

Case Report

Carpal tunnel syndrome secondary to splinter injury: a case report

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ABSTRACT

Carpal tunnel syndrome is a mononeuropathy arising as a result of compression of the median nerve as it travels through the carpal tunnel at the level of the wrist. The symptoms of this disabling condition include pain or paresthesia in the palmar aspect of the radial 3 and half digits of the hand. This is the case of a 30-year-old man who sustained a penetrating injury to his left wrist following a fall from a height. He presented with pain in his hand and a chronic discharging sinus from a puncture wound on the volar aspect of his left wrist. Wound debridement, extraction of the foreign body and a course of parenteral antibiotics led to resolution of his symptoms.

Keywords: Carpal tunnel syndrome, Neuropathy, Median nerve, Foreign body, Splinter, Traditional bone setter

INTRODUCTION

Carpal tunnel syndrome was first described by Sir James Paget in 1865. It is defined by the American Academy of Orthopaedic Surgeons as a compression neuropathy at the level of the wrist.¹ The classic clinical features include pain and paresthesia in the palmar aspect of the radial 3 and half digits. Though idiopathic, certain conditions have been identified as risk factors. These include diabetes mellitus, pregnancy, acromegaly, thyroid disease and rheumatoid arthritis.² Other uncommon causes such as benign and malignant tumours, vascular insufficiency, trauma and foreign body have also been identified.³ This case report highlights the unusual case of carpal tunnel syndrome and chronic abscess formation following a splinter injury at the level of the wrist.

CASE REPORT

A twenty-eight-year-old construction worker who presented to the orthopaedic outpatient clinic of the Rivers State University Teaching Hospital, Nigeria on the 10th of January, 2022 with complaints of pain and swelling in his left wrist of 1 year duration prior to presentation. There was associated tingling and numbness

in his left thumb, index, middle and radial aspect of his ring fingers. There was also a discharging sinus on the volar aspect of his left wrist.



Figure 1: Preoperative photograph showing swelling and a chronic discharging sinus on the volar aspect the left wrist.

He was in his usual state of health, until he fell from a height of about 4 metres while working on the roof of a

building. He landed on a piece of wood and noticed a penetrating injury to his wrist.



Figure 2: Intraoperative photograph showing a splinter being extracted from the carpal tunnel.



Figure 3: Extracted foreign body (splinter) measuring 6 cm in length.



Figure 4: Post operative photograph of left wrist with drain in situ.

He subsequently visited a traditional bone setter where some potions were applied to the wound and the wrist massaged. Upon worsening of his symptoms, he decided to seek orthodox care in hospital.

Physical examination findings revealed a puncture wound with a purulent discharge. There was reduced sensation in the radial 3 and half digits. Tinnel's sign was positive. The radial pulse was palpable and of normal volume.

Plain radiographs did not reveal any foreign bodies, but an unusual opacity. He was subsequently taken to theater and had wound debridement/exploration and extraction of foreign body on the 18th of January, 2022. A longitudinal incision was made, extending proximally and distally from the traumatic puncture wound. A splinter measuring 6cm in length was found in his left carpal tunnel sitting on the median nerve and removed. There was also about 5mls of pus which was drained. Wound was lavaged with 3 litres of normal saline. No proximal tourniquet was used and 1g of Ceftriaxone was given at induction of general anaesthesia. Wound swab culture yielded a heavy growth of *Staphylococcus aureus* sensitive to Levofloxacin. He was subsequently discharged home and followed up as an outpatient. His wound healed primarily and his symptoms subsided.



Figure 5: Preoperative x-ray film of the wrist showing an unusual opacity and radiocarpal arthritis.

DISCUSSION

Despite advances in medical imaging, the detection of wooden foreign bodies remains a challenging task.⁴ This patient presented about 1 year after the incident and plain radiographs failed to reveal the wooden splinter. CT, MRI and sonography have been advocated for the detection of retained foreign bodies. The organic and porous nature of wood serves as an excellent medium for the growth of microbes. This may lead to cellulitis, abscess and fistula formation.⁴

Surgical exploration and removal of the foreign body was performed under regional anaesthesia (brachial plexus

block). Removal of the wooden splinter was not difficult because of its large size. The wound was thoroughly lavaged with 3 litres of saline and the patient had parenteral antibiotics for 2 weeks. A drain was inserted and removed 48 hours post operatively. He was discharged home and followed up in clinic. His wounds have now healed and the infection settled. He however, still has some residual numbness in his radial 3 and half digits.

CONCLUSION

The presence of a retained foreign body can lead to serious complications like carpal tunnel syndrome, abscess formation and a chronic discharging sinus. The continued patronage of the traditional bone setters following injury to the musculoskeletal system and visit to the hospital only as a last resort is a cause of morbidity and mortality in our environment. This practice needs to be discouraged by way of appropriate legislation.

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