INTRODUCTION

- Partial hand amputations with loss of 1 or more fingers is the most common type of amputation totaling 61,000 in the US.¹
- Without proper stabilization of the remaining hand elements the patient may develop overuse and destabilizing injuries.
- These injuries cause pain, difficulty with recreational lifestyle, impaired ability to work, and impede previous function.
- Appropriate and functional prosthetic devices can be difficult to develop for hands with finger amputations.

CASE DESCRIPTION

- 60 year-old left-handed male presented to amputee clinic with traumatic amputations of his left 3rd, 4th and 5th fingers after a table saw accident 39 years ago.
- Chronically, the patient developed instability of the remaining digits (left index finger and thumb) with severe ulnar deviation upon active finger flexion as demonstrated by image 2. This has contributed to pain and prehensile dysfunction.
- The patient has also had multiple overuse injuries requiring right rotator cuff repair, left bicep tenodesis procedure, left rotator cuff repair as well as joint injections to the left MCP joint, left CMC joint and right CMC joint.
- Presently the patient’s goals include participation in recreational activities and improved left hand use with instrumental activities of daily living. More specifically he wants to lift heavy objects reliably and without pain.

EXAM

- Left hand with 3rd – 5th digit amputations and minimal proximal phalanx remaining. 5th digit residual phalanx with more length.
- 2nd digit with ulnar deviation at the MCP joint with flexion as seen in image 2.
- Pain to palpation over left 1st and 2nd MCP.
- Strength 5/5 in all planes of left 1st and 2nd digits except 3/5 with 2nd digit abduction as seen in image 4.
- 5/5 strength with residual 5th phalanx in flexion.
- Okay Sign intact on Left hand.
- Sensation decreased in dorsal aspect of hand and forearm but otherwise intact.

CLINICAL COURSE

- Static and dynamic prosthetic devices were ordered to help improve the stability of his residual left hand, improve function, decrease pain, and reduce chronic overuse stress on his body.
- Patient was fitted with multiple devices by the prosthetist:
  - 1) partial hand prosthesis with digital posts (Image 5)
  - 2) partial hand prosthesis with M-fingers (not shown)
- Pt. has seen a decrease in hand and shoulder pain with an increased ability to lift heavy objects without pain.

DISCUSSION

- Lack of a prosthetic device providing posting of the left 2nd digit led to the patient’s instability, pain and overuse injuries.
- Prosthetic devices posted at the ulnar side of the 2nd digit allow for stabilization of the index finger and reduction of stress of the residual hand for prehensile activities.
- Static devices with favorable positioning allow for lateral pinch as well as the lifting and carrying of heavier objects.
- Dynamic devices allow for stabilization and the ability to perform or assist with tasks requiring various prehension patterns including 3-Jaw Chuck, power grip, lateral pinch.

CONCLUSION

- This case demonstrates the importance of continued care with a physiatrist throughout the lifetime of a patient with an amputation.
- If this very high functioning patient had been using a prosthetic device the instability of his left index finger and subsequent pain may have been prevented.
- Comprehensive management by a physiatrist working with a prosthetist and therapist as part of an amputee team is essential to the lifetime care of the amputee patient.

REFERENCE