Figure 3—NMR shows lymphomatoid tissue invading the orbital fat, particularly on the left.

was the first and only clinical sign of widespread B-cell lymphoma.

We found unusual histological features, compatible with mantle-cell lymphoma. The most frequent type of lymphoma with orbital involvement is the lymphoplasmocytoid subtype, as reported by Lazzarino et al.[3] Their eighth patient had an aggressive lymphoma with a diffuse centrocytic-like morphology, very similar to that in our case, which would probably, today, be classified as a mantle-cell lymphoma. It affected only the left orbit, while in our case the involvement was bilateral and synchronous.

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Mandatory bone scans for the assessment of extremity loss in meningococcal septicaemia?

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SUMMARY. Meningococcal septicaemia can cause progressive necrosis of skin, soft tissue and bone. Successful limb reconstruction following the disease depends on an accurate assessment of the viability of these tissues and on a multidisciplinary team approach to ensure optimal care. However, bone scanning is not commonly performed in these patients. We present a case of meningococcal septicaemia where bone scanning significantly altered the management by demonstrating an extensive area of bone necrosis proximal to the soft-tissue necrosis. In view of this finding, we propose that bone scanning should be considered in all cases of meningococcal septicaemia where there is tissue necrosis affecting a limb, and that the radiologist should be considered a vital member of the multidisciplinary team.

Keywords: meningococcal septicaemia, limb salvage, bone scan.

Meningococcal septicaemia is a rare condition, with a high morbidity and a mortality of 14–50%.[1] Advances in the management of these cases have improved survival from the disease.[2] Previous authors have recommended a multidisciplinary team approach from admission, involving paediatric, plastic surgical, radiological and intensive-care specialists.[1] However, despite full and aggressive treatment, some patients develop disseminated intravascular coagulation and tissue necrosis. This insult can cause ongoing necrosis of the limb, in spite of early fasciotomies. The limb is then shortened over a protracted period of time as progressively proximal amputations are performed. Reconstruction of the affected area can commence only once the progression of necrosis has been halted, as early surgery may be too extensive or inadequate, owing to the poorly defined zone of necrosis.[1]

We present a case of meningococcal septicaemia in which bone necrosis occurred proximal to the area of skin loss. This bone necrosis was not evident on clinical examination and was identified only on bone scanning. This finding significantly influenced the reconstructive options.

Case report

A 2-year-old male presented with a non-blanching rash and features of septic shock. A diagnosis of meningococcal septicaemia was made and subsequently confirmed; aggressive resuscitation was commenced, including intravenous antibiotics. After 10 days his condition stabilised. He developed areas of patchy skin necrosis affecting the left distal lower limb. Examination revealed areas of full-thickness skin necrosis affecting the toes, part of the non-weight-bearing plantar skin, part of the dorsum of the foot and a hemi-circumferential area above the ankle (Fig. 1). Of significance, however, was full preservation of the heel pad, the weight-bearing skin over the metatarsophalangeal region and the skin around the ankle. Reconstruction involving free tissue transfer and split-skin grafting was considered a realistic option. However, following discussion with the orthopaedic surgeons, it was felt prudent to investigate the bony vascularity with bone scanning. This demonstrated that, whilst there was vascularity in a small portion of the posterior calcaneum and the metatarsals, there was complete bone devascularisation of the midfoot, the ankle and the distal tibial growth plate (Fig. 2). Distal reconstruction was, therefore, no longer an option and a below-knee amputation was performed.

Discussion

Meningococcal septicaemia can cause progressive tissue loss of the limbs owing to the necrosis caused by the meningococcal endotoxin.[3] Areas of bone necrosis may not be obvious in the operating theatre and are not routinely imaged in patients undergoing reconstruction following meningococcal septicaemia, despite bone scanning being readily available in most hospitals. However, the presence of non-viable bone significantly affects the prognosis of the limb and of the reconstructive surgery. In children, ischaemic damage to the epiphysis can cause premature fusion, significant limb shortening and subsequent traumatic arthritis.[2,4,5] If areas of ischaemic bone are not identified, complex reconstructive procedures may be undertaken, with a poor long-term result. Bone scanning may also be useful in identifying areas of epiphyseal damage, thus predicting limb-growth inhibition in the future. With this information, limb-length mismatch may be anticipated.

Figure 1—Foot of the 2-year-old patient following meningococcal septicaemia. Note the preservation of the heel pad and the metatarsophalangeal area, suggesting the possibility of distal reconstruction.

