Rare disease

Pyomyositis after vaginal delivery

Eve Gaughan, Maeve Eogan, Mary Holohan

Department of Obstetrics and Gynaecology, Rotunda Hospital, Dublin, Ireland

Correspondence to Dr Eve Gaughan, evegaughan@yahoo.co.uk

Summary

Pyomyositis is a purulent infection of skeletal muscle that arises from haematogenous spread, usually with abscess formation. It can develop after a transient bacteraemia of any cause. This type of infection has never been reported before in the literature after vaginal delivery. A 34-year-old woman had progressive severe pain in the left buttock and thigh and weakness in the left lower limb day 1 post spontaneous vaginal delivery. MRI showed severe oedema of the left gluteus, iliacus, piriformis and adductor muscles of the left thigh and a small fluid collection at the left hip joint. She was diagnosed with pyomyositis. She had fever of 37.9°C immediately postpartum and her risk factors for bacteraemia were a mild IV cannula-associated cellulitis and labour itself. She required prolonged treatment with antibiotics before significant clinical improvement was noted.

BACKGROUND

Pyomyositis is a purulent infection of skeletal muscle that arises from haematogenous spread, usually with abscess formation. This type of infection has never been reported before in the literature after vaginal delivery. As labour is a risk factor for bacteraemia and pyomyositis can occur after a bacteraemia of any cause, I feel it is a relevant consideration in women presenting with similar symptoms to the patient in this report. Its rarity made it a difficult diagnosis requiring multidisciplinary input. Early diagnosis is crucial to expedite recovery and minimise possible long-term complications.

CASE PRESENTATION

A 34-year-old Caucasian primiparous woman booked to our hospital at 10 weeks gestation. Her ultrasound scan confirmed her dates by her last menstrual period. Medical history included a heart murmur with a normal echocardiograph. She was a regular attender and had an uneventful antenatal course.

She was admitted at 41+2 weeks gestation for a post-dates induction of labour with prostaglandin. She had a spontaneous rupture of the membranes and the first stage of labour lasted 7 h and 15 min. She had an uncomplicated insertion of an epidural for analgesia. The second stage of labour lasted 2 h and 53 min (active second stage was 1 h and 43 min) resulting in the spontaneous vaginal delivery of a male infant weighing 3.57 kg, with Apgars 8¹, 10⁵. Duration of membrane rupture was 8 h and 23 min. The perineum was intact and a small tear was noted at the introitus not requiring sutures. Her temperature immediately postpartum was noted to be 37.9°C.

She reported being well in the morning day 1 postpartum but had progressive pain and weakness in the left thigh over the course of the day. She was found to have decreased muscle strength on flexion and extension of the left knee and slight numbness in the inner upper left thigh and pain in the inner and posterior muscles of the left thigh (L3/4 distribution). Lumbosacral MRI, the following day showed no evidence of epidural haematoma, disc

protrusion or cauda equine syndrome. The anaesthetist's opinion was that her symptoms were due to a localised neuropraxia possibly related to delivery and not related to epidural insertion.

On day 2 postpartum she developed urinary incontinence and on day 3 had of one episode of faecal incontinence after having lactulose.

Neurology took over care on day 4 postpartum as there was no resolution of her symptoms. She described severe pain in the left buttock to knee and was unable to weight bear on the left leg. She was still incontinent of urine.

She was reviewed by the pain medicine team and required oxycodone hydrochloride, gabapentin, diclofenac sodium and paracetamol to control her pain.

On day 6, her inflammatory markers were noted to be raised, white cell count 12.8, C reactive protein (CRP) 272 and erythrocyte sedimentation rate 99. The gynaecological team reviewed again and examination was unremarkable with no pain on bimanual examination and no vaginal discharge.

She proceeded to have an MRI pelvis which showed severe oedema of the left gluteus, iliacus, piriformis and adductors (figure 1). Electromyography showed no evidence of neuropraxia. She had a venous Doppler ultrasound which showed no evidence of deep venous thrombosis.

On day 8, she developed an erythematous rash over the left thigh spreading on to the lower abdomen. On medical review, it was considered that she might be developing a cellulitis and she was commenced on intravenous flucloxacillin, benzylpenicillin and metronidazole.

Two days later she reported an improvement in her symptoms for the first time. Her inflammatory markers were persistently raised and the infectious diseases team were asked to review. The infectious disease team elicited a history of a forearm cellulitis associated with an intravenous cannula that was inserted during labour. The diagnosis of pyomyositis was made by the infectious disease consultant. It was proposed that a transient bacteraemia had occurred, possibly from an intravenous associated cellulitis or from another source during labour, with seeding to the

Figure 1 An axial MRI T-2 weighted image with fat-saturation which demonstrates diffuse high signal abnormality in the left anterior, posterior and medial compartments of the thigh (TE 32 ms TR 3500).

left gluteus, piriformis and adductors. It was postulated that there could have been some trauma to these muscles during labour which created the favourable conditions for bacterial growth after a transient bacteraemia. Unfortunately blood cultures were never taken from the patient as the highest recorded temperature during admission was never greater than 37.9°C. Penicillin was stopped and flucloxacillin was increased to 2 g four times a day. Metronidazole was continued and doxycycline was added to cover for possible bacteria originating from the genital tract.

