

## A rare case of recurrent subluxation of elbow managed by ligament reconstruction

Gautam Gupta<sup>1</sup>, Debasis Mukherjee<sup>2</sup>, Soumyadip Dutta<sup>3</sup>, Souvik Saha<sup>4</sup>, Ranadip Haldar<sup>5</sup>

<sup>1</sup>RMO, <sup>2</sup>Senior Resident, <sup>3</sup>Assistant Professor, <sup>4,5</sup>Junior Resident, Department of Orthopedics, R.G. Kar Medical College & Hospital, Kolkata, West Bengal, India

Submission: 10-06-2016

Revision: 18-06-2016

Publication: 29-06-2016

### Address for Correspondence:

Dr. Gautam Gupta.  
RMO, Department of Orthopedics,  
R.G. Kar Medical College &  
Hospital, Kolkata, West Bengal,  
India. **Tel.:** +91-9831723085,  
**E-mail:** drguptagautam@gmail.  
com

**How to cite this article:** Gupta G, Mukherjee D, Dutta S, Saha S, Haldar R. A rare case of recurrent subluxation of elbow managed by ligament reconstruction. IntJMRP 2016;1(1):21-22

### ABSTRACT

Injury of elbow occurs mainly because of fall on outstretched hand with elbow slightly flexed and a valgus internal rotation force acting on the elbow. In these mechanisms lateral collateral ligament (LCL) is affected first and medial collateral ligament (MCL) is last to be affected resulting in gross instability. A 20-year-old man presented to us with instability of elbow for 1 year. After clinical examination and MRI, it was concluded that MCL injury of elbow joint was present. MCL reconstruction was performed using SemiT&Gracilis graft. There was satisfactory outcome at 1 year follow-up with return to pre-injury functional status. MCL injury of elbow is a rare injury. Reconstruction of MCL can bring satisfactory functional outcome.

**Key words:** Subluxation, Ligament reconstruction, Graft fixation

### BACKGROUND

Elbow dislocations are relatively rare in adolescence. According to O'Driscoll et al. a valgus axial posterolateral force acts over the elbow which causes first lateral collateral ligament (LCL) avulsion then the force travel along the capsule and anterior bundle of medial collateral ligament (MCL) is affected last. It is the main valgus stabilizer of elbow<sup>1</sup> and it originates from antero-inferior tubercle of medial humeral epicondyle and inserts on sublime tubercle of ulna.<sup>2</sup> Injury of MCL causes valgus instability and recurrent elbow dislocation/subluxation.<sup>1,3,4</sup>

### CASE PRESENTATION

A 20-year-old boy presented to our institute with h/o injury over dominant elbow due to fall while playing football a year back. Swelling and pain appeared over elbow and he could not move his elbow. He was taken to nearby hospital and elbow dislocation was diagnosed. Initially elbow reduction was done and slab immobilization was applied for 3 weeks. Elbow dislocated again while throwing a ball after 2 months, it was reduced by the local doctor and immobilization was done. Elbow dislocated 3 times in a year and it was hampering his daily activities. Valgus stress test and valgus extension overload test were positive. There

was apprehension with pivot shift manoeuvre. The Mayo elbow performance score was fair with 65 points. AP view of elbow shows normal bony structure.

On MRI, it was concluded that MCL tear of elbow joint was responsible (Figure 1).

### PLANNING

MCL exploration and if required, reconstruction was planned using SemiT&Gracilis autograft.

### Surgical Steps

- **Graft:** Ipsilateral semitendinosus and gracilis autograft harvested and prepared by tensioning and stitching according to the required length.
- **Exposer:** Proximal ulna and medial condyl exposed through medial flexor-pronator split approach.
- **Tunnel:** According to the diameter of the prepared graft, two bicortical tunnels created, one near sublime tubercle of ulna (Figure 2) and the other in medial epicondyle of humerus.
- **Graft Fixation to ulna:** Graft fixed to the ulnar tunnel by one bio-screw.



