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Arthroscopy VOL. 7, No 1 2000 SUMMARY: Between 1989 and 1997, 110 surgeries were performed on rotator headphone disorders. 60 could be evaluated for follow-up problems, with the need to stratified according to the type of ruptures in partial and total and mild, medium and massive and depending on the type of surgery performed. We evaluate the results and compare the bibliography. Based on all this we will show our criterion to indicate the surgery and which to use according to the clinic and the pathological alteration of the found anatomic. ABSTRACT: Between 1989 and 1997, 110 surgeries were performed with rotator cap injuries, but we can only evaluate 60 cases due to follow-up difficulties. We have classified these injuries in a partial or total way and if so in small, medium and massive. We evaluate the results and compare them with the update. In this work, we will show our surgical criteria and why surgery needs to be done due to the clinical and pathological state of the antomus. In 1989 we started with arthroscopic techniques in shoulder pathology. Our first approach to rotator cap therapy and diagnosis was arthroscopic acromioplastics and, in case of discovery of a rupture of the tendon, we proceeded to conventional open-path repair, if deemed necessary. Over the next few years there have been many changes, not only in terms of surgical technique, but in this we will insist, on tactics before any pathology. At first, acromioplasty and debridement were classified as the only surgery for massive rupture of the rotator cap (45). It was then gradually set aside as an isolated surgery to re-prioritize repair, also leaving aside acromioplasty for the possibility of homeoreal ascent. The combination of instability and slap injuries also appears as causing disturbances in the tendon coat. Also the suspended bridge theory (6) that gave rise to so-called partial repair along with articles showing that post-surgical residual defects are comparable to acceptable function, (10) (12) that begin to move tendon transfers or use Iophyllite joints in massive breaks. With regard to the technical part, the feasibility of arthroscopic acromioplasty is consolidated, so the possibility of repair with endoscopic methods appears both assisted (mini open) and pure (totally arthroscopic) and anchors and various refinements in terms of types of sutures, noises and if not a simple debridement (or the realization of a trunk for coaptation of the tendon with the bone) appears. (7) (9) (9). All these tactical and technical changes generate countless variables to analyze. Even the diagnostic boundary with the of lesions such as coracoid friction, rotator interval pathology or so-called internal impingement has expanded the variables to consider, what with all these changes, it is very difficult to randomize the results in order to draw conclusions of real statistical value. That's why, all these years, we have not felt comfortable showing off our castic and diagnostic and therapeutic system. Even today we must be honest, we must not offer conclusions of statistical value based solely on our case studies. What we will do is look at the international literature and compare it with our cases, so that with both parameters we consolidate the diagnostic and therapeutic logic of our experience in this pathology. Our diagnostic algorithm starts with a basic medical history. We emphasize an unstable or painful family history of the shoulder, since in the existence of the suspicion of lassism, it is a cause that is added to define surgery for its progressive affection in the deterioration of the tendon, as we have previously communicated to society, (49) (50) As far as semiology is concerned, there are numerous published signs, but our priorities are as follows: Mobility: outside the rude frozen shoulder or the impossibility of abduction we carefully examine the opposite shoulder, to see if its external rotation has increased or not (to verify a previous laxity), which due to pain sometimes we cannot do it on the sick shoulder. In the affected shoulder we not only control the external rotation, but the internal rotation as it can be increased at the expense of the second (pitchers or swimmers), which causes pain. Sometimes only the internal rotation decreased being the expression of an initial frozen shoulder. As for strength, it is difficult to do an elevation examination, due to pain, so we prioritize the examination of external roundabouts on the side of the body. We do not believe in the discriminatory analysis between supra and infraspin, since it is very difficult to isolate it, according to the works of Itoi (27, 28) the superspine gives 28% of the elevation and 99% of the external rotation from an overlap of the important fixation of the tendon. That's why we prioritize the analysis of external roundabouts with the elbow on the side of the body without elevation. Photo 1. As for the subcapular to evaluate the internal rotation, apart from Gerber's off lifting mark (21) we prefer (since the latter is difficult to perform sometimes by arson), the sign, described by Warner or Napoleon's sign (pressing his hand against the abdomen, if there is a break in the subcapular, the elbow falls to the side of the body in external rotation). Photo 2. We also look for diminished or exaggerated external rotation with the elbow on the side of the body as a sign of rotator interval injuries. Subcapular examination is very important as a failure of this is a great alteration in rotator maintenance and has serious implications for surgical tactics and technique. Let's look for the points with the classic and external elevation and these are the ones that will tell us whether or not they need acromioclavicular resection (10% in our statistics) more than any radiological image. With regard to the examination of biceps, it is not important for us in the context of the pathology of the rotator cap