Only one previous report has discussed the use of bone scanning in meningococcal septicaemia.[6] Hamdy et al found that the level of bone necrosis, as demonstrated on the scan, was either the same as or distal to the level of the skin necrosis in the 13 limbs studied.[6] Our case report shows that bone necrosis may occur proximal to the level of soft-tissue necrosis. Clinical assessment of the skin and soft tissues of the limb in our case suggested that reconstruction of the foot was possible. However, had this been undertaken, the underlying bone loss would have led to an unacceptable functional and aesthetic result, which would almost certainly have necessitated amputation in the long term.

In view of this case, we propose that a bone scan

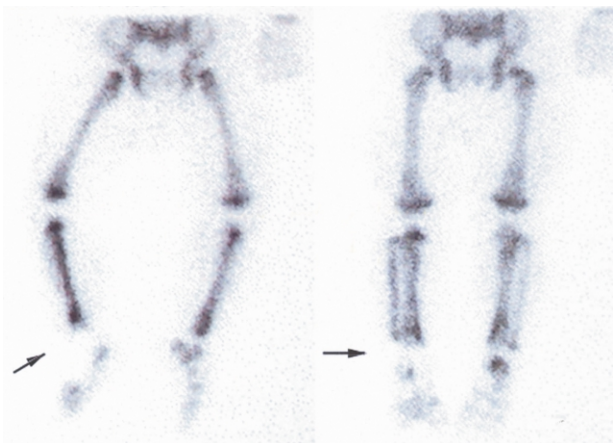

Figure 2—Bone scan performed preoperatively. The arrows indicate an avascular portion of the distal tibia, which makes distal reconstruction of the foot unrealistic.

should be considered in all cases of extremity necrosis caused by meningococcal septicaemia, and that the radiologist should be included in the multidisciplinary approach to the assessment of patients with meningococcal septicaemia.

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Free hand-to-toe transfer: a method to minimise donor-site morbidity in free joint transfers

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SUMMARY. Reconstruction of a congenital hand anomaly in a child using single free vascularised transfer of the proximal interphalangeal joint of a second toe with the simultaneous microvascular reconstruction of the donor toe using the stiff joint and its dorsal skin paddle from the hand is described. This is not the first reported case of a toe–finger switch, but it is the first in a free joint transfer, for which it is especially indicated. © 2003 The British Association of Plastics Surgeons. Published by Elsevier Science Ltd. All rights reserved.

Keywords: free toe joint transfer in children, donor-site morbidity, toe–finger switch.

Case report

A 2-year-old girl presented with a congenital left hypoplastic forearm and a cleft hand with three fingers. The radial digits were connected by complete simple syndactyly; the ulnar digit showed clinodactyly. The radial digits were surgically separated, and a rotation osteotomy of the radial border digit was undertaken. Skin cover was provided using local flaps from the dorsum of the hand and full-thickness skin grafts from the medial upper arm. The ulnar clinodactyly was corrected. Following this, the child could grasp objects with an opposition grip between the radial and ulnar digits. However, she could not use the middle digit because of stiffness of the proximal interphalangeal joint (PIPJ). The option of a free vascularised joint transfer to replace the stiff PIPJ was discussed. As the parents were anxious about removing the toe, the possibility of transferring the finger joint to the toe was raised.

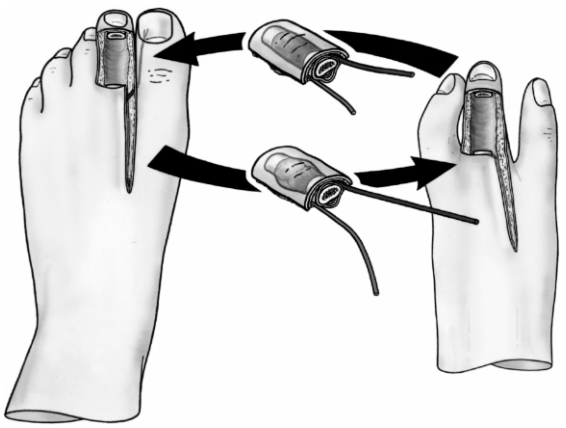

Figure 1—The ankylosed PIPJ of the left middle digit (top) was transferred to the left foot in exchange for the functional PIPJ of the second toe (bottom). Indicated in the diagram of the foot is the lateral digital artery of the great toe, to which the arterial anastomosis was performed as a reverse-flow flap.