Case Report

Pelvic abscess caused by *Arcanobacterium haemolyticum* mimicking a soft tissue tumour

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Received 30 January 2007

Accepted 8 August 2007

Arcanobacterium haemolyticum has usually been isolated in cases of pharyngitis and wound infections. Rarely it has been reported to cause deep tissue infections. Here, a case of a 71-year-old-male, who developed a pelvic abscess due to *A. haemolyticum* that initially was thought to be a malignant tumour, is described.

Case report

A 71-year-old male was referred to the emergency room with severe pain in the left gluteal region radiating to the os sacrum. He had a 3-week history of fatigue, decreased appetite, constipation and weight loss. He had a medical history of a membranous glomerulopathy in 2004, with complete recovery.

On physical examination, blood pressure was 120/75 mmHg, pulse rate 94 beats min⁻¹ and body temperature 37.4 °C. Examination of heart, lungs and abdomen revealed no abnormalities. In the left gluteal region, a firm mass, approximately 11 cm in diameter, was palpable. This mass was painful on palpation and the skin above it showed a purple discoloration.

Laboratory results showed an erythrocyte sedimentation rate of 108 mm h⁻¹, haemoglobin of 9.3 mmol l⁻¹, leukocyte count of 22.3×10^9 l⁻¹, thrombocyte count of 529×10^9 l⁻¹, urea level of 13.9 mmol l⁻¹, creatinine level of 129 µmol l⁻¹, aspartate aminotransferase of 55 U l⁻¹, alanine aminotransferase of 72 U l⁻¹, γ-glutamyltransferase of 150 U l⁻¹ and lactate dehydrogenase of 541 U l⁻¹. He was admitted to the internal ward for further evaluation of the lesion.

Ultrasonography of the left gluteal region showed a hypoechogenic, lobulated structure of unclear nature. On CT scan the amorphous soft tissue mass was 10 × 4 × 8 cm in size and located between the left acetabulum and sacrum (Fig. 1). The most likely diagnosis was considered to be a sarcoma.

The process seemed to be too extended for curative resection on CT scan and therefore the decision was made to perform an ultrasound-guided biopsy of the mass, despite the risk of biopsy-induced dissemination. Unexpectedly, the biopsy drained 200 ml of dense, grey-coloured purulent fluid. Pathological diagnosis was consistent with infection and showed no malignancy. Gram stain of the fluid showed many polymorphonuclear cells, some Gram-variable rods and sporadic Gram-positive cocci. Bacterial culture showed a pure culture of *Arcanobacterium haemolyticum*; no anaerobic bacteria were isolated. Blood cultures taken in the period before puncture of the lesion stayed negative.

To determine whether an underlying malignancy was present, MRI of the pelvic cavity and gluteal region was performed. This showed a multilocular, fluid-containing structure. It was a largely bilobar process, partly located in the pelvic cavity and partly in the gluteal and piriformis muscles. The rectum appeared to be compressed by this mass, but it was well delineated from it.

Antibiotic therapy was started with erythromycin (4 d.d. 1000 mg intravenously) and a drain was placed. After 2 days, the patient developed a fever of more than 39 °C, indicating insufficient drainage of the abscess. Subsequently, two more drains were placed and spontaneous cutaneous drainage occurred at another site. The drainage sites were surgically connected via incisions and silicon tubes for proper rinsing facilities. No connection with the rectum was found. Thereafter no fever relapses occurred and after 4 days the silicon tubes were removed. Rinsing was performed twice daily. Erythromycin (4 d.d. 1000 mg intravenously) was switched to clarithromycin (2 d.d. 500 mg orally) and continued for 6 weeks. The patient was discharged after 5.5 weeks of hospital stay and recovered completely.

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Fig. 1. CT scan of the abdomen and pelvis. The numbers correspond to the following structures: 1, soft tissue mass perforating the m. piriformis; 2, left and right acetabulum; 3, bladder; 4, rectum; 5, left and right m. gluteus maximus; 6, m. piriformis; and 7, os sacrum.

Discussion

A. haemolyticum is reported to be an unusual cause of deep tissue infections. This patient was a healthy male without any underlying immunosuppressive diseases, e.g. diabetes mellitus. Previous to the abscess formation he had no history of the following possible routes of transmission: throat infection, trauma in the gluteal region, intramuscular injections or mucosal pathology in the colon.

He underwent dental surgery 8 months prior to hospital admission. The patient in the case reported by Vargas *et al.* (2006) was treated for periodontitis and dental caries 3 months before presentation with a brain abscess. Although the period between dental surgery and the presentation of the abscess seems to be rather long for the surgery to be related to the infection, it was the only risk factor identified in our patient.

Haematogenic dissemination of bacteria is the most likely explanation for the formation of deep abscesses. Positive blood cultures have been found in several cases of deep tissue infections, e.g. pyothorax, endocarditis, osteomyelitis, brain abscess and soft tissue abscesses (reviewed by Skov *et al.*, 1998). Blood cultures taken in the period before puncture of the mass lesion stayed negative, however.

To our knowledge, this is the second case report in which *A. haemolyticum* is the causal agent of an abscess mimicking a tumour. Dobinsky *et al.* (1999) reported a case of a previously healthy man who presented to the dermatologist with a mammary tumour. At physical examination, the mass was most likely a benign or malignant tumour. During surgical exploration, however, a collection of pus was recovered, revealing *A. haemolyticum* in a mixed culture with *Bacteroides* species.

Bacterial culture showed a pure culture of *A. haemolyticum*. The bacterium was identified on the basis of a Gram stain of the colony and catalase, API Coryne and reverse CAMP

effect tests (Funke *et al.*, 1997). By disc diffusion, the isolate was susceptible to all antibiotics except cotrimoxazole and ciprofloxacin. Resistance to these antibiotics has been described previously (Carlson, 2000; Vargas *et al.*, 2006). Although isolates may be susceptible to β -lactam antibiotics *in vitro*, therapy failure with these antibiotics has been described (Banck & Nyman 1986; Carlson *et al.*, 1994; Nyman *et al.*, 1990). Many different antibiotics have been used for treatment of soft tissue and deep-seated infections (Skov *et al.*, 1998; Tan *et al.*, 2006). Because good clinical and microbiological results were obtained with macrolides, our patient was treated first with erythromycin intravenously and later on with clarithromycin orally (Carlson *et al.*, 1994; Carlson, 2000; Waagner, 1991).

This case report describes an unusual presentation of an abscess due to *A. haemolyticum* in an elderly man without an apparent underlying condition. This is the second reported case of soft tissue abscess due to *A. haemolyticum* that initially was diagnosed as a mass lesion. The unusual presentation led to a delay in final diagnosis and treatment. After proper antibiotic and surgical treatment, the patient recovered completely.

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