MATERIAL AND METHOD
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The present study was done in the Department of Orthopaedics, M.L.B. Medical College, Jhansi during year 1983-84. For this study patients visiting leprosy reconstructive surgery OPD and Department of Orthopaedics OPD were selected. Patient with loss of opposition movement due to leprosy were admitted in the leprosy reconstructive surgical ward of M.L.B. Medical College, Jhansi for performing operation and physiotherapy.

Opponensplasty using extensor digiti minimi was done in fourteen thumbs of eleven patients. The loss of opposition in all hands was due to combined median, ulnar plasy in leprosy. In nine ulnar nerve neurolysis was done arthrodesis of the distal joint of the thumb was done as an adjuvent procedure in two thumbs.

The patients were selected having dapsone chemotherapy for at least one year. Only those hands who did not show advances trophic changes or thumb web contracture were selected for this purpose.
A detailed history was taken and the duration of the disease, the onset of deformities, duration and nature of treatment the patient had were noted. A complete general and physical examination was made and findings noted.

A thorough pre-operative evaluation of the hands were made noting the extent of motor paralysis and sensory loss. Secondary deformities, joint contractures, scars and absorption of phalanges were noted. Hand functions in general and regarding the basic function of pinch was assessed.

The thumb web angle was measured. An angle of 35 degree was considered adequate. The angle of flexion or extension of the metacarpophalangeal and interphalangeal joints during pinching was recorded as a measure of its stability. The state of carpometacarpal joint and the dorsal expansion of thumb noted. The type of pinch was tested by asking the patient to pick up and hold small objects like key pen coin etc and photographs taken.
Pre-operative management

The presence of a functioning extensor digiti minimi muscle was confirmed preoperatively by noting the patient's ability to extend the metacarpophalangeal joint of the little finger with normal strength to the neutral position with metacarpophalangeal joints of the other fingers flexed.

The Operation

Ten hands were operated under brachial block. Anaesthesia For four hands general anaesthesia was given. All cases were done under tourniquet preoperation control.

The technique of operation as described by Schneider was followed. A transverse incision was made over the fifth metacarpophalangeal joint. The presence of a tendon from the extensor digitorum communs into the little finger was determined. In all the hands, this tendon was found to be represented by a slip coming from the extensor digitorum communs tendon to the ring finger. The tendon of extensor digiti minimi two in number were dessected free from the extensor expansion of the little finger as for
distally as possible and divided (Fig I). These were thin pulled out proximally through a second small transverse incision, over the base of fifth metacarpal (Fig II). A third oblique incision was made over the distal end of the ulna to allow appropriate, dorsal and volar to ulna (Fig III). Through this incision a subcutaneous tunnel was made around the ulnar border of distal end of forearm across the volar aspect of the wrist and thenar evenence, opening into a final incision over the metacarpophalangeal joint of the thumb (Fig IV). The tendons were then passed proximally into the third incision and re-routed through the tunnel into the fourth incision (Fig V). One slip was then anchored to the insertion of abductor pollicis brevis at the base of the proximal phalanx of the thumb and the other was sutured to the aponeurosis of the extensor pollicis longus tendon over the back of proximal phalanx as distally as possible with the thumb in full opposition and the wrist in neutral position. Releasing the thumb and passively flexing the wrist should completely relax the transfer so that thumb can be brought into full abduction and extension, extending the wrist to 45 degrees should place enough tension of the transfer to bring the thumb into complete opposition. The skin
was sutured with non absorbable suture. The hand was then immobilised with the wrist in 30 degrees flexion and the thumb in full opposition with distal phalanx extended (Fig VI).

After treatment

At 3 weeks plaster cast was removed and active exercise were started with the thumb supported in elastic opponens splint for another three to four weeks (Fig VII). The transfer was mobilised by making the patients try repeatedly to oppose his thumb while the dorsum of his hand lies on a flat surface with the fingers extended. Then patient were discharged with advice for physiotherapy monthly follow up for atleast 2 months.

Criteria for evaluation of result

The results were evaluated as Good, Fair and Failed on the basis of strength of thumb after tendon transfer and rotation of thumb. Good results were those having good strength and rotation of thumb less than 30°. Fair results were those having strength Good with rotation of thumb more than 30° but less than 50° or poor strength with rotation of thumb less than 30°. Failed results were those with strength Poor and rotation of thumb more than 30°.
Fig I  EXTENSOR DIGITI MINIMI TENDON BEING LOCATED AT EXTENSOR EXPANSION OF LITTLE FINGER THROUGH FIRST INCISION.

Fig II  SECOND INCISION OVER THE BASE OF FIFTH METACARPAL; EXTENSOR DIGITI MINIMI TENDON PULLED.
Fig III  THIRD INCISION, TENDON PULLED.

Fig IV  FOURTH INCISION AT THE BASE OF PROXIMAL PHALANX OF THUMB.
Fig. V  TENDON PASSED SUBCUTANEOUSLY AND REROUTED THROUGH THE TUNNEL INTO THE FOURTH INCISION.

Fig. VI  HAND IMMOBILISED IN POPCAST.
Fig VII OPPONENS SPLINT GIVEN FOR THREE TO FOUR WEEKS.