since we consider it in general a pathology accompanying the disorders of external and internal rotators and subachrome space, but it does not cause fundamental pathology, except in the case of slap injuries that can generate injuries of the rotating cap. The maneuvers we use to verify such injuries are as Morgan proposes, for the back lip, the sign of job relocation (in the absence of instability), for the upper lip the invocation of pain by pressing with the patient's hand on the elbow and against the glenohumeral and the sign of speed and similar for the previous lip. We believe that many injuries that were previously associated with bicipital tendinitis are actually misdiagnosed slap injuries. As for Neer's sign we consider it a non-specific sign of acromial profling but it does not define pathology. In case of infiltration, we selectively intraarticular, subacchomatic or acromioclavicular in those dubious diagnostic cases after the test, so as not to traumatize a patient who may otherwise need therapeutic infiltration. As for the imaging studies we asked apart from the glenohumeral front and the standard scapular profile, an axial. (Photo 3). To evaluate the acromioclavicular in the entire maximum articular size which is the posterior anther. Ultrasound is required as a screening method to exclude important alterations of the cuff, deficiencies in minimal alterations (false negative) and dependence of the ultrasound operator, mri, we ask at the beginning of the case only in the face of clear signs of initial suffering or that make us suspected of surgical pathology at the beginning or in the face of the failure of conservative treatment, paying attention to the axial cut, in the insertion of the infraspinous and subcapular and in the anterior part of the set subacromial space, superspine muscle, in T1, T2 cuts, in order to discern acute or degenerative traumatic pathology. Resonance is also important for measuring the space between coracoids and glena in case of coacnoid friction (Photo 4). We do not believe that resonance can define the quality of the bracket, so much so that it is irreparable due to its intratendinous lesion (some authors if they find degeneration of intratendinous MAGNETIC RESONANCE, they call it irreparable). 1a) From the superspine 1b) From the infraspin 2a) Broken supercapular : d oes do not pass the elbow in front of the axis of the body 2b) Intact Supraacapsular Photo 3: axial rx to see acromioclavicular joint Photo 4: Normal distance between the magnetic between coracoids and glena: 11 11 Surgical technique We prefer the patient in lateral decubitus with traction between 30 and 100th removable seizure not only to check the anchorage of the biceps in the upper lip (slapped lesions) but to mobilize it continuously in the movements of external and internal rotation, to improve surgical exposure we used general anesthesia, as this decubital can be uncomfortable for the patient when the surgery has been prolonged and because when using the prolonged infusion pump it can disturb about torax and neck. We did not, however, have compartment syndromes despite having used up to 80 liters of physiological solution. (Photo 5). In infusion. An arthroscopic posterior path is performed in search of a glenohumeral intraarticular pathology, which is always corrected in the first place, performing acromiogaic and anterior paths to be able to perform a total anterior and posterior bursectomy, emphasizing the correct display not only the anterior acromioclavicular part, but the complete observation of the posterior tendon of the bracket. Next we dry the third lower anterior of the acromion by arthroscopy if the ascent of the homer head, important (51) and the rupture of the tendon is massive, we do not do it or separate the coracomic ligaments to avoid further ascent of the head. According to the pre-operative clinical examination and also arthroscopically dry the acromioclavicular joint. Photo 5: Post-operative appearance after infusion of 80 liters of water. Then we move on to the defect of the rotator cap. If we retract it we try to release it on its upper and lower face and even in case of massive breakages, we can release the interval between supraspin and subcapular to mobilize it. All this very important since reductability together with the observation of the breakage or not of the subcapular defines whether a) we can do it completely arthroscopically b) mini open c) or a conventional open track. We use a lot of laterolateral sutures (edge convergence theory) and, of course, the use of anchors for bone tendon suture making small portals for inserting them arthroscopically. At any time when we consider the personal possibilities of the exhausted endoscopic path, we move on to open surgery, having not had complications from previous arthroscopic surgery. In case of massive breakages we used a previous extension of the open mini approach by lifting the previous deltoid, but as we will see it is associated, as happened to us, with complications from such maneuver 24, so we prefer conventional open surgery on such breakages by performing aside the partial repair recommended by Buikhart and others, in these cases when we do not completely cover the defect. We must remember that the conventional mini open approach is not similar to the arthroscopic in is previous and less We have used supraspine slippage in two cases which are not part of this statistic (21). Meticulously pay attention both to the closure of the sutures between the tendon and bone and to the tension between the knots of it (8) (to avoid slipping) trying to reproduce the natural stress arc of the rotator cap (7) using the anchors. In the post-operative period, we immobilize according to the tension of the suture with or without a kidnapped split between 1 and 3 weeks making passive movements up to the 6th week starting from the active movements of healthy rotators and slowly with the repaired one, allowing for three