

Percutaneous Dorsal Capsulotomy: The Next Frontier For Metacarpophalangeal Joint (MCPJ) Stiffness

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INTRODUCTION:

The hand is an extremely complex organ which serves us well in a multitude of ways. The term “stiff finger” refers to a reduction in ROM of the finger. Due to its multiple causes, complex anatomy of MCPJ and postoperative results that are often disappointing, suitable treatment of MCPJ stiffness in extension is still a challenge for hand surgeons¹. We report here a case of MCPJ stiffness which was successfully treated with Percutaneous Dorsal Needle Capsulotomy.

CASE REPORT:

Mr. ZBI is a 40 year old man which sustained close dislocation of left 4th MCPJ with laceration wound over Extensor zone V left middle finger. He underwent T&S of left middle finger, CMR & K-Wiring of left 4th MCPJ and the wires was removed after 1 month. He subsequently developed stiffness of left 3rd & 4th MCPJ and was referred to us. The ROM of 4th MCPJ improved with physiotherapy however the 3rd MCPJ had an active ROM of 0-60° and passive ROM of 0-70° He underwent Percutaneous dorsal capsulotomy of the Left 3rd MCPJ and we were able to achieve up to 90° of passive flexion. The left hand was immobilized in a dorsal blocking splint with the MCPJ flexed at 90 degree for 1 week then physiotherapy was resumed. 5 weeks post surgery, the active ROM of left 4th MCPJ had improved to 0-80° and passive ROM from 0-90°.

DISCUSSIONS:

Capsulotomy of the MCPJ has become a standard procedure when normal articular surfaces exist. It improves the ROM of the joints and restores a useful functional position to the fingers, thus improving overall hand function. Many authors prefer an open dorsal approach to the MCPJ because this approach is direct and provides adequate exposure of the joint². However there hasn't been any literature describing the percutaneous approach for capsulotomy of the MCPJ. In our

approach, an 18 G needle is inserted at 45° to the skin on the radial/ulna aspect of the Extensor digitorum tendon. It is advanced until it comes in contact with the head of the metacarpal then retracted 1mm. The capsule is incised by advancing the needle proximally and distally and this is evident by the gritty sensation of capsule and fibrous tissue release. As this is a minimally invasive procedure, the patient had less post operative pain and was able to return to his work sooner than expected.

Figure 1: Percutaneous dorsal capsulotomy of the left 5th MCPJ



CONCLUSION:

The goal of treatment in joint stiffness is to get a joint which is supple, stable and allows pain free motion. With this approach, we were able to achieve this with less morbidity to the patient. Post operatively, patients are able to resume their physiotherapy rehabilitation earlier thus providing more favorable outcomes.

REFERENCES:

- 1) Jiménez et al. Metacarpophalangeal joint stiffness. Still a challenge for the hand surgeon *Rev Esp Cir Ortop Traumatol*
- 2) Shin AY et al. The stiff finger. Green's operative hand surgery. Philadelphia: Elsevier/Churchill Livingstone: 2011.pp 355-89