Rare disease

Osteomyelitis of the pubic symphysis after spontaneous vaginal delivery

Rikke Arildsen Dunk, Jens Langhoff-Roos

Department of Gynaecology and Obstetrics, Rigshospitalet, Copenhagen, Denmark

Correspondence to Rikke Arildsen Dunk, rikkedunk@msn.com

Summary

Osteomyelitis ossis pubis is a painful disorder. It is rare following a normal vaginal delivery. In two cases, the diagnosis was verified by an ultrasound-guided needle aspiration postpartum. Both recovered after treatment with relevant antibiotics. The condition is easily misinterpreted as one of more common disorders like pelvic girdle pain, inflammation, diastasis or distortion of the pubic symphysis joint. If not recognised and treated, the condition can have severe consequences.

BACKGROUND

Mild to moderate regional pubic pain during pregnancy and parturition is normal. Sometimes, however, the pain and symptoms are so severe that you have to consider more serious conditions.

Osteomyelitis ossis pubis, also known as septic arthritis of the pubic symphysis, is rare. General risk factors are noted to include female incontinence surgery (retropubic urethropexy), sports, trauma, diabetes, pelvic malignancies and intravenous drug abuse.^{1 2} The clinical findings are similar to those of pelvic girdle pain, pubic osteitis (non-bacterial inflammation) and separation or rupture of the pubic symphysis: severe pubic pain, painful and waddling gait, pain with hip motion, bladder dysfunction (difficulty voiding) and low-grade fever.

Mild leucocytosis is not uncommon in osteitis and symphysis rupture, but in cases of osteomyelitis, leucocytes, C reactive protein (CRP) and erythrocyte sediment rate (ESR) are significantly increased.

The radiological findings are similar to those of osteitis (non-bacterial inflammation). X-ray findings reveal reactive sclerosis, rarefaction and osteolytic changes all of which lag behind the symptoms and clinical findings by approximately 4 weeks (figure 1). Ultrasound examination may be more sensitive to show abscess formation. Some suggest a three-phase bone scan to differentiate between infection and inflammation, as increased uptake in all three phases pleads for osteomyelitis while the typical finding for osteitis is increased uptake in the mineralisation phase or delayed phase only.²

In a review of 100 cases of pubic osteomyelitis of different genesis, cultures of needle aspirates from the symphysis were positive in 19 of 22 (86%) while bacteraemia was detected in 32 of 44 (73%) cases examined.¹ The pathogen isolated is usually *Staphylococcus aureus*, in drug misusers. *Pseudomonas aeruginosa* predominates and in patients with pelvic malignancies, polymicrobial flora involving faecal bacteria are found. In cases related to healthy women's vaginal deliveries, aspirates/biopsies have shown the

growth of *S aureus*, *P aeruginosa*, *Streptococcus pneumoniae* and *Streptococcus intermedius*.^{1–6}

Treatment of pubic osteomyelitis consists of long-term intravenous antibiotics and aspiration from the site, partly to ensure the diagnosis and partly to drain any abscess formation. Some have been treated with implants of antibiotic-impregnated beads. The review mentioned showed that surgical debridement was required in 55%, overall mortality was 2% while 8% developed chronic pelvic pain. Chronic urinary incontinence, urinary bladder perforation and pelvic instability are the complications described (the pubic symphysis accounts for approximately 40% of the pelvic stability).^{1 3 7}

Since pubic osteomyelitis, if not treated properly, can result in serious short- or long-term complications, it is very important to diagnose the condition.

During a short period of time, we diagnosed two such cases with osteomyelitis of the pubic symphysis following normal vaginal deliveries. The diagnosis was verified by paraclinical, ultrasound and microbiological examination.

CASE PRESENTATION

Case 1

A healthy 43-year-old woman was readmitted 5 days after a normal vaginal delivery. During the last 24 h, she had experienced increasing pain in the groin and over the pubic symphysis. Low-grade painkillers were no longer sufficient, and she experienced difficulty voiding and had a characteristic waddling gait. She had a low-grade fever of 38°C. CRP and leucocytes were normal. A gynaecological examination including vaginal ultrasound did not show any abnormalities. The following day, leucocytes and CRP increased to 12 billion cells/l and 338 mg/l, respectively. Also, D-dimer was elevated at 3.2 mg/l. To exclude deep vein thrombosis, the patient underwent Doppler-ultrasound examination, which was normal. The pain increased, she could no longer walk and had severe difficulties voiding. She had a bladder catheter. Urine culture was normal. Despite no obvious focus, she was treated with intravenous antibiotics (cefuroxime

Figure 1 X-ray showing signs of osteitis or osteomyelitis at the pubic symphysis (reactive sclerosis, rarefaction, osteolysis and joint irregularity).

and metronidazole). Her pain diminished slowly, and the condition was interpreted as pelvic ligament distortion and she had a trochanter belt. The symptoms persisted along with elevated CRP and leucocytosis, and on the 10th day postpartum, the patient was subject to an ultrasound examination, which revealed a small abscess at the symphysis pubis. Aspiration culture showed growth of haemolytic *Streptococcus* group G sensitive to the given antibiotics. After the aspiration, the patient's symptoms diminished rapidly. She was hospitalised for 16 days and received antibiotic treatment for 24 days. She recovered well and had no recurrence or sequelae.

