

## Thumb lengthening with self-designed, inexpensive fixator

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### INTRODUCTION:

Amputation of the thumb invariably causes marked functional impairment of the hand especially, pinch and grasp functions. In rural areas where highly skilled microvascular surgeries are not available, distraction osteogenesis provides an easy and safe alternative of thumb reconstruction. We report a case of crush injury of the right hand in a 7-year-old boy in which the right thumb was amputated at the level of the proximal phalanx. Metacarpal lengthening of the thumb was performed by using distraction osteogenesis by a cheap, self-designed fixator

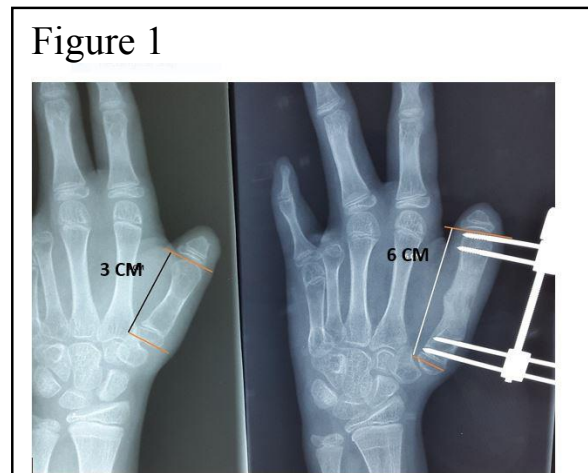
### MATERIALS & METHODS:

A 1.5 cm longitudinal dorsolateral incision was made on the thumb. Subperiosteal osteotomy was done at the diaphyseal region with multiple drill holes using a 2.0 mm. Lengthening was started 5 days post-operatively after two daily lengthening of 0.5 mm each, giving 1.0 mm per day.

The distractor was removed when there was cortical continuity of minimum three cortices and intramedullary bone formation radiologically.

### RESULTS:

Lengthening of 30 mm or 100% of the pre-operative bone length was achieved. Pinch function was improved. The patient was able to hold a pen and write, hold a spoon and button his clothes. No complications such as pin tract infection, pin loosening, bowing or angulation of the lengthened bone, premature consolidation, callus fracture or sensory loss were observed.



**Figure 1: Thumb length size change from 3 to 6 cm after application of fixator**

### DISCUSSIONS:

Distraction osteogenesis is safe and easy. It can be done in district hospitals where microsurgies are not available. We recommend that stability of the fixation, preservation of the periosteum, pin tract care and patient's education and compliance should be taken care.

### CONCLUSION:

Any orthopaedic Surgeon who is capable of putting an External fixator can use this simple and Cheap appliance to restore at least some function of the digits especially in hospital where highly skilled microvascular surgery is not available.