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Cervical epidural abscess and osteomyelitis of C-5 vertebra following percutaneous transluminal coronary angioplasty

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Abstract

Cervical epidural abscess and osteomyelitis is a rare condition. Cardiac catheterization can result in a life threatening complication like cervical epidural abscess and osteomyelitis. Prevention is the key. Early diagnosis and prompt intervention are the cornerstones of management.

Introduction

Epidural abscess and osteomyelitis following interventional cardiac procedures is extremely rare. Speed of diagnosis and intervention are of paramount importance to prevent neurological complications.

Case report:

A 48 year old male presented to Accident and Emergency department with complaint of gradually worsening neck pain and stiffness over duration of one month. There was no history of trauma related with the symptoms. The patient gave a history of swinging temperature associated with rigors two days prior to presentation.

On questioning the patient said he was on holiday in Cyprus four weeks before presenting to us. During the holiday he had myocardial infarction. He was on intensive care and was treated initially with thrombolysis and temporary pacing followed twenty-four hours later by angioplasty, resulting in 70% recanalization of coronary vessels. He made a complete recovery thereafter. Towards the end of his stay he had high swinging temperature and rigors associated with neck pain and stiffness. His neck pain and stiffness persisted at discharge, two weeks after admission. Back from his holiday, because of persistent neck pain he saw his family doctor who prescribed painkillers and physiotherapy. During this period his neck pain and stiffness became worse with associated fever on and off, before presenting to us in the Emergency department. Patient was not a smoker, alcoholic, nor on any drugs.

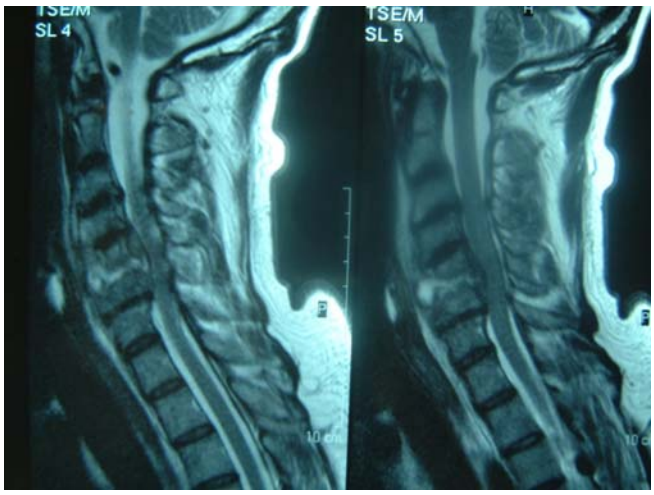
On Physical examination the patient had a temperature of 38º c. Blood pressure was 128/80 mm Hg. There was spasm over the entire C- spine area particularly over the lower cervical spine. Neck movements were restricted. Neurologically, power in the upper limbs was grade 4/5 in all the muscle groups on both the sides. The sensory system and examination of

Reflexes were found to be normal. The lower limb neurology was normal. There was no bowel or bladder involvement.

The laboratory profile showed the following picture: FBC: Haemoglobin 12.4 gm/dl, WBC: total count 14×10^9, C-reactive protein: 56, ESR: 39 mm first hour. Blood cultures and midstream urine specimens were sent. Plain radiographs showed the following picture (fig 1). Prompt MRI scan (fig 2) was requested and it showed a high signal at the C5-C6 level. There was thickening and elevation of the posterior ligament over the adjacent two vertebral levels. There is also radio-dense opacity of the C-5 vertebra. Diagnosis of C5-C6 discitis with C-5 vertebral osteomyelitis and epidural abscess at C5-C6 level was made.

Fig. 1

Fig. 2



The patient was immediately referred to a specialist spinal centre. The patient underwent an anterior approach, abscess drainage and debridement. I.V vancomycin was started on the advice of the microbiologist. After biopsy *Staph. aureus* was grown and patient was commenced on I.V flucloxacillin and fusidic acid. Four days later a right-sided anterior

cervical debridement, C5 corporectomy, iliac crest bone graft and Atlantis plate fixation of C4-C6 was done.

Post-operatively a Miami J collar was fitted, to immobilize the Cervical spine. The patient had an uneventful course, with full recovery of muscle power. At discharge he was advised to continue oral flucloxacillin and fusidic acid for 3 months. Periodic examination showed a fall in inflammatory markers with absence of neck pain and stiffness. He had normal power and reflexes in all limbs. Four months following operation, patient was completely normal and X-rays revealed good union and incorporation of the bone graft (Fig. 3). Finally, five months from his operation, the patient went back to his job as a self-employed roofer.

Fig. 3

Discussion

To date there has been no report in the literature of an incidence of cervical spine epidural abscess following angioplasty. The incidence of cervical epidural abscess is less than 0.2% [4]. Osteomyelitis is a necessary prerequisite for cervical abscess [4]. In contrast with other locations of spinal infections, osteomyelitis of the cervical spine can be more dramatic leading to early neurological defecit [5]. Although the interval between the performance of

angioplasty and development of septic episode was one month in our case, distinction between acute and chronic is arbitrary [5]. Speed of diagnosis and prompt decompression is of paramount importance. Pyogenic spinal infection is thought to be a spectrum of diseases comprising spondylitis, discitis, spondylodiscitis, pyogenic facet arthropathy, and epidural abscess [6]. Discitis is the most common form [6]. Iatrogenic predisposition is on the rise. Infection occurs following surgery, hard ware placement, and following procedures like catheter line placement [6]. In our case report no antibiotic prophylaxis had been used. The most commonly isolated organism in several studies was *S.aureus* [6, 7]. The most common source of infection is either the haematogenous route or infection from skin flora. Back pain and fever are the most common presenting symptoms. Fever can however be low grade or absent in chronic abscess. Unfortunately fever and neck pain following angioplasty, were not investigated, in the first hospital. The leucocyte count typically, is not elevated in spinal infections [7]. Levels of ESR are elevated more commonly [7]. MRI remains the radiological investigation of choice. Neurological defecit is dependent on the length of time from bacteraemia to diagnosis from the onset of symptoms. Immediate surgical drainage combined with antibiotics remains the treatment of choice [7, 8]. The preferred surgical approach is anterior. Surgery involves debridement and anterior interbody fusion. Intraoperatively, frank pus is observed most commonly followed by granulation tissue. In our case pus was isolated, although by the time of presentation, chronicity had set in. Treatment is initially by broad-spectrum intravenous antibiotics, ideally an anti-staphylococcal agent, followed by treatment tailored to the cultured organism [8]. Intravenous antibiotic is used for a minimum of two weeks followed by oral treatment for 4 another weeks. In case of osteomyelitis complicating discitis, like in our case, oral antibiotic is continued for 6 weeks in total [8]. The duration of treatment is based by many surgeons on the WBC counts, CRP and ESR levels [8].

Infectious complications of coronary angiography and percutaneous transluminal coronary angioplasty (PTCA) usually correlate with, the duration of catheterization, the number of times the same access site is used, and the length of time the sheath is left in place [1]. In our case both angiography and angioplasty were done through the same femoral vessel and in case of the former, the procedure was done twice [2]. Microorganisms causing vascular catheter-related sepsis gain access to the bloodstream through the skin at the catheter insertion site or the catheter hub [3]. In our report the patient did not have prophylactic antibiotic during the procedure although there is controversy regarding antibiotic prophylaxis in angiography and angioplasty [9]. Education of medical personnel can reduce the risk of catheter related sepsis [10].

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