Arthrotomy & Subscapularis Tendon Repair

Specialty: Surgery

Description: Arthrotomy, removal humeral head implant, right shoulder. Repair of torn subscapularis tendon (rotator cuff tendon) acute tear. Debridement glenohumeral joint. Biopsy and culturing the right shoulder.

Report

TITLE OF OPERATION: ,1. Arthrotomy, removal humeral head implant, right shoulder.,2. Repair of torn subscapularis tendon (rotator cuff tendon) acute tear.,3. Debridement glenohumeral joint.,4. Biopsy and culturing the right shoulder.,INDICATION FOR SURGERY: , The patient had done well after a previous total shoulder arthroplasty performed by Dr. X. However, the patient was lifted with subsequent significant pain and apparent tearing of his subscapularis. Risks and benefits of the procedure had been discussed with the patient at length including, but not exclusive of infection, nerve or artery damage, stiffness, loss of range of motion, incomplete relief of pain, incomplete return of function, continued instability, retearing of the tendon, need for revision of his arthroplasty, permanent nerve or artery damage, etc. The patient understood and wished to proceed.,PREOP DIAGNOSIS: ,1. Torn subscapularis tendon, right shoulder.,2. Right total shoulder arthroplasty (Biomet system).,POSTOP DIAGNOSIS: ,1. Torn subscapularis tendon, right shoulder.,2. Right total shoulder arthroplasty (Biomet system).,3. Diffuse synovitis, right shoulder.,PROCEDURE: , The patient was anesthetized in the supine position. A Foley catheter was placed in his bladder. He was then placed in a beach chair position. He was brought to the side of the table and the torso secured with towels and tape. His head was then placed in the neutral position with no lateral bending or extension. It was secured with paper tape over his forehead. Care was taken to stay off his auricular cartilages and his orbits. Right upper extremity was then prepped and draped in the usual sterile fashion. The patient was given antibiotics well before the beginning of the procedure to decrease any risk of infection. Once he had been prepped and draped with the standard prep, he was prepped a second time with a chlorhexidine-type skin prep. This was allowed to dry and the skin was then covered with Ioban bandages also to decrease his risk of infection.,Also, preoperatively, the patient had his pacemaker defibrillator function turned off as a result during this case. Bipolar type cautery had to be used as opposed to monopolar cautery.,The patient's deltopectoral incision was then opened and extended proximally and distally. The patient had significant amount of scar already in this interval. Once we got down to the deltoid and pectoralis muscle, there was no apparent cephalic vein present, as a result the rotator cuff interval had to be developed through an area of scar. This created a significant amount of bleeding. As a result a very slow and meticulous dissection was performed to isolate his coracoid and then his proximal humerus. Care was taken to stay above the pectoralis minor and the conjoint tendon. The deltoid had already started to scar down the proximal humerus as a result a very significant amount of dissection had to be performed to release the deltoid from proximal humerus. Similarly, the deltoid insertion had to be released approximately 50% of its width to allow us enough mobility of the proximal humerus to be able to visualize the joint or the component. It was clear that the patient had an avulsion of the subscapularis tendon as the tissue on the anterior aspect of the shoulder was very thin. The muscle component of the subscapularis could be located approximately 1 cm off the glenoid rim and approximately 3 cm off the lesser tuberosity. The soft tissue in this area was significantly scarred down to the conjoint tendon, which had to be very meticulously released. The brachial plexus was identified as was the axillary nerve. Once this was completed, an arthrotomy was then made leaving some tissue attached to the lesser tuberosity in case it was needed for closure later. This revealed sanguineous fluid inside the joint. We did not feel it was infected based upon the fluid that came from the joint. The sutures for the subscapularis repair were still located in the proximal humerus with no tearing through the bone, which was fortunate because in that we could use the bone later for securing the sutures. The remaining sutures were seen to be retracted medially to an area of the subscapularis as mentioned