months the complete elevation sometimes requiring full recovery between 6 months and a year. We have surgery surgically 110 patients. The full analysis could have been done in 60 patients, as not only should we have had contact with them, but we had to save enough data from surgical protocols to classify breaks, arbitrarily taking a partial or total classification (Snyder) and small, medium or large (less than 2 cm, between 2 and 4 and more than 4, respectively). (16) Of these patients the average age was 64 years, (between 32 and 80 years) only one bilateral case, 40 males, 20 women, 25% reported an event before the triggering of symptoms, 95% of the cases consulted for pain, 5% for loss of strength, 75% for both. There was a painful history of the family shoulder in 20% of cases. We don't exactly have previous analysis of the semiological force to quantify the loss of this and the groups involved. Surgical results 10 cases of acromial bursitis without breaking the bracket, 4 cases of partial rupture, 2 of which associated with instability, 6 cases of massive breakage, 23 cases of average defects, 17 cases of minimal defects. We used the UCLA scale for evaluation: in the case of subacromial pathology, without rupture of the rotator cap, 10 acromioplastics were performed, obtaining 9 excellent results and 2 good ones. We must, however, acknowledge that these were not the cases that were part of the beginning of our learning curve. In case of partial rupture (4), 2 isolated acromioplastics were performed with an excellent result and a bad, a more capsular maintained the closure of acromioplasty and defect and an acromioplasty with isolated encapsulator that preserves, an excellent result, a good result. In case of small defects (less than 2 cm) (17), 4 isolated acromioplastics were performed, 3 excellent res and a good, 5 open minis, 4 excellent, 1 good, 8 closed, 7 excellent, 1 poor. In medium defects, from 2 to 4 cm (23), 7 mini open excellent 9,6 good, 1 poor, 5 cases closed 3 excellent, 1 good, 1 poor, 2 acromioplasties, 2 good results. There were 3 complications, a rupture of the deltoid within 5 months of surgery, 2 superficial infections, one h with restriction of Popen There are numerous reports (4, 5, 17, 18, 35, 42) where it is clear that it is in this group of pathology that is the most common where the combination of slap instability injuries (5) or the pathology described by Walch (internal impingement) (8) coexists with the alteration of the subachrome space and the rotator cap, that is, why, despite having an alteration in the thickness of the headset it can cause totally, which alterations typical of this such as hypovascularity (33) or alterations of the acromion contour. In addition, this is the youngest group, and of the greatest functional needs. All these considerations justify that due to the number of causes of partial ruptures, the tactics of this problem range from correcting instability with capsular stature to tendon suture and acromioplasty because it is estimated that the rupture will worsen over time (42) and also that the results in this group of pathology become between excellent and good in an overall percentage of 80% in the literature, despite the insignificance of the rupture of the tendon, but with 64% it returns only to the sport. In our experience the world literature repeats itself because in the 4 cases evaluated there were 3 different treatments, and there was 1 failure in a patient who had an acromioplasty because he had not recognized an underlying instability. Total interruptions With regard to small breakages of the rotator cap, there are no relationships that can define the statistical prevalence between open or endoscopic techniques, with multiple reports of important groups such as Paulos and Altechk within the open mini group, and Burkhardt, Gartsman and Esch, among the closed ones. However, it is more important to be able to establish the boundary between the use of isolated acromioplasty or the closure of the rotator cap with acromioplasty in this group. The bibliography passes the first reports of good results of acromioplasty (54) in minimal or medium breaks, continued to deteriorate the results from 7 to 10 years (16, 55). There are reports that despite the good performance of pain in both surgical techniques, the return of strength in higher demand groups is better in the case of the rotator cap. However, there are no studies with statistical weight in this regard, since for example we look at two large series reported by the Altechk group and with (56) in 1 of them are credited 81% of the good results with acromioplasties at 7-10 years and 80% with the closure of the rotator cap with a better percentage back to the sport in the second, but use two different evaluation scales in both series, emphasizing the quantification of force only in the second bone where the rotator cap has been repaired, but therefore we cannot perform a statistical analysis of the result. Oglivie Harris (38) conducts a study that takes two populations and similar behaviors 50% acromioplasty and debridement and repair of 50% of the rotator cap. It is concluded that in active patients, the result in the recovery of muscle strength is higher in the suture group of the rotator cap. But this is done, grouping patients with tears from 1 to 4 cm, which corresponds to injuries from mild to practically massive, so we still do not know with statistical rigor to do in patients with breaks up to 2 cm or between 2 and 4 cm. In our casuistics, we had isolated acromioplasty into small defects 3 excellent results and 1 good, in medium lesions, 2 good results. As for surgery with bracket repair, in terms of mini open and small injuries, we had 3 excellent results and 2 good ones, in medium defects, 9 excellent, 6 good, 1 poor. As for completely endoscopic surgery, in small injuries, we had 7 very good results and 1 poor and in average defects, 3 excellent results, 1 good and 1 poor. We need