# Splinting of hand in leprosy – are we aware?

## A 6 month prospective study of claw hand

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### Abstract

Leprosy is a progressive disease which may lead to loss of function and even incapacitating deformities in a significant proportion of patients[6]. These deformities can be improved to some extent with the use of physiotherapy and application of corrective splints. This study highlights use of 4 types of splints (gutter splints, finger loop splints, opponens loop splints, adductor bands) in a group of 14 patients. They were followed up over a period of 4 months. Improvement was measured by subjectively asking the patient about improvement, photographic documentation and charting the deformity by 'ink impression' technique. After 4 months all patients showed marked improvement in all parameters. Hence it is important to educate health care workers about correct application of splints.


### Introduction

A common deformity in leprosy is claw hand. It is due to ulnar and median nerve involvement. In order to arrest progression of a simple claw hand to a complicated claw hand, physiotherapy and POP (Plaster of Paris) splints have been traditionally used[1,3]. However new types of splints especially designed for the claw hands are;

- Gutter splint
- Finger loop splint
- Opponens loop splint
- Adductor band

These are cheap, light in weight and can be made available to all hospitals islandwide[2,5].

### Objectives

To determine the degree of improvement following correct and appropriate application of hand splints, in patients with claw hand deformity as a consequence of leprosy.

### Method

Patients were selected from Dermatology Clinic at Teaching Hospital, Ragama from January to August 2008.

All new and old patients with claw hand (14 patients) were given splints according to criteria mentioned below.

- Abduction deformity of little finger only – adductor band
- Claw hand with contraction – gutter splint
- Claw hand without contraction – finger loop splints
- Ape thumb deformity – opponens loop splint

Improvement was assessed by; subjectively asking the patient about improvement, photographic documentation and charting the deformity by 'ink impression' technique.

All patients were assessed at 2nd and 4th month and physiotherapy was continued throughout.

### Results

14 patients were given splints and all of them were satisfied with splints. On photographic documentation all showed improvement. 'Ink impression technique' showed a shift of the impression distally 2nd and 4th month.

| | Mean improvement (cm) at 4th month |
|---|---|
| Small finger | 2 |
| Ring finger | 1.5 |
| Middle finger | 0.5 |

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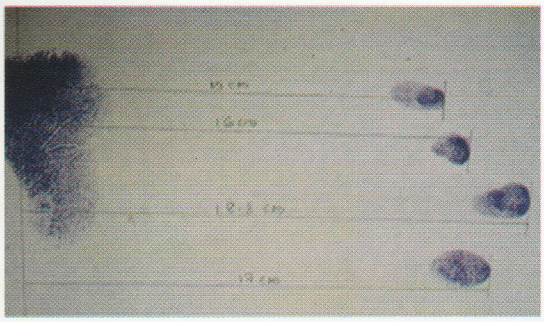
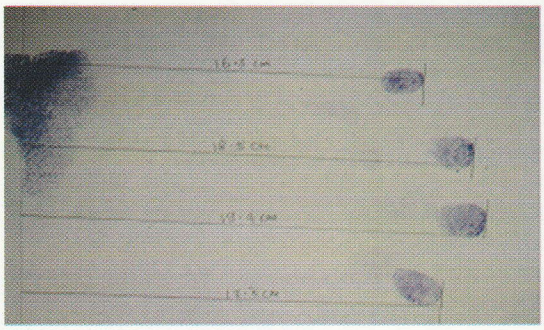
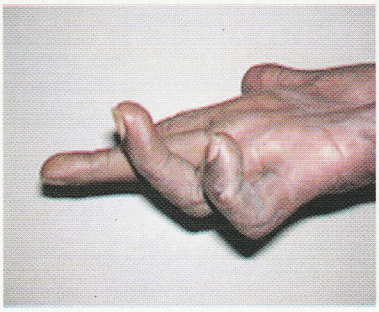


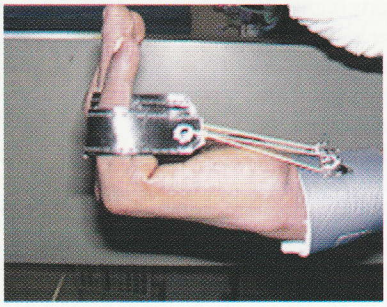
'Ink impression technique' at presentation



