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Pedal macrodactyly treated by digital shortening and free nail graft; a report of two cases

S. RAJA SABAPATHY, J. O. ROBERTS, P. J. REGAN and C. N. RAMASWAMY

Department of Plastic Surgery, Coimbatore Medical College, India, and Department of Plastic Surgery, Stoke Mandeville Hospital, Aylesbury

Summary—Two cases of macrosyndactyly of the foot are reported which were successfully treated by shortening of the affected digits and free nail grafting.

Macrodactyly is a rare condition of congenital idiopathic gigantism of one or more digits; digital enlargement due to identifiable conditions such as haemangioma, lymphangioma and neurofibromatosis is not true macrodactyly (Barsky, 1967). In the past, macrodactylous gigantism has been reported to involve all the elements of the digit (Barsky, 1967) but there is now general acceptance that the blood vessels and tendons are not involved (Edgerton and Turek, 1974; DeValentine *et al.*, 1981). The condition has been reported more frequently in the hands than in the feet (Figura, 1980; DeValentine *et al.*, 1981).

Case reports

Case 1

A 17-year-old male Indian presented with macrosyndactyly of the left second and third toes (Fig. 1). Enlargement of the affected toes had been present at birth and their subsequent growth rate had corresponded to that of the other toes. The patient's complaint was one of cosmesis rather than function. It being the common practice to wear open-toed sandals, his deformity was obvious and caused him considerable embarrassment. He had no problems with walking. On examination he was found to have greater soft tissue hypertrophy on the plantar surface of the toes than dorsally (Fig. 2), which had resulted in dorsal curvature of the digits. Weight was borne on the prominent metatarsal heads so that the distal part of the enlarged toes did not make contact with the ground. Radiological examination showed enlargement of the metatarsals and phalanges (Fig. 3).

It was decided to shorten the toes by amputation and, in an attempt to improve the appearance, to transplant the nails as free grafts onto the amputation stumps. At operation the toes were amputated through the proximal phalanges with bone transection about 1 cm proximal to the skin incision and minimal dissection of the fibrofatty tissue. The stumps were closed without tension. The nails, with germinal matrices and nail beds, were carefully removed from the amputated parts and their outline marked in the appropriate position on the end of the amputation stumps. These areas were then de-epithelialised and the composite nail grafts applied and sutured in place. No attempt was made to separate the syndactyly. The toes were bandaged and the dressings left intact for 10 days. The wounds healed primarily and there was full take of the composite grafts. The nails began to grow after 2 months but, due to the absence of nail folds, the new nail was deformed. Despite this the appearance at one year was cosmetically acceptable to the patient (Fig. 4).

Case 2

An 11-year-old Indian boy presented with macrosyndactyly of the left second and third toes (Fig. 5). The abnormality had been present since birth and the growth rate had approximated to that of the other, normal, digits. As in the first case, the complaint was of cosmesis rather than function. On examination, as in case 1 there was greater hypertrophy on the plantar than on the dorsal apsect and radiological examination revealed enlargement of the metatarsals in addition to the phalanges.

It was decided to shorten the affected toes and transplant the nails as before but, in an attempt to allow normal nail growth, the lateral nail folds and eponychial folds were included in the composite grafts. The enlarged toes were amputated through the proximal phalanges with proximal bone transection and minimum dissection. On the amputated toes, the skin was incised about 3 mm beyond the eponychial and lateral nail folds and these were removed together with the nails, nail beds and germinal matrices to form the composite grafts. The area of the grafts was marked on the amputation stumps, de-epithelialised and all but the distal end incised to the depth of the dermis (Fig. 6). The composite grafts were then transplanted and their skin edges sutured to the incisions around the recipient areas. Again there was primary wound healing and full graft take (Fig. 7). Two