Shoulder Injury Following Overzealous Manipulation in Adhesive Capsulitis by Untrained Professional Managed with Shoulder Arthroscopy

Raghavendra S Kembhavi[1], M K Basavaraj[1], Rajesh Reddy[1]

Learning Point of the Article:

Shoulder manipulation for adhesive capsulitis needs to be done very cautiously.

Abstract

Introduction: Adhesive capsulitis of shoulder is a commoner condition in middle aged population and is classified into primary and secondary types based on etiology. Treatment options depend on stages of disease which ranges from physical therapy, non-steroidal anti-inflammatory medications, intra-articular steroid injection, hydro-dilatation therapy, manipulation under anesthesia, and arthroscopic capsular release. However, the condition is generally mismanaged by untrained professionals in the periphery center leading to complications. We report one such case, which was then managed arthroscopically.

Case Report: A 58-year-old female patient presented to our outpatient department with a severe painful left shoulder following overzealous manipulation by untrained professional and she was diagnosed with severe traumatic capsulosynovitis with a subscapularis tear, biceps tendon subluxation, and shoulder subluxation. We managed patient arthroscopically with extensive capsulosynovectomy, biceps tenotomy, and upper subscapularis repair. Postoperatively, she was immobilized for 6 weeks and was put on proper rehabilitation program. At the 2-year follow-up, the patient had an excellent outcome and had complete pain-free movements at the left shoulder with significant increase in pre-operative constant shoulder score of 12–82.

Conclusion: ?Overzealous manipulation shoulder in frozen shoulder patients has serious complications and has to be avoided and therefore has to be done by trained professional gently under anesthesia. Shoulder arthroscopy plays a pivotal role in managing such complications successfully.

Keywords: Subscapularis tear, Rotator Cuff, Biceps pulley, Subluxation

Introduction

Adhesive capsulitis is estimated to have an incidence of roughly 2–5%, with a predominance toward middle-aged women and the non-dominant arm [1]. Primary adhesive capsulitis is defined as an idiopathic condition with functional restriction of passive and active shoulder motion for which radiographs are unremarkable, and there is no known underlying cause or associated condition [1]. Secondary types of adhesive capsulitis include local as well as systemic causes such as rotator cuff tear, hemiparesis, cardiovascular diseases, diabetes, and thyroid disorder [2]. Treatment regimens for adhesive capsulitis vary significantly according to the stage of presentation, age, prior treatments, and patient preference. Possible treatment strategies include physical therapy, non-steroidal anti-inflammatory medications, intra-articular steroid injection, hydro-dilatation therapy, manipulation under anesthesia, and arthroscopic capsular release [3]. Manipulation under anesthesia in which a tight adhesive joint capsule is stretched and forced to be torn, which is

Access this article online

Website: www.jocr.co.in

DOI: 10.13107/jocr.2022.v12.i07.2904

Author's Photo Gallery


Dr. Raghavendra S Kembhavi


Dr. M K Basavaraj


Dr. Rajesh Reddy

[1]Department of Orthopaedics, Shri B. M. Patil Medical College, BLDE (Deemed to be) University, Vijayapura, Karnataka, India.

Address of Correspondence:
Dr. Raghavendra Kembhavi, Department of Orthopaedics, Shri B. M. Patil Medical College, BLDE (Deemed to be) University, Vijayapura, Karnataka, India.
E-mail: caringdocs68@gmail.com

Submitted: 19/03/2022; Review: 05/05/2022; Accepted: June 2022; Published: July 2022

DOI:10.13107/jocr.2022.v12.i07.2904

Figure 1: Pre-operative clinical picture showing severe painful restricted movements of the left shoulder.