Case 2

A healthy 31-year-old woman experienced increasing pain over the pubic symphysis 12 h after a normal vaginal delivery. She had no fever. Despite mild painkillers, the pain increased to a degree that the woman could no longer walk and had difficulty voiding. Her temperature rose to 38.9°C. Leucocytes and CRP increased to 15 billion cells/l and 157 mg/l, respectively. She had a bladder catheter and intravenous dose of cefuroxime. An orthopaedic surgeon interpreted the condition as pelvic ligament distortion. The following day, the pain increased and the blood samples and temperature showed no effect from the antibiotic treatment. An ultrasound examination revealed a hyperaemic process with low echogenicity behind the symphysis consistent with infection. Aspiration culture from the process

showed growth of *Staphylococcus epidermidis* sensitive to the given antibiotics. After the aspiration, the patient's symptoms diminished rapidly. She was treated with antibiotics and painkillers for a total of 2 weeks and recovered well with no recurrence or sequelae.

DIFFERENTIAL DIAGNOSIS

Pelvic girdle pain is a common self-limiting disorder present in approximately 45% of all pregnant women and in 25% of all women in the first weeks postpartum. It is treated conservatively or with a trochanter belt. Approximately 75% of the women are free of pain 3 weeks after delivery, while 99% have recovered 12 weeks postpartum. Recent studies show no effect of acupuncture on pelvic girdle pain.^{8–10}

Osteitis ossis pubis is a rare, non-bacterial, local inflammatory reaction usually associated with high-level athletic activity, trauma or urological/gynaecological surgery. Low-grade fever and mild leucocytosis are often present. As mentioned, the radiological findings are similar to those of pubic osteomyelitis (figure 1). Contrary to osteomyelitis, osteitis is self-limiting and treatment usually consists of anti-inflammatory agents and bed rest. Other more recalcitrant cases may require systemic steroids and rarely surgical resection.^{2 3 11}

Rupture/separation of the symphysis pubis with a diastasis greater than 10 mm is a rare complication of vaginal delivery with incidence estimates ranging from 1:300 to

1:30 000.^{7 12 13} Possible aetiologies include multiparity, foetal macrosomia, precipitous labour or rapid second stage of labour, previous pelvic pathology or trauma to the pelvic ring, malpresentation and forceful abduction of the thighs (as in McRoberts manoeuvre). Ultrasound or pelvic x-ray with the latter giving a more precise measure of the diastasis can detect symphysis separation. A separation less than 10 mm can be treated conservatively, while complete rupture (diastasis >15 mm) must be treated with long-term pelvic sling or surgically with a plate and screw osteosynthesis.⁷

Other differential diagnoses after vaginal delivery are thrombosis (deep vein thrombosis), uterine atony, paravaginal haematoma, lack of vaginal blood drainage, bladder injuries, bladder infection, pelvic malignancy or rheumatic/bone diseases.

DISCUSSION

Osteomyelitis ossis pubis is a rare condition. In the largest review of 100 cases, only two occurred in women in relation to delivery.¹ A systematic search on PubMed revealed additional three cases, one of which presented as chronic osteomyelitis.^{1 4-6}

Even though the condition is rare, it is painful and may have serious consequences if untreated. Therefore, it is an important differential diagnosis in a woman with postpartum pubic pain and fever.

As mentioned, it can be difficult to differentiate between the conditions that could lead to strong pubic pain after a normal birth. If the normal gynaecological examination does not reveal any pathological findings and the symptoms do not diminish with the usual treatment (mild painkillers and/or trochanter belt), an ultrasound examination and/or pelvic x-ray could give the examiner an idea of the diastasis and diagnose separation or rupture of the symphysis. For the trained eye, it might also reveal signs of abscess formation. Elevated CRP, leucocytes and ESR would support the diagnosis of osteomyelitis. The final distinction between osteitis and osteomyelitis is sometimes only possible by an ultrasound-guided needle aspiration from the area.

The importance of detecting cases of osteomyelitis and making sure that the infected area is properly drained (by aspiration or surgical resection) is shown by the numerous cases where doubt and lack of proper diagnosis had led to long-term polyantibiotic treatment, but where it was still possible to grow cultures of bacteria when finally aspiration was made.^{1-3 7}

Learning points

- ▶ Pubic osteomyelitis is a rare condition, which should be considered in women following normal vaginal delivery with severe pubic pain that does not respond to mild painkillers or trochanter belt.
- ▶ The condition is easily misinterpreted as one of more common disorders like pelvic girdle pain, inflammation or diastasis of the symphysis.
- ▶ Pubic osteomyelitis responds to ultrasound-guided aspiration followed by antibiotic treatment.
- ▶ Unless diagnosed and treated appropriately, pubic osteomyelitis can result in serious short- or long-term complications.

Competing interests None.

Patient consent Obtained.

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