УДК: 614.2:616.31

OUR EXPERIENCE WITH SURGICAL TREATMENT OF ROTATOR CUFF INJURIES OF THE SHOULDER JOINT

Alisher A. Temurov - assistant
Mukhriddin Kh. Khursanov - resident
Sarvar Y. Nurumov - resident
Samarkand State Medical University (Samarkand, Uzbekistan)
alishertemurov6@gmail.com

Abstract. *CSJ injuries occur in 63-84% of shoulder injuries. The rotator cuff ranks third (16%) after spinal (23%) and knee (19%) disorders in terms of frequency of rotator cuff injuries. The frequency of tears varies from 5 to 37% (A. DePalma), of which about 15-20% in 60-year-olds, 26-30% in 70-year-olds, and 36-80% in 80-year-olds. Such a high incidence of pathology is predetermined by regular degenerative changes in the tendinous and muscular tissues of the rotator cuff of the shoulder, which develop in people with age and are caused by anatomical features of the shoulder joint structure. In the tendon part of the rotator cuff of the shoulder there is a so-called 'load cable' or 'sickle-shaped area', within which blood flow is reduced, and there the tear formation occurs. Magnetic resonance imaging (MRI) is highly informative in the diagnosis of pathological changes of the rotator cuff of the shoulder. T2-VI with signal suppression from fatty tissue in the oblique coronal projection is considered to be the most informative.*

Key words: *shoulder joint, rotator cuff, injury, treatment.*

Introduction. The scapula muscles and their function have been known for about five centuries. For the first time determined the role of the suprasternal, substernal, and subscapular muscles in the functioning of the upper limb was studied by A. Vesalius as early as the 16th century. He gave them the name "shoulder rotators and those who play a role in raising the shoulder." Smith in 1834 drew attention to the damage to a group of scapulae Jarjavay J was the first to describe subsacromial bursitis in 1867. Condition that develops in the shoulder joint immediately or after some time after an acute injury, he described and introduced the term brachiocephalic periarthritis. Duplay in 1872. He believed this condition was related to destruction or adhesion of the shoulder joint capsule [2,8]. During other researchers of the nineteenth century Duronea, Pinguad and Charvot (1879) tried to refute his theory, believing that the cause pathologies should be considered as rheumatic or neurogenic. Most cuff injuries, can be repaired classical reinsertation proposed by E.A. Codman. Even with extensive damage, recovery is usually possible with a satisfactory with a distant result [1,4,13]. At the same time, there is no universal,effective method that can be used in operational interventions aimed at restoring anatomical relationships and functions of the shoulder joint. Unfortunately, one-third of patients with extensive with rotator cuff injuries, surgical treatment presents certain difficulties. The reason for this is secondary degenerative changes and retraction of displaced individuals attachment of short shoulder rotators. In such cases, alternative surgical methods are being considered (Figure -1).

Open and arthroscopic degenerative removal was proposed. altered and functionally unstable tissues, however, while some authors believed this contributed to a significant decrease pain intensity, restoration of active movements were not observed. In addition, the reduction of pain syndrome is short-lived and such the scope of the operation is preferable for elderly patients with the prevailing symptom is pain. [6,11]. McLaughlin H.L. did not consider it necessary to achieve anatomical restoration, considering it possible to insert the tendon where it can to be brought in without tension and fixed with a transossal cord but this did not contribute to the restoration of the shoulder joint function due to a violation of biomechanics [5,7].