Figure 2: Pre-operative radiograph showing inferior subluxed shoulder joint.

associated with numerous complications such as iatrogenic fracture, glenohumeral dislocation, rotator cuff tearing, and nerve injuries [4]. Therefore, manipulation has to be done under sedation or general anesthesia with proper muscle relaxation by trained medical professionals to avoid undue complications involved in the procedure. However, it is commoner in the periphery centers in India wherein patients with adhesive capsulitis are overzealously manipulated by bonesetter/untrained medical professionals to improve movements of the shoulder, leading to devastating injuries around the shoulder. This case report highlights such incidence wherein patient with adhesive capsulitis secondary to uncontrolled diabetes was wrongfully manipulated by untrained professional leading to severe traumatic capsulosynovitis with the upper subscapularis muscle tear with shoulder subluxation and how she was managed successfully by shoulder arthroscopy and rehabilitation.

Case Report

A 58-year-old diabetic female presented to our Outpatient department with a severe painful shoulder on the left side with the inability to lift her arm for 15 days. The pain was disturbing her sleep. There was a history of pre-existing shoulder pain on the same side due to adhesive capsulitis with a stiff shoulder for 6 months. For the same problem, her shoulder was manipulated overzealously by a local bonesetter to improve her shoulder movements following a possible steroid injection. Ever since the manipulation, the patient complained of severe pain in the shoulder, affecting all the movements at the shoulder, her daily activities and sleep. On examination, there were no active movements possible at the shoulder with active-assisted forward flexion of 80° and active-assisted abduction of 50° with pseudoparalysis of the shoulder (Fig. 1). There was no obvious wasting of the deltoid, supraspinatus and infraspinatus. The lift-off test and Belly-press test for subscapularis integrity were positive. Constant shoulder score was 12. On radiography, there was inferior subluxation of the shoulder (Fig. 2). On magnetic resonance imaging, there was increased capsular hyperintensity, suggesting joint effusion and capsulosynovitis, subscapularis muscle tear and medial biceps tendon subluxation with edema around the tendon (Fig. 3). The diagnosis of acute traumatic capsulosynovitis of the shoulder with the upper subscapularis muscle tear with biceps tendon subluxation with shoulder subluxation was made. The patient was posted for shoulder arthroscopic surgery. Intra-operatively, we found a severe amount of capsulosynovitis all around the shoulder joint more at the rotator interval (Fig. 4). A thorough capsular synovectomy was done. Biceps tendon subluxation was noted, and a tenotomy was done. The upper third subscapularis muscle tear was noted at the humeral insertion site. Repair of subscapularis muscle was done with two fiber wires and one knotless PEEK anchor arthroscopically (Fig. 5). Postoperatively, the patient was immobilized with an arm pouch for 6 weeks. Rehabilitation was started on day 10 postoperatively. The post-operative radiograph showed a concentric reduction of the shoulder (Fig. 6). The patient was followed up regularly at 3 weeks, 6 weeks, 12 weeks, 6 months and 1 year. At the 2-year follow-up patient had completely pain-free movements at the shoulder and was regularly involved in household activities(Fig. 7). Constant shoulder score had

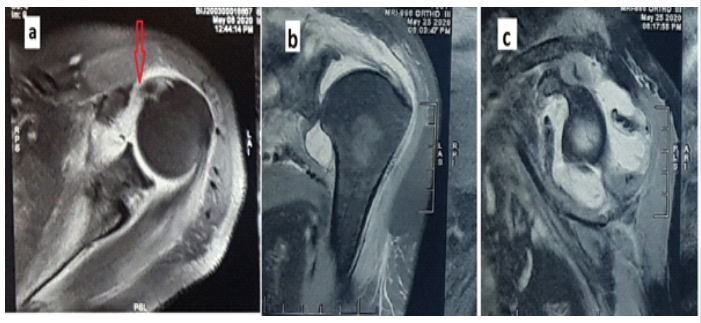

Figure 3: Magnetic resonance imaging (a-axial, b-coronal c-sagittal) images showing hyperintense signals suggesting severe effusion inside the joint secondary to capsulosynovitis along with partial tear of the upper third subscapularis muscle (red arrow) and shoulder subluxation.