Figure 1:

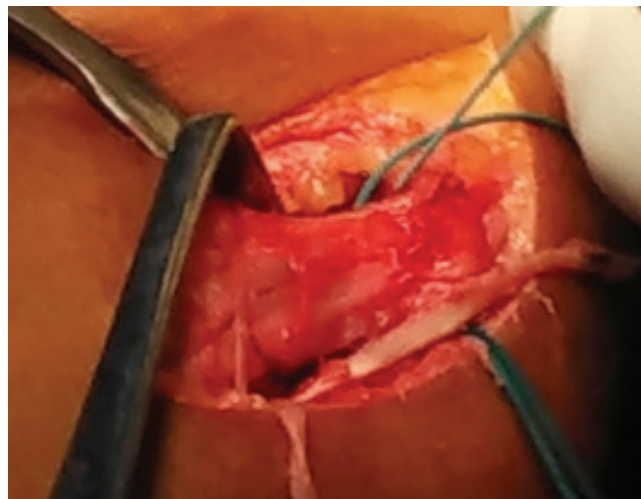


Figure 3:



Figure 2:

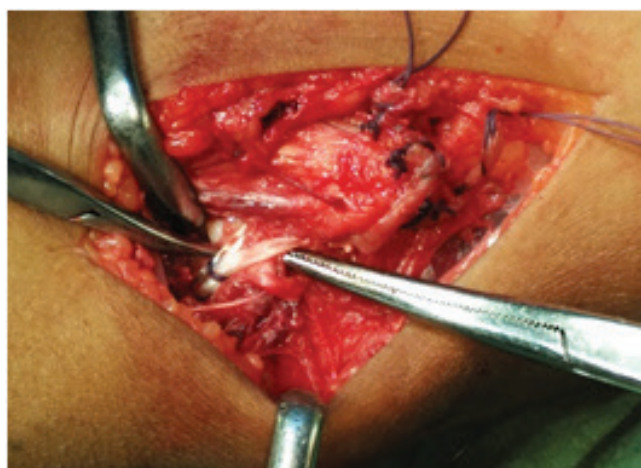


Figure 4:

- *Graft passage:* The two openends of the graft are passed underneath the flexor-pronator, one end in front of epicondyle and other behind epicondyle. Tehn passed through thee picondylar tunnel crossing each other inside tunnel (Figure 3).
- *Graft fixation to medial epicondyle:* Varus stress given, tension applied, fixed with another bio-screw in the epicondylar tunnel. Two ends are again stitched to each other and surrounding soft tissue outside the tunnel over the superior aspect of the epicondyle (Figure 4).
- *Closer:* Valgus stress resulted in no instability. Wound closed in layers.

## POST-OPERATION AND FOLLOW-UP

Plaster back slab was applied and followed up after 10 days by a removable hinged elbow splint. Intermittent active elbow mobilization was given keeping the splint. Splint was discarded after 6 weeks and muscle strengthening exercise started, but valgus stress was avoided. Normal

daily activities started after 4 months. At 6 months, Mayo score returned to 100. After a year of follow-up, there was no recurrence and complete return to the pre-injury status.

## REFERENCES

1. Callaway GH, Field LD, Deng XH, Torzilli PA, O'Brien SJ, Altchek DW, et al. Biomechanical evaluation of the medial collateral ligament of the elbow. *J Bone Joint Surg Am* 1997;79(8):1223–1231.
2. O'Driscoll SW, Jalszynski R, Morrey BF, An KN. Origin of the medial ulnar collateral ligament. *J Hand Surg Am* 1992;17(1):164–168.
3. Hill Jr NB, Bucchieri JS, Shon F, Miller TT, Rosenwasser MP. Magnetic resonance imaging of injury to the medial collateral ligament of the elbow: a cadaver model. *J Shoulder Elbow Surg* 2000;9(5):418–422.
4. Munshi M, Pretterklieber ML, Chung CB, Haghighi P, Cho JH, Trudell DJ, et al. Anterior bundle of ulnar collateral ligament: evaluation of anatomic relationships by using MR imaging, MR arthrography, and gross anatomic and histologic analysis. *Radiology* 2004;231(3):797–803.

**Author Contribution:** GG: Conceptualization, study design and final approval, Data acquisition; DM: Data acquisition, Study design and final approval; Review of literature, manuscript editing and revision; SD: Conceptualization, Data acquisition, analysis, interpretation, preparation and drafting of manuscript; SS: Data acquisition, analysis, interpretation, preparation and drafting of manuscript; RH: Data analysis, interpretation, preparation and drafting of manuscript.  
**Source of Support:** Nil. **Conflict of Interest:** None declared.