painfree. However, the range of motion of the wrist and fingers was severely restricted and the thenar muscle wasting was marked.

Discussion

The flexor tendon sheath at the wrist provides a barrier against spread of infection or tophyceous infiltration (Primm and Allen 1983). Tophyceous gout in the hand and wrist, though rare, can present as arthritis, nerve entrapment, tendinitis, tendon rupture, skin ulceration and tophyceous draining sinus or flexor tenosynovitis (O'Hara and Levin 1967, Primm and Allen 1983, Moore and Weiland 1985, Abrahamsson 1987). All these conditions may result in restriction of movement, neuropathy and transient or permanent disability. The median neuropathy may be aggravated by other diseases such as tuberculous tenosynovitis, that lead to tenosynovial proliferation or exuberant effusion.

Tuberculous tenosynovitis is a rare manifestation of extrapulmonary tuberculosis (Kanavel 1923, Mason 1930, Robins 1967, Chen and Eng 1994); it may present with or without pulmonary lesions. Preoperative diagnosis of its concomitant occurrence in wrists with tophyceous tenosynovitis is difficult. Unusual local effusion and swelling, leukocytosis and an elevated sedimentation rate are preoperative clues of tuberculous infection. However, they are nonspecific and are insufficient to differentiate tuberculous tenosynovitis from the pseudopurulent condition (Abrahamsson 1987) that may occur in patients with gout. Tenosynovial biopsy, histological examination, the presence of acid-fast baccilli and isolation of Mycobacterium tuberculosis permit a definite diagnosis.

Tuberculous tenosynovitis in the wrist and hand may be disabling and recurrent, if the diagnosis and treatment are delayed; early radical tenosynovectomy combined with anti-tuberculosis drugs is recommended (Kanavel 1923, Mason 1930, Robins 1967) to prevent hand stiffness, permanent median neuropathy and prolonged disability. Tuberculous infection superimposed on tophyceous flexor tenosynovitis in the wrist may be more detrimental than isolated tuberculous or tophyceous tenosynovitis. In our two cases, although there was no recurrence of tuberculous infection, permanent median neuropathy was noted in both patients and severe restriction of hand and wrist movements in one.

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Idiopathic avascular necrosis of the scaphoid—a case of early diagnosis by MRI

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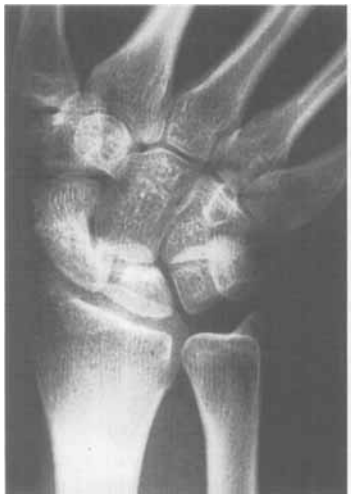
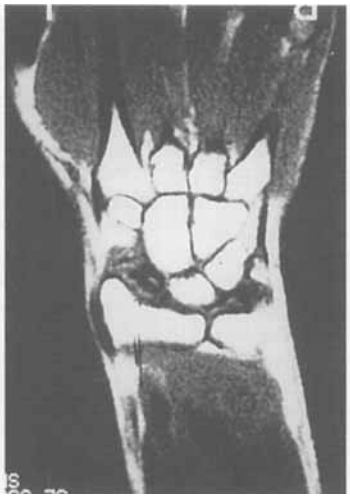
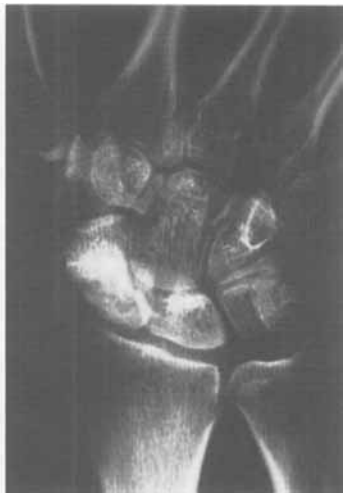
A 22-year-old female bank clerk presented with a 6-month history of spontaneous onset of painful wrist in her right dominant hand. There was no history of trauma, rheumatological disorders, steroid administration or thrombotic episodes. However, she had been taking oral contraceptives for the past 6 years. Pain was noted at the extremes of wrist movement, with tenderness over the scaphoid. The radiographs of the wrist and the scaphoid were normal (Figure). As we were unable to explain her symptoms, she was fur-



At presentation. No obvious bony pathology.