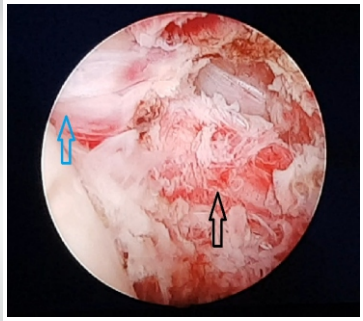

Figure 4: Intra-operative arthroscopic picture showing severe capsulosynovitis(black arrow) and subscapularis tear upper third (blue arrow).

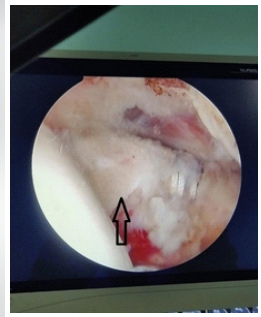

Figure 5: Intra-operative arthroscopic picture after repair of subscapularis with 2 fiber wire and PEEK knotless anchor.

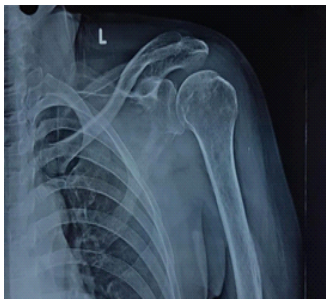

Figure 6: Post-operative radiograph showing concentric reduction of shoulder joint

Figure 7: 2-year post-operative clinical pictures (a-d) showing complete pain free movements of shoulder joint

improved significantly to 82.

Discussion

Although adhesive capsulitis is a self-limiting disease with a natural course ranging from 2 to 3 years while passing through various stages of the disease, it eventually ends up in functional loss in 7–15% of patients [2]. Furthermore, 40% of patients experience pain throughout the course of the disease, which forces them to go for treatment though it is self-limiting. Intra-articular steroid injections definitely have a potential role in limiting disease or relieving symptoms though studies have shown its efficacy is limited to 12 weeks [5]. Considering its cost-effectiveness and efficacy, a lot general population accept this modality of conservative treatment [6]. However, it has to be injected by trained professionals under sterile aseptic conditions with precision, either intra-articularly or in the subacromial space, as studies have shown that accuracy of precise intra-articular injection even by an experienced surgeon is <30% [2]. However, unfortunately, our patient had got steroid injection by a local untrained professional.

Traumatic dislocations of the shoulder following forceful manipulation by traditional bonesetters are not new and have been reported previously in the literature [7, 8]. Possible mechanisms include forced abduction and external rotation leading to shoulder dislocation. In elderly patients, rotator cuff injuries are commoner following dislocations due to weakened cuff muscles. In our patient, we had shoulder subluxation, though not frank dislocation, when she presented to us. We believe it could have been due to the volume effect resulting from severe capsulosynovitis and also could have been due to associated subscapularis tear. This is evidenced by concentric reduction of shoulder joint postoperatively after arthroscopic debridement of capsulosynovitis with subscapularis repair.

Acute traumatic subscapularis tears are relatively rare compared to degenerative causes, and in degenerative causes, they are usually associated with other rotator cuff tears [9]. Subscapularis tears can be classified according to the anatomical location of the tear based on the location of the tear in the superior third or middle third, or inferior third portion of the tendon. Classification is also based on the relationship of tear on biceps pulley and superior glenohumeral ligament, according to Touissant et al. [10]. Furthermore, tears in the upper subscapularis are associated with rupture in the medial sling of the biceps pulley leading to biceps subluxation [11]. In our case, there was a tear in the biceps pulley due to the upper subscapularis tear resulting in biceps subluxation, and we classified the subscapularis tear according to Touissant classification as grade 2. Repair of subscapularis tear is indicated in the painful shoulder with a complete tear or in partial tear with pain with failed conservative management [12]. We decided to do an arthroscopic repair of subscapularis with fibre wire and knotless PEEK anchor though it was partial considering the severity of symptoms. However, it is a severe form of capsulosynovitis with massive effusion in the joint along with other pathologies like shoulder subluxation, upper subscapularis tear with biceps medial subluxation, which makes this case report unique, and to the best of our knowledge, such complex injury has not been reported previously in the literature according to the best of our knowledge.