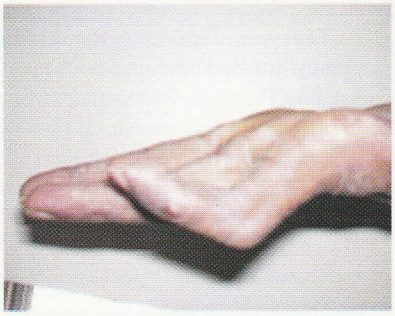
'Ink impression technique' after 4 months



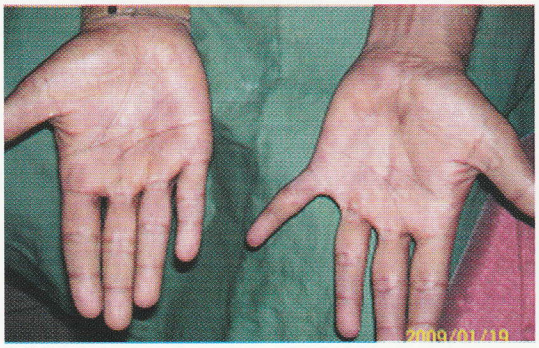
Claw hand



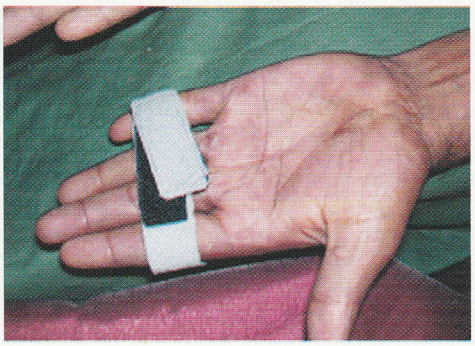
Finger loop splint



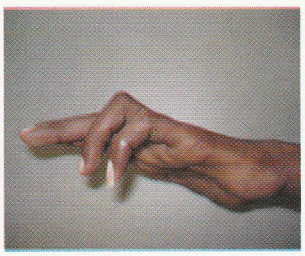
After 4 months



At presentation



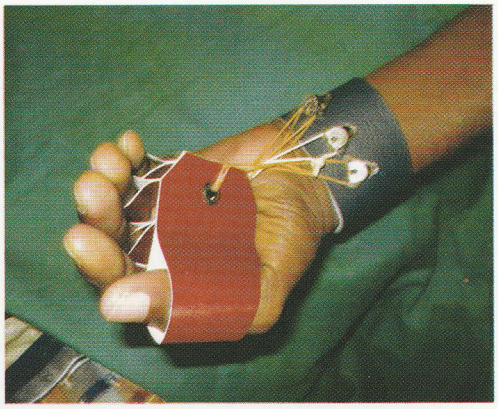
Adductor band



Fixed claw hand

Gutter splint

After 4 months



**Opponens loop splint**

## Discussion

The most important factor to be considered during application of finger loop splint is the proper adjustment of tension with the rubber bands. The rubber bands should flex the metacarpophalangeal joint in flexion between 70° to 90° and yet should not be too tight so that they constantly pull the fingers during even the relaxed hand position. It should not be over stretched beyond 0° of metacarpophalangeal joint when extension is initiated and completed[2].

If redness, blistering, pain and swelling occurs on the dorsal aspect of the fingers, splints should be discontinued.

The average maximum duration recommended with regular use of splints is 3 months[2].

Physiotherapy should be continued along with the splintage, particularly in stiff joints.

If any deformity persists the patient may require surgical correction.

## Conclusions

Management of deformities in leprosy tends to be a forgotten area. This study highlights the value of correct and appropriate usage of splints in claw hand deformity. All healthcare workers involved with the management of leprosy patients should familiarize themselves with these splints, particularly because these are cheap and easily available.

It is these simple measures which would finally contribute towards total rehabilitation of the leprosy patient.

A larger study is desirable for Sri Lanka.

## References

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