to make it clear that we believe some of the negative outcomes are in our early stage of the learning curve. In short, acromioplasty and debridement (16, 19, 39) have a clear role in small defects, there are no reliable statistics to determine that the suture of the rotator cap in this group of patients is clearly higher, even in patients with higher physical demand so we only do this if it is simple to perform, without disturbing the deltoid, because we understand that the complete endoscopic technique, in this pathology should be the ultimate goal. In medium breaks in patients with higher physical demand and at a younger age, we believe that both mini endoscopic and open surgery should be privileged over simple acromioplasty. There is no data to favor each other, being the choice of the surgeon. As for mass tears, literature is more complicated, from Rockwood's (45) relationships with 63% good results with acromioplasty and debridement to subsequent reports condemning such surgery because it can if the acromial cork ligament is saved along with an important acromioplasty motivating an increase in homeric head at subsequent reports (16) in which they show that functionally the result is bad. There is also a consideration regarding such breakages, that there are reports of tendon transfers such as subscapular repair (20, 31) with hiphologic joints (34), transfers of the wide backbone (20) in our personal experience, all we have done has been a shift in the suppressive part (21) which is not part of this statistic, but with little success. However, despite these reports of good results, the current trend is to the so-called partial repair of the rotator cap (3) (9) (10), maintaining the external and internal rotators, lower and third rear infraspinous of the superspine and subcapular onwards, still leaving a superior continuity solution (Burkhardt) to which we can add mobilization through the range of roundabouts, using the Bigliani Interval slide (3). In this pathology, it is in our opinion, very important, to consider the state of the subcapular that must be released and repaired as an indispensable point to maintain the previous anchorage of the bracket. That is why we want to carry out so-called open mini surgery in case of massive tears carries the risk, in order to expand and lift the deltoid (56) to the previous one, lead to a loss of the function of this of serious consequences (23, 43), which happened to us in one case. We prefer in this pathology the conventional approach of the cruiser to carry out the repair. We believe that endoscopic techniques in these cases and well described (10) are reserved at the highest point of the arthroscopic experience. In our case study, we had 6 patients, of which 2 were performed from isolated open mini with an excellent result and a bad one for the complication referred to, 2 surgeries with a deltopectoral approach, with 2 good results and 2 diagnostic arthroscopies in which the case was characterized as irreparable and no treatment was performed. With regard to the technical discussion between them, open acromioplasty or arthroscopic acromioplasty is appropriate, we must say that our criterion is that at least closed techniques have the same results as open techniques, but the lowest morbidity and hospital cost (47). Finally, we must devote an effort to the unification of the criteria (25) because we need to have a clear classification to evaluate surgical results but not only should it be evaluated by size (16) since a defect of 2 cm can be considered small, but if it is found in the insertion of the subcapular it is difficult to repair and has much more important implications on the physiology of the shoulder of one of 2 cm in the supraspin. It is in this sense that the new classification used in HSS covers not only the size, but the type of tendon, such as tissue quality and the mobilization required among other things (56) are very important factors in the outcome of surgery. The party also has similar criteria (41). A correct scale is also important for evaluating the resulting function since scores like UCLA's are very vague, because if we think it's normal activity for a person compared to the rotator headset function it can vary in the same age range from a practice of continuous tennis to a sedentary life. That is why the strength assessment should be complete and the evaluation of each of the shoulder movements to produce a definitive, only there we will be able to evaluate results. Diagnosis in rotator cuff pathology is critical to the result. In special we must determine the existence of instability or associated slap lesions. We indicate surgical treatment after conservative treatment failure (28) or if determining at the first consultation that the patient's pathology is progressive so that it has significant acromic or acromioclavicular alterations, tendon ruptures, or instability lesions or slapses, of course always taking into account the level of activity and age of the patient. In small tears, we can consider an isolated acromioplast trying to perform as much as possible an endosc-pica suture of the rotator cuff. In medium tears, we always perform repair surgery by open mini v/a or endosc-pica according to technical feasibility. In massive tears we perform conventional open surgery, after arthroscopa. It is extremely important, our understanding, to have a common language, in terms of the classification of surgical findings and evaluation since we can only finish having stal art criteria in the results. Adamson G, Tibone J: Dieci anni di valutazione delle riparazioni della cuffia dei rotatori primari. J Spalla Elbow Surg. Marcial/Aprile 1993. Appearance J: Shoulder rotator cuff injuries. AAOT Magazine, 63, pp35-40. Bigliani L, Cordasco F, Melivee S e Musso E: Riparazione operativa di massice lacime di cuffia dei rotatori: risultati a lungo termine. J Spalla Elbow Surg, Vol 1, N 3. 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