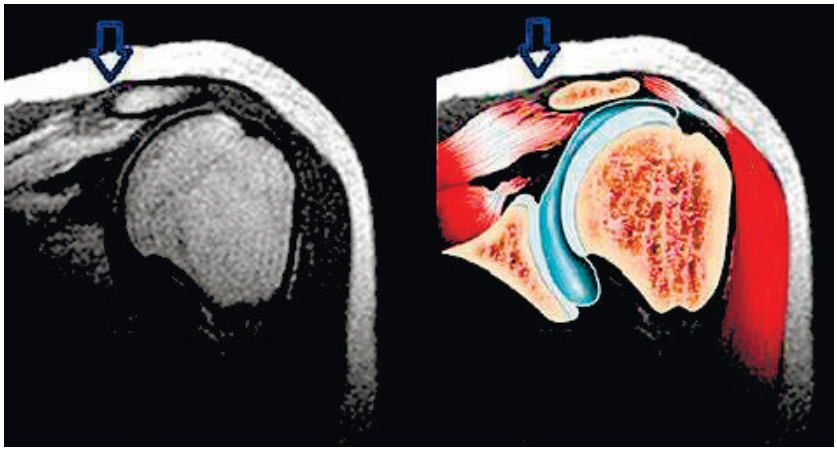


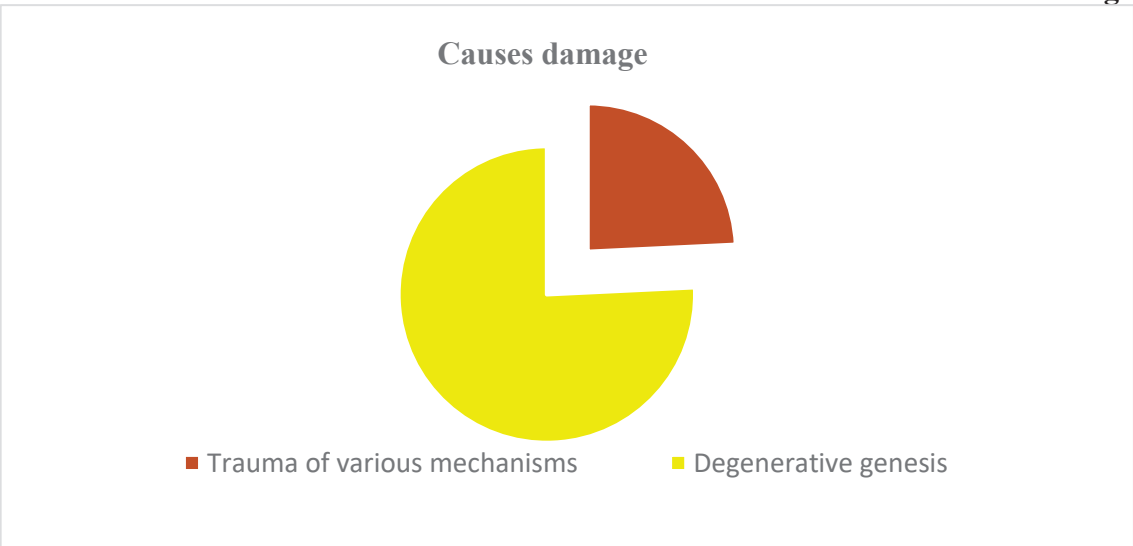
Fig. 1. Rotator cuff injuries of the shoulder joint.

Therefore, choosing a treatment method for extensive injuries of the rotary shoulder cuff, presents significant difficulties. This is due to the diversity of the coverage of the pathological process by anatomical structures, muscle retraction and their degeneration, lower surfaces of the acromial process of the scapula, with changes in the acromial clavicular joint, pain syndrome, synovitis, bursitis, impaired mobility of the shoulder joint, genesis of injury, duration pathology and age of the patients. Presence of a significant number of points views and contradictions in views on the methods and possibilities of operational restoration of cuff integrity indicates their insufficiency effectiveness, lack of justified criteria for selecting rational methods of surgical interventions and requires further study [9,14].

Material and methods of research.

66 patients (41 men, 25 women) with the diagnosis of chronic damage of shoulder rotator cuff tendons, combined contracture of the shoulder joint were operated openly (from 2022 to 2025) at the Samarkand Branch of the Republican Specialised Scientificand Practical Medical Centre for Traumatology and orthopedics. The average age of the patients was 58 years. In 16 patients (24.2%) the causes of rotator cuff damage were traumas of various mechanisms, and in 50 patients (75.8%) they were of degenerative genesis In all patients with degenerative tears were accompanied by subacromial impingement syndromes. And in 6 patients besides impingement there was adhesive capsulitis of the shoulder joint. According to our observation, the average period of patients' visits to a specialised consultation was 2-5 months.

Diagram-1.



MRI of the shoulder joint showed signs of rupture of the tendon part of the supraspinous and subscapularis muscles of the shoulder rotator cuff with diastasis between the fixation point to the greater tubercle and the flotation edge of the tendon of more than 2.0 cm and retraction into the subacromial space. Objective examination data combined with clinical examination allowed us to confirm the absolute signs of rotator cuff injury, determine its localisation and the degree of tendon rupture.

Surgical technique: Under general intubation anaesthesia, the patient's position is 'on the side'. The patient is fixed with stops. The operated limb is placed in the position of 20-30 degrees of abduction, 20 degrees of flexion. Extension of the operated limb along the axis with a load of 4-5 kg. The arthroscope is inserted into the shoulder joint through standard posterior and anterior ports. The shoulder joint is visualised with an optic inserted through the posterior port. Diagnostic arthroscopy revealed the nature of the rotator cuff injury. According to the size of the tear: small, medium, large and according to the shape of the tear: 'L' and 'U' shaped. The astroscope was also used to identify pathologies of the subacromial space. Subacromial decompression was performed in patients with impingement syndrome after determination of rotator cuff injury. The subacromial bursa was dissected for optimal visualisation of the rotator cuff tendon. If necessary, acromionoplasty was performed using a shaver and bone drill.

The patient was then transferred to the back. Patients with adhesive capsulitis underwent closed joint redressing. After repeated treatment of the operating field in the upper extremity, the subacromial cavity was opened through the deltoid access: a skin incision was made from the anterior-upper corner of the acromion to the big tubercle of the humerus. The deltoid muscle was divided bluntly.

