

Case Report

Recurrent anterior shoulder dislocation with glenoid fracture managed by modified Boytchev procedure: a rare case report

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ABSTRACT

Surgical procedures for recurrent anterior dislocation of the shoulder include using capsuloligamentous or bone blocks to create barriers and active interventions using muscle actions. Fracture of glenoid acts as a barrier for bone block procedures. Boytchev procedure, though outmoded, yet acts as simple and effective procedure in this condition. Here we report a 44 year old male with recurrent anterior dislocation with glenoid fracture treated by Boytchev procedure. The patient is on regular follow up since 3 years with no episode of shoulder dislocation till now with full range of movements. To conclude, Boytchev procedure is technically simple and effective method in patients with recurrent anterior shoulder dislocation with fracture of glenoid.

Keywords: Recurrent shoulder dislocation, Boytchev, Glenoid fracture

INTRODUCTION

More than 200 different operations have been described for recurrent anterior shoulder dislocation.¹ Bone block procedures like Latarjet are exclusively dependent on integrity of glenoid. Associated fracture of glenoid creates dilemma for surgeon regarding choice of surgical procedure to prevent further shoulder dislocation.

Boytchev, a Bulgarian orthopaedic surgeon, described a surgical technique for recurrent anterior dislocation of the shoulder.² This procedure involves rerouting of the detached tip of coracoid process with its attached conjoined tendon (short head of biceps and coracobrachialis) along with the pectoralis minor muscle deep to subscapularis and reattaching to its anatomical location. Later, Conforty modified this procedure by rerouting the conjoined tendon of the short head of biceps and coracobrachialis only.³ However over the years it

went into disrepute due to its poor functional outcome but in case of recurrent shoulder dislocation with glenoid fracture, it concluded to be procedure of choice. In present case report we describe the relevance and use of the Boytchev procedure in the setting of recurrent anterior dislocation of shoulder with fracture of anteriorinferior quadrant of glenoid.

CASE REPORT

40 year old male patient reported in emergency department of PGIMS, Rohtak with chief complaints of pain and swelling over his right shoulder subsequent to fall on outstretched hand. Patient also gave history of repeated dislocations in past which he got reduced by closed reductions in the emergency department. This time patient reported with dislocation and with severe pain and swelling over the right shoulder. Patient was investigated. X-rays, MRI and CT scan were done and were diagnosed

as recurrent shoulder dislocation with fracture of anterior inferior quadrant of glenoid (Figure 1).

Patient was placed in a supine position under general anaesthesia, and a sand bag was placed under the medial border of the scapula. The standard deltopectoral approach was used. After proper exposure, coracoid process along with the origin of short head of biceps and coracobrachialis was osteotomised and moved distally. The subscapularis was horizontally split at level of upper 2/3rd and lower 1/3rd. First, fractured glenoid was fixed

with 2 lag screws. To prevent further instability, Boytchev procedure was employed. The conjoint tendon of the coracobrachialis and short head of biceps, together with the detached tip of the coracoid process were rerouted through the distal 1/3rd horizontal subscapularis muscle and reattached to the bed of coracoids process with one lag screw. After haemostasis, the wound was closed in layers. The arm was immobilised by the side of chest with the shoulder in internal rotation (Figure 2 and 3). Pendulum exercises were initiated after 2 weeks followed by progressive range of movements.

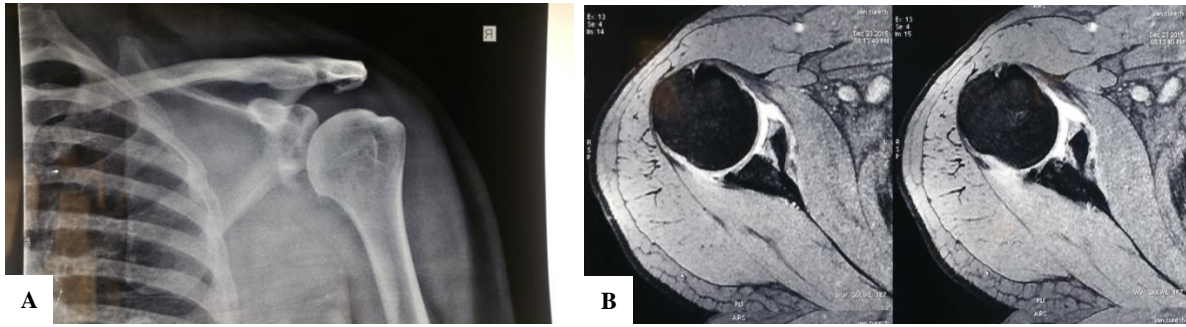


Figure 1: Preoperative radiological and MRI showing fracture of glenoid.

