Tenosynovitis associated with 'fowl play' – An unusual case report

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JE Sproat. Tenosynovitis associated with 'fowl play' - An unusual case report. Can J Plast Surg 1994;2(4):175-176. An unusual combination of high-pressure oil injection injury and flexor tenosynovitis following accidental auto-inoculation with a killed chicken vaccine in the index finger of a farmer is presented, with recommendations for treatment.

Key Words: *Chicken vaccine, High-pressure injection injury, Tenosynovitis*

Cas rare de ténosynovite associée à une injection accidentelle

RÉSUMÉ : Cet article décrit le tableau inhabituel d'une lésion subie par un fermier qui s'est accidentellement infligé une injection huileuse à haute pression, avec ténosynovite du fléchisseur, des suites d'une malencontreuse auto-inoculation au niveau de l'index avec un vaccin tué destiné à un poulet. Les recommandations thérapeutiques sont décrites.

A 30-year-old, right hand dominant farmer presented with a painful, swollen, flexed left index finger of 24 h duration. The day before presentation he had sustained a high pressure injection of chicken vaccine into the radial side of his left index finger – this had been intended for the chicken he was holding.

On examination the left index finger was held in flexed position. It was cellulitic, swollen, tender along the flexor sheath, and excruciatingly painful on passive extension. Swelling and erythema extended onto the dorsum of the hand over the second and third metacarpals. He was nauseated and vomiting and had a marked leukocytosis of $23,700 \times 10^9/L$ with a profound left shift. Radiographs revealed soft tissue swelling and no evidence of gas in the tissues. His tetanus status was up to date. The remainder of his past medical history was unremarkable.

A diagnosis of high-pressure injection injury and flexor tenosynovitis was made, intravenous penicillin, cloxacillin and tobramycin started, and he was taken to the operating room for incision and drainage.

Distal and proximal flexor crease incisions were made to access, drain and irrigate the flexor tendon sheath. A small amount of turbid fluid was expressed from the sheath and sent

for culture; the sheath was irrigated with saline and bacitracin solution and an indwelling pediatric feeding tube left in situ for continued irrigation on the ward.

Attention was then turned to the puncture wound on the radial side of the digit, and a curvilinear incision carried from this level proximally and distally until healthy tissue could be seen. A chalky yellow-white material with a foul (fowl) odour was encountered, with dissolution of subcutaneous fat and early tissue destruction of the extensor paratenon and shroud. Further debridement and irrigation was carried out and the wound packed open. Healing by secondary intent occurred following tid dressing debridements and irrigation on the ward.

Culture and sensitivity reports showed *Clostridium perfringens* in the tendon sheath and *Staphylococcus saprophyticus* from the dorsum of the hand. The patient left hospital on the eighth postoperative day with full extension of all joints, and full active range of motion at the metacarpophalangeal (MCP) joints with 40° and 20° of active flexion at the proximal and distal interphalangeal joints, respectively. Out-patient physiotherapy was continued.

At three month follow-up the patient had full range of motion with some residual pain at the MCP, which resolved totally over the next month.

DISCUSSION

There have been many articles discussing the diagnosis and treatment of high pressure injection injuries (1-3). This

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patient presented as an unusual case not published in the plastic surgical literature. I was, however, able to find two articles in the farming literature – *The Canadian Poultryman* and *Farmsafe* (4,5) – outlining the potential problems with chicken vaccine injection injuries.

Breedervac I (Intervet) is the trade name for an inactivated viral vaccine against bursal disease virus, dissolved in a water-oil paraffin emulsion. This, together with TWEEN, a detergent-like preparation of polysorbate, acts as an immune adjuvant for the vaccinee. This emulsion can cause local tissue irritation and inflammation when injected under pressure into the vaccinator. Pain is usually noted immediately. This is a nonsterile product and bacterial contamination is highly possible.

Recommendations from Intervet, the company producing the vaccine, are as follows: use a 0.25 inch 18 gauge needle,

if accidental inoculation occurs (of other than the chicken), cleanse with antiseptic and immediately contact a physician; and to the physician - treat as a high pressure oil injection injury, with potential bacterial contamination.

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