The zone of the bone-tendon defect from the natural fixation point in the projection of the greater tubercle of the humerus to the flotation and retrapped edge of the tendons of the supraspinous and plantar muscles more than 3.0 cm was determined, after which the edges of the damaged tendons of the shoulder rotator cuff were refreshed and adapted to the maternal bed of the humerus by mobilisation. A perceptive bone bed was prepared in the place of natural fixation of the tendon of the supraspinous muscle by removing scar tissue and a part of the cortical layer of the greater tubercle of the humerus. After that, the refreshed edges of the flotating tendons of the supraorbital and subscapularis muscles were sutured with Polyester№ 6 thread.Next, percutaneous sutures were performed in the head of the humerus using a hook-shaped spoke with an exit on the cortical plate distal to the greater tubercle of the humerus. After that, thread tensioning and adaptation of the flotating tendon edge in the natural fixation point were performed. After fixation of the percutaneous sutures, we checked the volume of movements in the shoulder joint and the stiffness of the adapted tendons of the shoulder rotator cuff. The wound was haemostasis and sutured layer by layer. The operated upper limb was fixed with a withdrawal splint (30° abduction and 20° anterior deviation) for 4 weeks.

Results and discussion. Results of surgical treatment was performed by follow-up examination at 3, 6 months and 1 year with clinical examination of the patient (tests for shoulder rotator cuff function, range of motion; VAS pain (0 - no pain, 10 - severe pain) and completion of the standardised UCLA shoulder functional assessment scale (adapted to the daily life of patients: 34-35 points - excellent score, 28-33 points - good, 21-27 points - satisfactory, less than 20 points - poor), pain syndrome, joint function and muscle strength during labour and daily activities of the patient were evaluated.

Table-1

Treatment results

Treatment results	Number of patients	Percentage
Great results	38	57,5%
Good result	25	37,8%
Unsatisfactory results	3	4,7 %
Total	66	100%

An excellent result was obtained in 38 patients (57.5%). A good result was obtained in 25 patients (37.8%). 3 patients (4.7%) had an unsatisfactory result. The reasons for unsatisfactory results were extensive defect and late conversion of patients (2), and concomitant diabetes mellitus in patient (1) resulted in ligature fistula. After removal of the ligature, a good result was obtained.

Conclusion:

1. Despite the traumatic nature of the surgical intervention, reinsertion of the rupture of the rotating cuff tendon is a choice operation that provides the maximum prospects for restoring patients' working capacity.

2. According to the research results, the increase in the proportion of good results showed the effectiveness of the applied surgical method.

3. It also prevents decreased work capacity and various complications that may occur in patients, returning them to an active lifestyle.

REFERENCES

1. Bassett RW, Cofield RH. Acute tears of the rotator cuff: the timing of surgical repairs. ClinOrthop. 1983; 175:18-24.

2. Codman EA. Complete rupture of the supraspinatus tendon: operative treatment with report of two successful cases. Boston Med Surg J. 1911; 164:708-10.

3. Constant CR, Murley AH. A clinical method of functional assessment of the shoulder.ClinOrthop. 1987; 214:160-4.

4. DE Palma AF, Caller G, Bennett GA. Variational anatomy and degenerative lesions of the shoulder joint. Instr Course Lect. 1994; 6:255-81.

5. Keyes EL. Anatomic observations on senile changes in the shoulder. J Bone Joint SurgAm. 1935; 17:953-60.

6. Lohr JF, Uhthoff HK. The micro vascular pattern of the supraspinatus tendon. Clin Orthop.1990;254:35-8.

7. Murray FT, Lajtai G, Mileski MR, Snyder JS. Arthroscopic repair of medium to large full-thickness rotator cuff tears: outcome at 2- to 6-year follow up. J Shoulder Elbow Surg. 2002; 11:19-24.

8. Neer CS. Anterior acromioplasty for the chronic impingement syndrome: a preliminary report. J Bone Joint Surg Am. 1972; 54:41-50

9. Nelson CO, Sileo MJ, Grossman MG, Serra-Hsu F. Single-row modified Mason-Allen versus double-row arthroscopic rotator cuff repair: a biomechanical and surface area comparison. Arthroscopy. 2008; 24:941-8.

10. Neer CS. Displaced proximal humeral fractures: part I. Classification and Evaluation. J Bone Joint Surg Am. 1970; 52:1077-89

11. Transfer of latissimus dorsi for irreparable rotator-cuff tears / M. Aoki, K. Okamura, S. Fukushima [et.all.] // J. Bone Joint Surg.– 1996.– Vol. 78-B, №5.– P. 761-766. 39.

12. Visotsky JI, et al. Cuff tear arthropathy: pathogenesis, classification and algorithm for treatment. J Bone Joint SurgAm. 2004; 86:35-40.

13. Warner, J. P. Management of massive irreparable rotator cuff tears: the role of tendon transfer instructional course lecture / Warner J. P. // J. Bone Joint Surg.– 2000.– Vol.82-A, №6.– P.878 -890. 40.

14. Watson, M. Practical shoulder surgery / M. Watson // By Grune & Stratton, LTD.– 1985. 261