previously. Some more capsule had to be released off the inferior neck in order for us to gain exposure during the scarring. This was done also very meticulously. The upper one half of the latissimus dorsi tendon was also released. Once this was completed, the humerus could be subluxed enough laterally that we could remove the head. This was done with no difficulty. Fortunately, the humeral component stayed intact. There were some exudates beneath the humeral head, which were somewhat mucinous. However, these do not really appear to be infected, however, we sent them to pathology for a frozen section. This frozen section later returned as possible purulent material. I discussed this personally with the pathologist at that point. We told him that the procedure is only 3 weeks old, but he was concerned that there might be more white blood cells in the tissue than he would expect. As a result, all the mucinous exudates were carefully removed. We also performed a fairly extensive synovectomy of the joint primarily to gain vision of the components, but also we irrigated the joint throughout the case with antibiotic impregnated irrigation. At that point, we also had sent portions of this mucinous material to pathology for a stat Gram stain. This came back as no organisms seen. We also sent portions for culture and sensitivity both aerobic and anaerobic.,Once this was completed, attention was then directed to the glenoid. The patient had significant amount of scar already. The subscapularis itself was significantly scarred down to the anterior rim. As a result, the adhesions along the anterior edge were released using a knife. Also adhesions in the subcoracoid space area were released very carefully and meticulously to prevent any injury to the brachial plexus. Two long retractors were placed medially to protect the brachial plexus during all portions of suturing of the subscapularis. The subscapularis was then tagged with multiple number 2 Tycron sutures. Adhesions were released circumferentially and it was found that with the arm in internal rotation about neutral degrees, the subscapularis could reach the calcar region without tension. As a result, seven number 2 Tycron sutures were placed from the bicipital groove all the way down to the inferior calcar region of the humerus. These all had excellent security in bone. Once the joint had been debrided and irrigated, the real humeral head was then placed back on the proximal humerus. Care was taken to remove fluid off the Morse taper. The head was then impacted. It should be noted that we tried multiple head sizes to see if a smaller or larger head size might be more appropriate for this patient. Unfortunately, any of the larger head sizes would overstep the joint and any smaller sizes would not give good coverage to the proximal humerus. As a result, it was felt to place the offset head back on the humerus, we did insert a new component as opposed to using the old component. The old component was given to the family postoperatively.,With the arm in internal rotation, the Tycron sutures were then placed through the subscapularis tendon in the usual horizontal mattress fashion. Also, it should be noted that the rotator cuff interval had to be released as part of the exposure. We started the repair by closing the rotator cuff interval. Anterior and posterior translation was then performed and was found to be very stable. The remaining sutures were then secured through the subscapularis tendon taking care to make sure that very substantial bites were obtained. This was then reinforced with the more flimsy tissue laterally being sewn into the tissue around the bicipital tuberosity essentially provided us with a two-layer repair of the subscapularis tendon. After the tendon had been repaired, there was no tension on repair until 0 degrees external rotation was reached with the arm to the side. Similarly with the arm abducted 90 degrees, tension was on repair at 0 degrees of external rotation. It should be noted that the wound was thoroughly irrigated throughout with antibiotic impregnated irrigation. The rotator cuff interval was closed with multiple number 2 Tycron sutures. It was reinforced with 0 Vicryl sutures. Two Hemovac drains were then placed inferiorly at the deltoid. The deltopectoral interval was then closed with 0 Vicryl sutures. A third drain was placed in the subcutaneous tissues to prevent any infections or any fluid collections. This was sewn into place with the drain pulled out superiorly. Once all the sutures have been secured and the drain visualized throughout this part of the closure, the drain was pulled distally until it was completely covered. There were no signs that it had been tagged or hung up by any sutures.,The superficial subcutaneous tissues were closed with interrupted with 2-0 Vicryl sutures. Skin was closed with staples. A sterile bandage was applied along with a cold therapy device and a shoulder immobilizer. The patient was sent to the intensive care unit in stable and satisfactory condition.,Due to the significant amount of scar and bleeding in this patient, a 22 modifier is being requested for this case. This was a very difficult revision case and was significantly increased in technical challenges and challenges in the dissection and exposure of this

implant compared to a standard shoulder replacement. Similarly, the repair of the subscapularis tendon presented significantly more challenges than that of a standard rotator cuff repair because of the implant. This was being dictated for insurance purposes only and reflects no inherent difficulties with this case. The complexity and the time involved in this case was approximately 30% greater than that of a standard shoulder replacement or of a rotator cuff repair. This is being dictated to indicate this was a revision case with significant amount of scar and bleeding due to the patient's situation with his pacemaker. This patient also had multiple medical concerns, which increased the complexity of this case including the necessity to place him in intensive care unit postoperatively for observation.