



## An unusual cause of acute carpal tunnel syndrome

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**Acute carpal tunnel syndrome following anticoagulation is uncommon. We describe a case in which the diagnosis was missed on three previous presentations by several clinicians. Although the presentation is typical, lack of awareness of this complication, inability to notice subtle signs and failure to do INR may lead to missing the diagnosis.**

### CASE REPORT

A 73-year-old lady presented with acute pain in the right hand. The pain was severe, burning in nature, not relieved by morphine. She had associated pins and needles in the radial four digits. She also complained of numbness in the same area and was unable to move her fingers. There was no history of trauma. She attended the Accident and Emergency department the same morning for similar complaints but was sent home with analgesia. Prior to that she attended two more times in 8 weeks, following which the pain spontaneously reduced. She gave a past history of aortic valve replacement and CABG (coronary artery bypass graft) for which she was on Warfarin for anti-coagulation. She was seen by a senior staff member at the Accidents and Emergency department and was referred to the vascular team for a possible acute arterial embolism; this was excluded and she was then referred to the Orthopaedic team.

On examination, the patient was in severe pain. The attitude of the fingers of the right hand was flexed (fig 1). There was greenish discolouration of

the palmar aspect of the base of the hand. A vague swelling was noted just proximal to the wrist crease on the volar aspect. The margins were diffuse, with a smooth surface. There were several dilated veins in the vicinity of the swelling. There were no signs of redness. On palpation, the non-pulsatile swelling was warm, firm and non-tender. The radial and ulnar arteries were palpable. Attempted active or passive mobilisation of the fingers was painful. Hypoaesthesia was noted in the radial 3<sup>1/2</sup> fingers. Ipsilateral elbow, shoulder and neck were normal. No local lymph nodes were palpable. Systemic blood pressure, temperature and pulse were normal. Examination with a portable Doppler confirmed triphasic signals transmitted all over the swelling. INR was 6.3. Inflammatory markers were not raised.

Radiographs was unremarkable. Ultrasound examination was inconclusive. Magnetic resonance imaging (fig 2) suggested anterior displacement of the flexor tendons, a haematoma over the Pronator Quadratus muscle and oedema of the median nerve.

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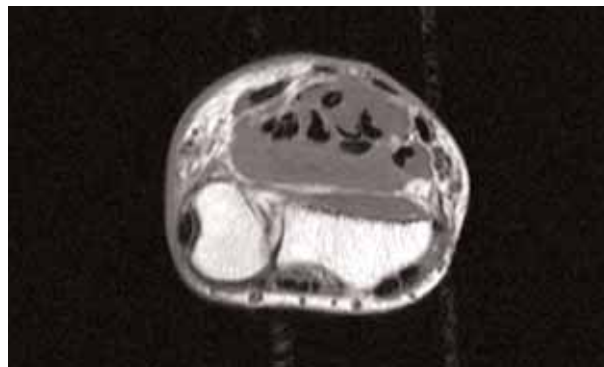
*Fig. 1.* — Photograph of the hand showing the flexed attitude of the fingers and bruising of the base of the hand and wrist.

She was admitted to the hospital for control of INR, analgesia and surgical decompression. Intraoperatively a haematoma was found anterior to the Pronator Quadratus. She was operated on the 4<sup>th</sup> day with successful relief of symptoms. Her sensations returned to normal with full movement of the fingers. Three months following the surgery she has no residual neurological deficit.

### DISCUSSION

The prevalence of warfarin treatment is about 4.54% in the general population in the age group between 75 and 84 years. Bleeding is a common complication with Warfarin and can be serious. However acute carpal tunnel syndrome due to bleeding from Warfarin is uncommon. In a large cohort of patients aged between 40-84 years, the incidence of bleeding with Warfarin was found to be 15.2 per 100 patient years (5). The annual average frequency of minor bleeding increases by 9.6% and is 5 times more in patients on warfarin compared to normal individuals (6). Combined aspirin and anticoagulant increases the risk of bleeding by 65% (3).

The presentation of this condition is usually acute. Multiple episodes of pain with spontaneous resolution have been mentioned (4). Pain could be disproportionate to the clinical symptoms (2, 4). The onset is not always preceded by trauma (1, 4, 7). If the bleeding in the carpal tunnel increases the pres-



*Fig. 2.* — MRI of the wrist showing bleeding in front of the Pronator Quadratus muscle with anterior displacement of the flexor tendons.

ures above 20-30 mm Hg, the median nerve loses its blood supply, producing hypoxia to the nerve. This causes pain and neurological deficit (8).

The differential diagnosis in our case was acute carpal tunnel syndrome, acute thrombo-embolism from the aortic valve thrombus, and acute tenosynovitis. A good capillary filling and distal pulses excluded thrombo-embolism. Tenosynovitis could be excluded by absence of Kanavel's sign. The history of warfarin intake was important. A localised swelling, bruising and pattern of neurological deficit will give clue to the diagnosis. A routine INR should be done in these cases, which was not done in our case on her previous consultations. A history of trauma should not be relied upon. In the case reported here, we assume that the patient had several self-limiting bleeds, reflected by her multiple episodes of self-limiting pain.

Management should be active. These patients need admission to reverse their bleeding state. Warfarin should be stopped and heparin may be started in indicated cases. Rest and elevation of hand may give some relief from pain. Surgical decompression is indicated when the symptoms are severe and is usually delayed due to time taken to control INR. The prognosis is good.

### CONCLUSION

Spontaneous bleeding following anticoagulant therapy is common. Acute carpal tunnel syndrome

due to anticoagulant therapy although unusual is a known complication. Awareness of the condition and observation of subtle physical signs gives clues to the condition.

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