TREATMENT OF METACARPAL ENCHONDROMATA

Report of Three Cases

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The following three case reports are of patients with large enchondromata of the metacarpal bones, all of whom have been successfully treated by complete excision of the affected metacarpal shaft and substitution by a bone graft taken from the ulna.

Levinthal and Kirshbaum in 1939 described the treatment of a fibroma of the middle metacarpal bone by resection and bone grafting, and Morris (1946) reported the tenon and mortise graft for bridging metacarpal bone defects caused by gunshot wounds. Littler (1947) described war wounds of the same bones treated by bridging defects with bone grafts. Bunnell (1956) advocated the same method.
CASE REPORTS

Case 1 — A woman aged twenty was admitted to the Orthopaedic Clinic of Athens University in January 1962 suffering from a large enchondroma of the fourth metacarpal bone (Fig. 1). Careful curettage of the affected bone was performed and the cavity was filled with iliac bone chips. After an uneventful recovery the patient was discharged. One year later she returned complaining of mild pain in the same metacarpal bone. Radiographs showed recurrence of the enchondroma (Fig. 2).

Operation — The affected metacarpal bone was exposed by a dorsal longitudinal incision. The enchondroma was exposed proximally and distally and removed, leaving the metacarpal head and base intact. The medullary canal of each end was bored with a drill to take the bone graft, which was cut from the proximal end of the ulna, two centimetres longer than the excised shaft of metacarpal. This graft was long enough to bridge the gap and to form the tenons at each end. The proximal end of the graft was inserted first, and then the distal end by putting traction on the finger. To avoid rotation or movement of the head or base of the fourth metacarpal bone two Kirschner wires were passed through the fifth, fourth and third metacarpal bones (Fig. 3). The hand was immobilised in a plaster extending from below the elbow to the proximal interphalangeal joints. The patient was encouraged to move the interphalangeal joints immediately after the operation.

After removal of the plaster three months later the patient was encouraged to move the metacarlo-phalangeal joints and to use the hand for light work. A year later the bone graft had become cylindrical and had developed a medullary canal (Fig. 4). Twenty months after operation the patient had neither pain nor limitation of movements.

Case 2 — A man aged sixty-two had had pain in his left hand for one year and recently had noticed a slight swelling which was painful on pressure. The clinical and radiological diagnosis was an enchondroma of the fourth metacarpal bone (Fig. 5).

Operation — The same technique was used as in Case 1. The affected area was excised and replaced by a cortical bone graft, again taken from the proximal end of ulna. Recovery was uneventful. Three months later the plaster and wire were removed and movements were encouraged as in Case 1. The radiological appearances at three months showed that union had occurred at both ends of the graft (Fig. 6). A year later the bone graft had become cylindrical and the shape of the metacarpal bone had been re-established (Fig. 7). Since the operation the patient has had no pain and the movements are normal.
Case 3—A man aged twenty-seven noticed over a period of three years a slight swelling of his left hand. Three weeks before being seen he felt severe pain in the same hand immediately after lifting a heavy weight. The clinical and radiological diagnosis was an enchondroma of the shaft of the third metacarpal (Fig. 8).

Operation—The enchondroma was removed and replaced by a graft as in the previous cases. There were no complications and three months after the operation the plaster was removed. Radiographs then showed that the graft had united (Fig. 9). Nine months later the patient had no pain and had full function in the hand. He has since left Greece and it has been impossible to obtain a radiograph at one year.

SUMMARY
1. Three patients with enchondromata of the metacarpal bones are described.
2. The nature of the enchondromata in all three patients was confirmed by histological examination.
3. Treatment was by radical excision and bridging of the gap by a cortical bone graft.
4. There has been no impairment of function in the hands. No patient complained of pain after the operation.
5. Radiographs taken one year after operation in two patients showed that the flat bone grafts had become cylindrical and that medullary canals had appeared.

REFERENCES