic surgical procedures, trauma, connective tissue disorders, and pregnancy [3].

Osteitis pubis is uncommon following urogynecology procedures. Osteitis pubis is reported to occur in only 1% to 2.5% of patients undergoing Marshall-Marchetti-Krantz procedure [4]. During this procedure sutures are placed directly into the periosteum or cartilage of the symphysis pubis.

Several etiologies have been proposed for osteitis pubis, such as trauma, low-grade infection, and venous congestion. Pathophysiology of osteitis pubis following laparoscopic Burch colposuspension is not clear. However, it may result from the placement of sutures in the periosteum, which results in local insult to the bone itself. Another possibility is venous plexus injury following dissection of the retropubic space. Proposed theories for venous plexus injury include vascular obstruction, thrombosis, or impaired venous flow [5]. As this venous plexus drains some of the posterior veins of the pubic symphysis, obstruction could cause hyperemia with resultant bone demineralization. Due to the close association between the veins of the urinary tract and those that drain the pubic symphysis, and an anatomic lack of valves in these vessels, infection-induced urinary stasis has also been proposed as an inciting factor for venous congestion [6].

The diagnosis of osteitis pubis is based on typical symptoms of suprapubic discomfort, difficulty in ambulation and wide-based, waddling gait, and radiographic changes of irregular bony margins with rarefaction and widening of the symphyseal joint spaces [3].

The main differential diagnosis for osteitis pubis is pubic osteomyelitis, which has a similar presentation. Clinical presentation of osteitis pubis is known to occur within 1 to 8 weeks of the initiating event, and patients present with pubic pain and tenderness, whereas pubic osteomyelitis presents after a delay from the initiating event, with fever and leukocytosis. Radiologically, osteitis pubis may show more than 10 mm



**Fig. 2.** MRI of the pelvis: sagittal view T1 contrast image showing pubis symphysis, pubic bones, surrounding soft tissues and muscle with contrast enhancement suggestive of inflammation (white arrow head). Cortices of the pubic bones are indistinct.

separation of the symphysis pubis with loss of cortical periphery. However, negative radiological features do not exclude osteitis pubis. Pubic osteomyelitis shows cavitation and sequestrum on plain X-ray film and computerized tomography may reveal pelvic abscess or destructive osseous lesion.

In this case, there was retropubic fluid accumulation which may have been due to surrounding tissue inflammation. As there was a suspicion of abscess formation, the patient underwent ultrasound guided drainage, which revealed a sterile fluid collection.

Management of osteitis pubis in non-athletic women is conservative, with non-steroidal anti-inflammatory drugs and physical modalities, which offers a very good outcome in alleviating pain and minimizing limitation of activity [7]. However, in this case, as there was a risk of progression to osteomyelitis pubis and the patient had elevated inflammatory markers, we treated her with bactericidal antibiotics. This resulted in improvement of her condition clinically as well as biochemically. We suggest that this rare complication can be prevented by avoiding damage to the periosteum during anchoring of the sutures to the periosteum.

#### 4. Conclusion

Osteitis pubis should be considered as a differential diagnosis in patients presenting with postoperative suprapubic pain and tenderness following laparoscopic Burch colposuspension. It is diagnosed radiologically and managed conservatively while considering the possibility of underlying pubic osteomyelitis.

#### Contributors

Sajith Jayasundara contributed to patient care and management, and the writing and editing of the case report.

Rasika Herath contributed to patient care and management, and the

writing and editing of the case report.

#### Conflict of interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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#### Patient consent

Obtained.

#### Provenance and peer review

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#### References

- [1] J.C. Burch, Urethrovaginal fixation to Cooper's ligament for correction of stress incontinence, cystocele, and prolapse, *Am. J. Obstet. Gynecol.* 81 (1961) 281–290.
- [2] T.G. Vancaille, W. Schuessler, Laparoscopic bladder neck suspension, *J. Laparoendosc. Surg.* 1 (3) (1991) 169–173.
- [3] P.A. Fricker, J.E. Taunton, W. Ammann, Osteitis pubis in athletes: infection, inflammation or injury? *Sports Med.* 12 (4) (1991) 266–279.
- [4] T.C. Mainprize, H.P. Drutz, The Marshall-Marchetti-Krantz procedure: a critical review, *Obstet. Gynecol. Surv.* 43 (12) (1988) 724–729.
- [5] H.L. Steinbach, N.L. Petrakis, R.S. Gilfillan, D.R. Smith, The pathogenesis of osteitis pubis, *J. Urol.* 74 (6) (1955) 840–846.
- [6] M.B. Coventry, W.C. Mitchell, Osteitis pubis: observations based on a study of 45 patients, *JAMA* 178 (9) (1961) 898–905.
- [7] E. Kavroudakis, Treatment of osteitis pubis in non-athlete female patients, *Open Orthopaed. J.* 5 (1) (2011 Sep 16) 331–334.