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Necrotising fasciitis: a life-threatening complication of acupuncture in a patient with diabetes mellitus

A Saw, M K Kwan, S Sengupta

ABSTRACT

Acupuncture is used for some conditions as an alternative to medication or surgical intervention. Several complications had been reported, and they are generally due to physical injury by the needle or transmission of diseases. We report a case of life-threatening necrotising fasciitis that developed after acupuncture treatment for osteoarthritis of the knee in a 55-year-old diabetic woman. She presented with multiple discharging sinuses over the right knee. As the patient did not respond to intravenous antibiotics, extensive debridement was performed. She made a good recovery. Since many old diabetic patients with degenerative joint diseases may consider this mode of treatment, guidelines on cleanliness and sterility of this procedure should be developed and practiced.

Keywords: acupuncture, acupuncture complications, diabetes mellitus, necrotising fasciitis, wound infection

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INTRODUCTION

Acupuncture is an important component of traditional Chinese medicine. The procedure has been used selectively in the Western countries for management of pain-related conditions, or behavioral problems such as smoking and overeating. Although most acupuncturists considered the procedure to be non-invasive, it is not free from complications. These included physical injuries due to the acupuncture needles, and problems related to wound or systemic infection. Necrotising fasciitis is a life-threatening infection involving the fascia and subcutaneous tissue. We report a case where this condition developed in a patient who had acupuncture treatment for osteoarthritis of the knee.

CASE REPORT

A 55-year-old woman who was a known diabetic presented to the emergency department with multiple



Fig. 1 Photograph shows multiple sinuses over the right knee.



Fig. 2 Photograph of the left knee shows multiple puncture scars from acupuncture.

discharging sinuses over the right knee for a few days. She was being treated for bilateral osteoarthritis of the knees with acupuncture for the past three months. She had her last therapy one week earlier. The procedure was carried out over the anterior aspects of both the knees at multiple sites using a single needle. The needle was heated over a candle before each penetration but the skin was cleaned only with a wet cloth without any disinfectant. Two days later, the right knee became painful and purulent discharge was noticed from the puncture marks.

On physical examination, she had low-grade fever with normal blood pressure but was tachycardic. There were four sinuses over the swollen right knee and right lower thigh (Fig. 1). No crepitation was noted on palpation and distal pulses were present. There were multiple puncture scars over the left knee with no signs of inflammation (Fig. 2). On admission,

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Fig. 3 Photograph shows the wound over lateral aspect of the right thigh after second debridement.

the random blood sugar level was 32.8 mmol/L. She was anaemic with Hb of 105g/L, and total white cell count of $16.6 \times 10^9/L$. The serum sodium level was 132mmol/L, and blood urea level was 22mg/dL. Intravenous sulbactam-ampicillin was started and blood sugar level was controlled by insulin infusion. After admission, drainage from the wounds persisted. The swelling over the thigh extended to mid-thigh level, with slight discoloration of the overlying skin. Diagnosis of necrotising fasciitis was made clinically and urgent exploration of the wound was arranged.

Under general anaesthesia, the whole lower limb was prepared and draped up to the groin. The infection was noted to extend along the plane of deep fascia over the whole anterior aspect of the thigh, with no evidence of subcutaneous gas collection. Two large wounds were created over the medial and lateral surfaces of the thigh after extensive debridement of slough and discoloured skin flaps (Fig. 3). The exposed muscle was covered with moist dressing soaked with diluted povidone iodine and changed twice daily. After a few days, further slough developed and a second debridement was carried out. *Pseudomonas* was cultured from the wound and aminoglycoside was added to the antibiotic regime. Subsequently, her general condition improved and a split skin grafting was performed to cover both the wounds. Patient was discharged five weeks after admission. On follow-up, the grafted skin was dry and patient was able to walk without aid.

DISCUSSION

Physical injuries caused by acupuncture needles include median nerve compression⁽¹⁾, spinal cord irritation⁽²⁾ and pneumothorax⁽³⁾. Infective complications such as spinal infection⁽⁴⁾ and bacterial endocarditis⁽⁵⁾ have also been reported. Wound or systemic infections in acupuncture are mostly related to lack of sterility during the administration of therapy. Many acupuncturists who are delivering the service are not medically trained

and may not be aware of issues related to sterility. For example, heating the needle before skin puncture may sterilise the instrument but without proper cleaning of the skin, this method alone is not adequate.

Necrotising fasciitis is a dangerous condition with a high mortality rate, and more likely to affect people with diabetes mellitus⁽⁶⁾. It may be difficult to make a definitive diagnosis of this condition based only on physical findings, and crepitance is not always present. Wall et al⁽⁷⁾ recommended that white blood cell count of more than $14 \times 10^9/L$, serum sodium level of less than 135mmol/L and blood urea nitrogen of more than 15mg/dL on admission helps to differentiate this condition from other types of soft tissue infections that are less aggressive. Frozen section of tissue biopsy under local anaesthesia can also help establish the diagnosis⁽⁸⁾. In our patient, the initial diagnosis was based on physical findings, and results of blood investigations on admission were also supportive of this condition. Early diagnosis, nutritional support and early extensive debridement^(6,9) remain the standard treatment, while the role of hyperbaric oxygen therapy has not been definitively established⁽¹⁰⁾.

Osteoarthritis is a common condition in the elderly. Concern over complications related to prolonged use of non-steroidal anti-inflammatory drugs and unwillingness to undergo surgery were some of the reasons why patients resort to acupuncture for pain relief. Without proper preparation of skin and needle, transmission of systemic infection or local wound sepsis is possible. Considering the increasing segment of the aged population in many countries, we can expect more elderly diabetics with degenerative joint diseases to go for acupuncture treatment. Measures should be taken to ensure that practicing acupuncturists have adequate knowledge about normal anatomy and common anatomical variations of sites where acupuncture is to be administered⁽¹¹⁾. They should also adhere to a specific standard of hygiene and are able to identify high risks cases, including diabetics and those with internal implants, where additional precaution may be necessary.

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