MRI with reduced signal density in the scaphoid, confirming the diagnosis of avascular necrosis.



1 year later. Necrosis in the proximal 2/3 of the scaphoid, with bone collapse and sclerosis.

ther investigated with an MRI which revealed that the scaphoid was completely avascular. Subsequent blood investigations ruled out the presence of any blood dyscrasias, clotting disorders or autoimmune diseases. Her treatment has been symptomatic, although splint immobilization did not improve her symptoms. At follow-up 1 year later, radiographs showed necrosis of the scaphoid bone. Her symptoms had slightly deteriorated with pain on heavy physical activity and long periods of writing. Wrist movements were reduced by almost half compared to those of her normal wrist.

Discussion

Avascular necrosis of the scaphoid without trauma has been associated with systemic lupus erythematosus (Aptekar et al. 1974, Urman et al. 1977), systemic sclerosis (Kawai et al. 1983), oral steroid ingestion (Milgram and Riley 1976) and cytotoxic chemotherapy (Harper et al. 1984). However, in a number of cases no obvious cause is identified (Guelpa et al. 1980, Ekerot and Eiken 1981, Allen 1983, De Smet et al. 1993, Herbert and Lanzetta 1993, Dossing and Boe 1994). In recent years, there has been an increase in the number of reports of idiopathic avascular necrosis of the scaphoid, perhaps reflecting the increased awareness of clinicians regarding the existence of this rather uncommon condition.

Treatment remains controversial. Plaster cast immobilization has not been shown to alter the disease process and has been reported to give a poor outcome (Ekerot and Eiken 1981, Ferlic and Morin 1989). A number of authors reported satisfactory results by either excision of the avascular fragment (Guelpa et al. 1980) or by replacing it with a silastic implant (Ferlic and Morin 1989, Helbig and Almeling 1989, Herbert and Lanzetta 1993). Wrist joint fusion (Allen 1983, De Smet et al. 1993), proximal row carpectomy (De Smet et al. 1993), wrist joint arthroplasty (Ferlic and Morin 1989) and carpal tunnel decompression (Ferlic and Morin 1989) have also been reported to give satisfactory outcomes.

Although oral contraceptives increase the risk of thromboembolic phenomena, we were unable to find any reports associating the use of oral contraceptives to osteonecrosis. Interestingly, in pregnancy avascular necrosis of the femoral head is a rare but well recognized condition (Cheng et al. 1982, Kramer et al. 1993).

The hand was the first part of the body that was imaged by Röntgen, yet MRI of the hand remains in its infancy compared tothe other parts of the body. The value of MRI in early diagnosis and assessment of avascular necrosis of the carpal scaphoid following trauma has been highlighted by a number of recent articles (Cristiani et al. 1990, Trumble 1990, Perlick and Guildford 1991). MRI can reveal the presence of avascular necrosis well before the classical changes appear on radiographs (Perlick and Guildford 1991), as in our case.

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Pantalar fusion for correction of painful equinus after traumatic Chopart's amputation—a report of 2 cases

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Case 1

A 22-year-old man was injured in a traffic accident in 1980 causing a Chopart amputation that healed after split skin transplantation to the anterior non-weight-bearing part. 7 years later he was referred to our department for increasing pain and problems caused by the contracted equinus position of the stump (Figure) which moved inside the prosthetic socket. This caused recurrent superficial ulcerations distally with chronic pain and the patient asked for a higher amputation. In 1987, we instead performed a pantalar arthrodesis, using an anterolateral longitudinal incision. With a chisel, the remnant cartilage and subchondral bone above and below the talus were excised to reduce the malposition of about 30 degrees each in equinus and varus angulations. Shapiro staples above and below the talus were used for fixation. A plaster cast was applied for 6 weeks. He returned to a full time work as a factory controller, using a carbon fiber-reinforced prosthesis with full end-weight-bearing in a half-open socket. Due to his high demands, we provided 35 sockets during 7 years before the fusion, but only 12 sockets during the 7 years after. He has no pain, ulcers or problems with a moving stump inside the socket. He walks all day with his prosthesis and at night at home always barefoot without crutches.