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Dr. Santosh Rath

Senior Professor,
Department of Orthopaedics,
KIMS, Bhubaneswar, Odisha,
India

Dr. Aakash Bhaisora

Kalinga Institute of Medical
Sciences, Bhubaneswar,
Odisha, India

Swatantra Aurobind Mohanty

Assistant Professor,
Department of Orthopaedics,
KIMS, Bhubaneswar, Odisha,
India

Aakash Bhaisora

Postgraduate Resident,
Department of Orthopaedics,
KIMS, Bhubaneswar, Odisha,
India

Debashish Satapathy

Postgraduate Resident,
Department of Orthopaedics,
KIMS, Bhubaneswar, Odisha,
India

Sayashi S

Resident, Department of
Orthopaedics, KIMS,
Bhubaneswar, Odisha, India

Corresponding Author:

Dr. Aakash Bhaisora

Kalinga Institute of Medical
Sciences, Bhubaneswar,
Odisha, India

Severe carpal tunnel syndrome with sensorimotor deficits managed with opponensplasty using EIP

Santosh Rath, Aakash Bhaisora, Swatantra Aurobind Mohanty, Aakash Bhaisora, Debashish Satapathy and Sayashi S

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Abstract

Severe carpal tunnel syndrome with long-standing sensorimotor deficits was treated using carpal tunnel release combined with Burkhalter opponensplasty utilizing the *extensor indicis proprius* tendon. The patient presented with significant functional limitation due to loss of thumb opposition. Following surgery and rehabilitation, she demonstrated restored thumb function, improved grip performance, and complete relief from numbness and tingling. This case highlights the effectiveness of EIP opponensplasty as a dependable reconstructive option in advanced CTS with thenar muscle atrophy, offering functional recovery without compromising index finger movement.

Keywords: Carpal tunnel syndrome, opponensplasty, extensor indicis proprius, thumb opposition, tendon transfer

Introduction

- Carpal tunnel syndrome most common entrapment neuropathy
- Affecting approximately 3 to 6 percent of adults in general population
- More prevalent in females than males, with a 3:1
- Associated risk factors Obesity, genetic predisposition, diabetes, rheumatoid arthritis, hypothyroidism, pregnancy, diabetes alcoholism.

Symptoms are related to compression of the median nerve are

- Pain
- Numbness, and tingling affecting the first 3 digits and the lateral half of the fourth digit
- Thenar muscles atrophy
- Advanced disease is marked by progression to permanent sensory loss, motor weakness, clumsiness, and challenges in daily tasks.

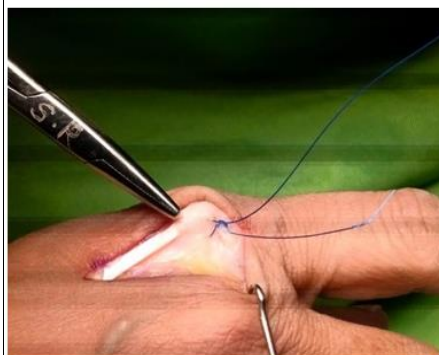
Opponensplasty is an effective procedure to preserve thumb function.

Several methods reported for treatment are:

1. Camitz opponensplasty, using the palmaris longus (PL),
2. Burkhalter Opponensplasty, using Extensor Indicis proprius (EIP)
3. Riordan Opponensplasty using Flexor digitorum superficialis

Case

- 45-year female with B/L carpal tunnel syndromes(R>L) of 1 year duration
- Sensory symptoms in both hands however there was a lack of opposition in Right hand which affected patient's activities of daily living.
- Patient underwent carpal tunnel release + Burkhalter Opponensplasty of Right hand
- Left hand in a staged manner followed by rehabilitation.



Incision over the index MPJ to begin harvest of the EIP



The EIP is traced back to Musculo-tendinous junction to reroute around ulnar side of wrist.



EIP tendon traced and extracted from its musculo-tendinous junction



EIP tendon rerouted to ulnar side and via a tunnel over ulnar aspect around the pisiform in a subcutaneous plane at the level of 1st mcp joint.



Subcutaneous tunnel



The EIP tendon is then woven into the normal insertion of the APB.

Postoperative Follow up after 21 Days



Results

Post operatively patient was examined and was found to have regained the thumb function including opponens and no further complaints of tingling sensation and numbness over hand and fingers were recorded.

Inference and Conclusion

Hence it can be concluded by this case that carpal tunnel release with EIP opponensplasty is a promising surgical

technique in cases associated with severe muscle atrophy and loss of opponens following carpal tunnel syndrome. There is benefit using EIP from other methods explained for opponensplasty as there is no sacrifice of movement of any digit post operatively since index finger has its extension from EIP and Extensor digitorum communis.

Opponensplasty using EIP is more challenging due to difficulty in harvesting the effective length for tendon transfer which is much more adequate in using Flexor

digitorum superficialis making it technically more demanding.

Therefore, EIP if not superior can be considered equivalent to opponensplasty using FDS.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Littler JW, Li CS. Primary restoration of thumb opposition with median nerve decompression. *Plast Reconstr Surg*. 1967;39:74-75.
2. Bunnell S. Opposition of the thumb. *J Bone Joint Surg*. 1938;20:269-284.
3. Wall LB, Patel A, Roberts S, et al. Long-term outcomes of Huber opposition transfer for augmenting hypoplastic thumb function. *J Hand Surg Am*. 2017;42:657.e1-657.e7.
4. Burkhalter W, Christensen RC, Brown P. Extensor indicis proprius opponensplasty. *J Bone Joint Surg Am*. 1973;55:725-732.
5. Lemonas P, Laing T, Ghorbanian S, et al. Extensor indicis proprius opponensplasty—the Burkhalter revisited. *J Hand Microsurg*. 2012;4:47-49.

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