Infected Compartment Syndrome after Acupuncture

Nasir Shah, Caroline Hing, Keith Tucker, Robert Crawford

Summary
We present a case of septicaemia and compartment syndrome of the leg in a diabetic patient, following acupuncture to his calf. An emergency decompression fasciotomy was performed on the patient and gram-positive cocci were grown from the posterior compartment wound swab cultures and group A streptococcus from his blood cultures. He remained in the Intensive Therapy Unit postoperatively, requiring inotropic support and intravenous antibiotics for his septicemia. We would like to remind acupuncturists to consider the possibility of heightened risks in immunocompromised patients.

Keywords
Acupuncture, compartment syndrome, infection, septicaemia, complication.

Case Presentation
A 37-year-old diabetic male was referred to his General Practitioner with right lower calf pain of a few hours duration, having been on a ladder, knocking down a wall at home. He had been wearing a new pair of hard-soled shoes and did not have any lesions on his toes or leg. A diagnosis of Achilles tendinitis was made and he was treated with acupuncture to the calf at the point BL57, which is between the two heads of gastrocnemius at the junction with the Achilles tendon. A single use, sterile, disposable acupuncture needle was inserted at the point to a depth of about 0.5 to 1cm and left in place for several minutes. Ipsilateral points LI4 and LR3 were also used. Later that evening his right calf pain worsened and he presented to his General Practitioner again who referred him to the Accident & Emergency department. A provisional diagnosis of deep vein thrombosis was made. Low molecular weight heparin was given and an ultrasound scan of the calf excluded a deep vein thrombosis. The diagnosis was revised to compartment syndrome and he was immediately taken to the operating theatre where a fasciotomy of the leg was performed.

Anticoagulant therapy was continued and antibiotic therapy commenced. An ultrasound scan of the calf excluded a deep vein thrombosis. The diagnosis was then revised to compartment syndrome and he was immediately taken to the operating theatre where a fasciotomy of the leg was performed. Anterior and lateral compartments were slightly tense with healthy muscles. Both superficial and deep posterior compartments were tense and the muscles were dusky. Serous fluid was found in the posterior compartments. Three swabs of fluid from within the posterior compartment were sent for urgent microscopy, which revealed gram-positive cocci.

Post operatively he was admitted to the Intensive Therapy Unit for nine days, where he required inotropic support to maintain his blood pressure. Group A streptococcus was subsequently grown from his blood culture and wound swab. He remained on intravenous antibiotics for 15 days and further debridement. Closure of the wound was carried out on the 17th postoperative day with a skin graft.

He subsequently developed a painful right knee, an equinus deformity of his right ankle, and a flexed right big toe on dorsiflexion of his ankle. Interpretation was that he probably had a...
pseudotumour of the right Achilles tendon secondary to micro tear, which was tending to cause some equinus and the fixed length of Achilles tendon. He then developed a compartment syndrome secondary to infection and typically this had maximum affect on flexor hallucis muscle which is the deepest in the calf and phylogenetically very active, meaning it is more susceptible to ischaemia. His knee pain was felt to be because of loss of heal strike. He was treated with lengthening of the Achilles tendon, lengthening of the flexor hallucis longus and fusion of his big toe interphalangeal joint. It was noted at the operation that he had a fusiform swelling on the Achilles tendon, which represented an area of pseudo tumour in the Achilles tendon. He has subsequently made a good recovery and returned to work.

Discussion
A recent prospective survey has shown that the practice of acupuncture is safe with no life or limb threatening complications. Acupuncture is a relatively safe procedure but fatal and near fatal complications have been reported in the international literature. One case of compartment syndrome due to haemorrhage has been described after acupuncture in a patient taking sodium warfarin for thromboprophylaxis following insertion of a prosthetic aortic valve. Fatal and near fatal cases of septicemia after acupuncture have also been described in the literature. However, no case has previously been reported of infected compartment syndrome following acupuncture.

Compartment syndrome is a serious condition that can be life and limb threatening, if not treated appropriately in time with fasciotomy. Unfortunately no conclusive explanation for the source of infection was found, as throat and skin swabs were not taken from the patient. It is probable that the acupuncture was related to the infected compartment syndrome, as this immunocompromised patient, from his diabetes, was feeling well before acupuncture and the time lapse between the acupuncture and development of the infection was less than 24 hours. We suspect that this patient developed infected compartment syndrome secondary to necrotising fascitis following his acupuncture as a result of inoculation with group A streptococcus from the skin into the calf musculature and fascia. He had a decompression and debridement, but not very extensive as necrotising fascitis was caught at an early stage. Streptococcus group A is a human commensal and an invasive pathogen. When patient presents with septicemia from streptococcus group A, the portal of entry is skin in two third of these patients.

We would like to remind acupuncturists, to consider the possibility of heightened risks in immunocompromised patients. Our observation from this case is that serious adverse events are occasionally associated with acupuncture, and, however rare they are, they can cause devastating effects.

Reference list
Acupuncture

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