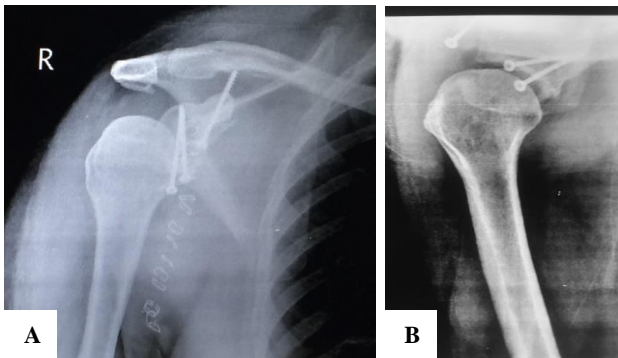


Figure 2: Post-operative X-ray showing glenoid fixed with 2 screws and later after Boytchev technique coracoid fixed with a single screw.

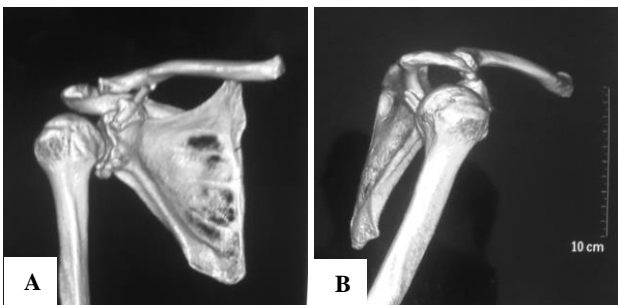


Figure 3: Post-operative CT image showing well contained humeral head.

The patient was able to attend his daily activities after 6 months of surgery. At the final follow up of 36 months shoulder movements were near to normal compared to opposite shoulder and here turned to same working

activity as before (Figure 4). There was no episode of dislocation/ subluxation till recent follow up.



Figure 4: Post-operative full range of movements.

DISCUSSION

Treatment for recurrent anterior dislocation of shoulder should provide an active corrective force that pushes the humeral head into the glenoid fossa. The prime goal of any operative procedure for recurrent anterior dislocation of shoulder is directed towards prevention of recurrence. Bankart seems to be the procedure of choice in management of cases when there is no significant bone loss while Latarjet has been a standard in cases with significant bone loss.^{4,5} However in our case, Latarjet procedure was not possible because the area of the glenoid where the coracoid is to be fixed or glenoid to be repaired to bed, was fractured.

The modified Boytchev procedure is biomechanically sound as it acts by two possible mechanisms: dynamic muscular sling effect and improved shoulder joint proprioception.⁶⁻⁸

The anterior dislocation of the humeral head is prevented by the increased muscle bulk composed of the subscapularis, coracobrachialis and the short head of the biceps which enhances the bracing effect over the anteroinferior aspect of the glenohumeral joint. Biomechanical study of Halder et al and cadaveric study of Jiang et al provides valid scientific reason for prevention of recurrence after modified Boytchev procedure.^{9,10} Study by Shibata et al revealed that the efficacy of modified Boytchev procedure was not only due to the muscular sling effect but improved shoulder proprioception also played an important role in prevention of shoulder dislocation.⁸

Boytchev procedure was not so much popular as it was associated with high recurrence rate as high as 44% in a study conducted by Dalsgaard et al.¹¹ The reason for the multiple recurrences is probably the fact that the musculotendinous flap pulls the capsule forwards, so facilitating dislocation. Also, this procedure may be contraindicated in epileptic patients and those with weak subscapularis or large glenoid defect.¹² But in present scenario, it came out to be procedure of choice with good functional results as the bed for possible labrocapsule repair or for attachment of coracoid graft was already fractured.

CONCLUSION

Boytchev procedure, though rarely done nowadays, is a useful procedure to stabilize anterior shoulder instability in light of fracture of the anterior inferior quadrant of the glenoid in a case of recurrent dislocation of shoulder. This procedure is technically simple, and does not require expert skills or any sophisticated instruments and can be performed by all orthopaedic surgeons where basic operative facility is present.

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