Repeat MRI day 18 showed an improvement in the muscle oedema and a small fluid collection in the left hip joint. This was aspirated under ultrasound guidance and yielded no pus and was culture negative.

OUTCOME AND FOLLOW-UP

Her pain, power and sensation improved and she was discharged home day 22 postpartum on flucloxacillin, doxycycline and metronidazole. She still required oxycodone hydrochloride, tramadol hydrochloride, gabapentin and diclofenac sodium for pain relief. Doxycycline and metronidazole were discontinued on completion of a 14-day course and flucloxacillin was stopped 5 weeks postpartum when her inflammatory markers had normalised and CRP was under 5. She was reviewed in the outpatients at 8 weeks

postpartum at which stage she was still using crutches to mobilise and was still reliant on analgesics. She described persistent urinary urgency and occasional urge incontinence but denied any faecal urgency or faecal incontinence (figure 2).

DISCUSSION

A Medline search for references from 1950 to 2010 using the MeSH and text word search terms – pyomyositis, gluteal oedema, sacroiliitis and gluteal abscess and vaginal delivery was conducted and found no reports of pyogenic sacroiliitis, gluteal pyomyositis or gluteal oedema/abscess after vaginal delivery.

Pyomyositis is a purulent infection of skeletal muscle that arises from haematogenous spread, usually with abscess formation. This type of infection has never been reported before in the literature after vaginal delivery.

Interestingly Yansouni *et al*¹ reported a case of bacterial sacroiliitis and gluteal abscess after evacuation of retained products of conception (ERPC) for incomplete spontaneous abortion. Other uncommon pyogenic complications following dilation and curettage (D&C) have been reported. Sruthers *et al*² described the case of a previously healthy woman with septic arthritis of the right knee and an abscess in the right thigh after an ERPC. Scheepers *et al*³

Figure 2 An axial T2 weighted sequence with fat-saturation (TE 32 ms TR 3500) which demonstrates no residual signal abnormality on follow-up 10 months later.

reported a case of retroperitoneal abscess at the level of the right iliopsoas muscle 10 days post ERPC. Sachs *et al*⁴ reported on the incidence of bacteraemia at D&C and Yansouni *et al* suggested this as a possible mechanism for such sequelae along with the possibility of clinically silent uterine perforation. In light of these clinical reports, it is possible that our patient had a transient bacteraemia either from an intravenous cannula-associated cellulitis or indeed associated with labour itself.

Staphylococcus aureus is the most common cause of pyomyositis. Group A streptococcus is the second most common pathogen. Less common causes include non-group A streptococci, pneumococci and Gram-negative enteric bacilli. Mycobacterial pyomyositis has also been reported. Pyomyositis can also be polymicrobial, particularly in diabetic patients.

Pyomyositis can be divided into three clinical stages. Stage one is characterised by local muscle pain, swelling and low-grade fever. Mild leucocytosis and induration of the affected muscle may be present. A deep abscess may not be discretely palpable but the muscle may have a woody texture on palpation. Fluctuation is not present and aspiration of the muscle will not yield purulent material. Only 2% of patients present at this stage.

Stage two occurs 10–21 days after the initial onset of symptoms and is characterised by fever, exquisite muscle

tenderness and oedema. A frank abscess may be clinically apparent and aspiration of the affected muscle typically yields pus. Marked leucocytosis is usually present. More than 90% of patients present at this stage.

Stage three is characterised by systemic toxicity. The affected muscle is fluctuant. Complications of *S aureus* bacteraemia such as septic shock, endocarditis, septic emboli, pneumonia, pericarditis, septic arthritis, brain abscess and acute renal failure may be present.

Our patient presented with stage one pyomyositis and aspiration of the fluid collection in the left hip joint yielded no pus. Her symptoms improved with broad-spectrum antibiotics chosen to cover bacteria originating from the skin or ascending from the genital tract.

The course of pyomyositis is variable. A delay in diagnosis may result in involvement of multiple muscle groups requiring prolonged therapy. All patients regardless of presentation stage should be evaluated for the presence of additional sequelae of bacteraemia including endocarditis.

As this is the first reported case in the literature of pyomyositis after vaginal delivery it may be assumed that it is an extremely rare event. Its rarity made it a difficult diagnosis to make requiring multidisciplinary input. At week 8 of follow-up our patient's symptoms were greatly improved but she was still not pain free and was still

requiring crutches to mobilise showing that recovery can be slow requiring prolonged treatment.

Pyomyositis can develop after a transient bacteraemia of any cause. Labour should be considered a risk factor for a transient bacteraemia even if only associated with low-grade fever. In patients presenting with similar symptoms, a diagnosis of pyomyositis may be considered and appropriate antibiotic treatment initiated and drainage considered, if appropriate. As pyomyositis develops as a result of a bacteraemia all patients should be evaluated for other sequelae of bacteraemia including endocarditis.

Learning points

- Pyomyositis can develop after a transient bacteraemia of any cause.
- Labour should be considered a risk factor for a transient bacteraemia even if only associated with low-grade fever.
- In patients presenting with similar symptoms a diagnosis of pyomyositis may be considered and appropriate antibiotic treatment initiated and drainage considered, if appropriate.
- As pyomyositis develops as a result of a bacteraemia, all patients should be evaluated for other sequelae of bacteraemia including endocarditis.

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Competing interests None.

Patient consent Obtained.

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