Conclusion

Overzealous manipulation shoulder in frozen shoulder patients has serious complications and has to be avoided and therefore has to be done by trained professional gently under anesthesia. Steroid injections have limited indications and must be used cautiously. Shoulder arthroscopy along with proper rehabilitation program plays a pivotal role in managing such complications successfully.

Clinical Message

Although manipulation is recommended treatment of choice for adhesive capsulitis, it has to be done by trained orthopedic surgeon and under anesthesia. Overzealous manipulation by untrained professional could lead to complications which can be lot damaging to the shoulder joint including muscle tears. Shoulder arthroscopic plays pivotal role in addressing such muscle tears when done properly along with strict post-operative rehabilitation program.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

References

1. Nakata W, Katou S, Fujita A, Nakata M, Lefor AT, Sugimoto H. Biceps pulley: Normal anatomy and associated lesions at MR arthrography. Radiographics 2011;31:791-810.

2. Hand C, Clipsham K, Rees JL, Carr AJ. Long-term outcome of frozen shoulder. J Shoulder Elbow Surg 2008;17:231-6.

3. Sethi PM, Kingston S, Elattrache N. Accuracy of anterior intra-articular injection of the glenohumeral joint. Arthroscopy 2005;21:77-80.

4. Farrell CM, Sperling JW, Cofield RH. Manipulation for frozen shoulder: Long-term results. J Shoulder Elbow Surg 2005;14:480-4.

5. Koh KH. Corticosteroid injection for adhesive capsulitis in primary care: A systematic review of randomized clinical trials. Singapore Med J 2016;57:646-57.

6. Roh YH, Yi SR, Noh JH, Lee SY, Oh JH, Gong HS, et al. Intra-articular corticosteroid injection in diabetic patients with adhesive capsulitis: A randomized controlled trial. Knee Surg Sports Traumatol Arthrosc 2012;20:1947-52.

7. Chen KL, Liu SY, Wei TS. Bilateral anterior shoulder dislocation as a result of manipulation: A case report. Medicine 2017;96:e8590.

8. Chen CL, Chiu SL, Chu CL, Lan SJ. Tragic result of traditional Chinese medicine manipulation: An unusual case report of bilateral anterior shoulder dislocations. BMC Complementary Altern Med 2015;15:98.

9. Kim TK, Rauh PB, McFarland EG. Partial tears of the subscapularis tendon found during arthroscopic procedures on the shoulder: A statistical analysis of sixty cases. Am J Sports Med 2003;31:744-50.

10. Toussaint B, Barth J, Charousset C, Godeneche A, Joudet T, Lefebvre Y, et al. New endoscopic classification for subscapularis lesions. Orthop Traumatol Surg Res 2012;98:S186-92.

11. Koo SS, Burkhart SS. Subscapularis tendon tears: Identifying mid to distal footprint disruptions. Arthroscopy 2010;26:1130-4.

12. Lenart BA, Ticker JB. Subscapularis tendon tears: Management and arthroscopic repair. EFORT Open Rev 2017;2:484-95.

Conflict of Interest: Nil
Source of Support: Nil

Content: The authors confirm that informed consent was obtained from the patient for publication of this case report

How to Cite this Article

Kembhavi RS, Basavaraj MK, Reddy R. Shoulder Injury Following Overzealous Manipulation in Adhesive Capsulitis by Untrained Professional Managed with Shoulder Arthroscopy. Journal of Orthopaedic Case Reports 2022 July;12(7): 30-33.