

감염 후 손상된 견관절에 선택된 일차적 역구형 견관절 대치술 - 1 례 보고 -

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The Primary Reverse Total Shoulder Arthroplasty for Post-septic Destroyed Shoulder - A Case Report -

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Purpose: We report here on a solution for the case of a 71 year old lady with cartilage destruction in the left shoulder and the loss of the rotator cuff secondary to post-septic arthritic sequelae.

Materials and methods: After thorough laboratory, clinical and radiological investigation of the patient to rule out any foci of active infection, we contemplated performing reverse total shoulder arthroplasty as a primary procedure.

Results: At 22 months follow up, the patient had an excellent result according to the UCLA and ASES scales.

Conclusion: Reverse total shoulder arthroplasty seems to be an efficient procedure to improve pain and function in the post-septic shoulder accompanying severe rotator cuff injury.

Key Words: Shoulder, Septic arthritis, Sequelae, Reverse total shoulder arthroplasty

Introduction

Till date a primary reverse total shoulder arthroplasty for the post septic sequelae of the shoulder was not reported in the literature even though there were a few reports about the revision arthroplasty with reverse shoulder prosthesis. The authors report their experience

with the use of the reverse shoulder prosthesis as a primary modality of treatment in a post septic sequelae shoulder.

Case report

A 71 year old house wife presented to our hospital in December 2007, with the complaints

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of pain in the left shoulder and limitation of shoulder motion since 6 months ago. The patient complained of rest pain as well as night pain and her visual analogue scale (VAS) rating of pain at the initial presentation was 7. She had only 30° active forward flexion. Her University of California at Los Angeles (UCLA) shoulder score at the time of presentation was 5 and the American Shoulder and Elbow Surgeon (ASES) shoulder score was 18. She had a history of septic arthritis of the left shoulder 12 months prior to visit to our hospital for which she was treated with incision and drainage and antibiotics for 3 months at some other hospital. The culture at outbreak of infection revealed methicillin resistant *Staphylococcus aureus* (MRSA) and vancomycin was used for control. The laboratory test result at the initial visit to our hospital showed normal range of ESR and CRP. The patient showed no clinical features of infection including fever or heatness on left shoulder and also no sign of effusion or pus collection on radiologic exam. We concluded the patient had no persisting infection.

Simple radiograph findings were irregular bony erosion and spur formation of left shoulder joint. MRI findings were loss of fat marrow signal intensity with moth-eaten irregular signal intensity and bony erosion in humerus and scapula. Also, disruption and irregular increased signal intensity rotator cuff muscle

tendon was noticed without evidence of fluid collection. Radiological impression was a possible sequelae of septic arthritis in addition to the complete tear of rotator cuff.

In view of the severe cuff deficiency and the absence of active infective focus around the shoulder region, a reverse total shoulder replacement (Aequalis, Tornier, Montbonnot, France) was contemplated for obtaining pain relief and a better functional result.

Operative findings were consistent with the radiological findings and with almost total destruction of the humeral head. We didn't harvest any tissue for culture as surrounding soft tissue was very clear and there were no sign of infection. The head resection was done very minimally and the subchondral glenoid bone stock were found to be adequate to support the glenoid component. The reverse total shoulder replacement of appropriate size was implanted along with vancomycin impregnated cement as a prophylactic measure to prevent any recurrence of infection.

Postoperatively, the shoulder was supported with a small abduction pillow for 3 weeks. Full active assisted range-of-motion exercises were immediately started, excluding extension or internal rotation behind the body. We allowed the patient to resume her activities of daily living 6 weeks after the surgery.

At the final follow up visit (22nd months), there is no discomfort around the shoulder and

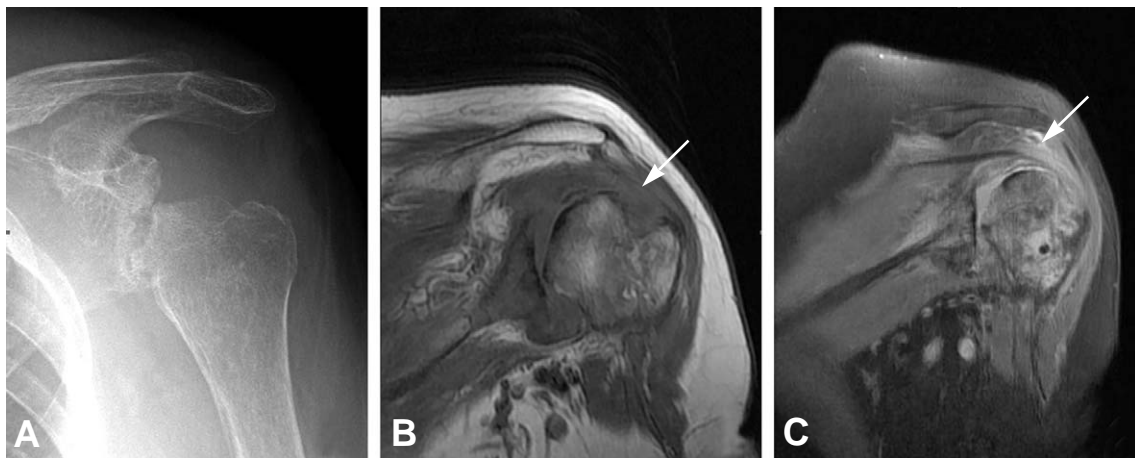


Fig. 1. Preoperative simple radiogram (A) and magnetic resonance image (B), (C) revealing destruction of glenohumeral joint and supraspinatus tendon (arrow) in T1 and T2 weighted image respectively.

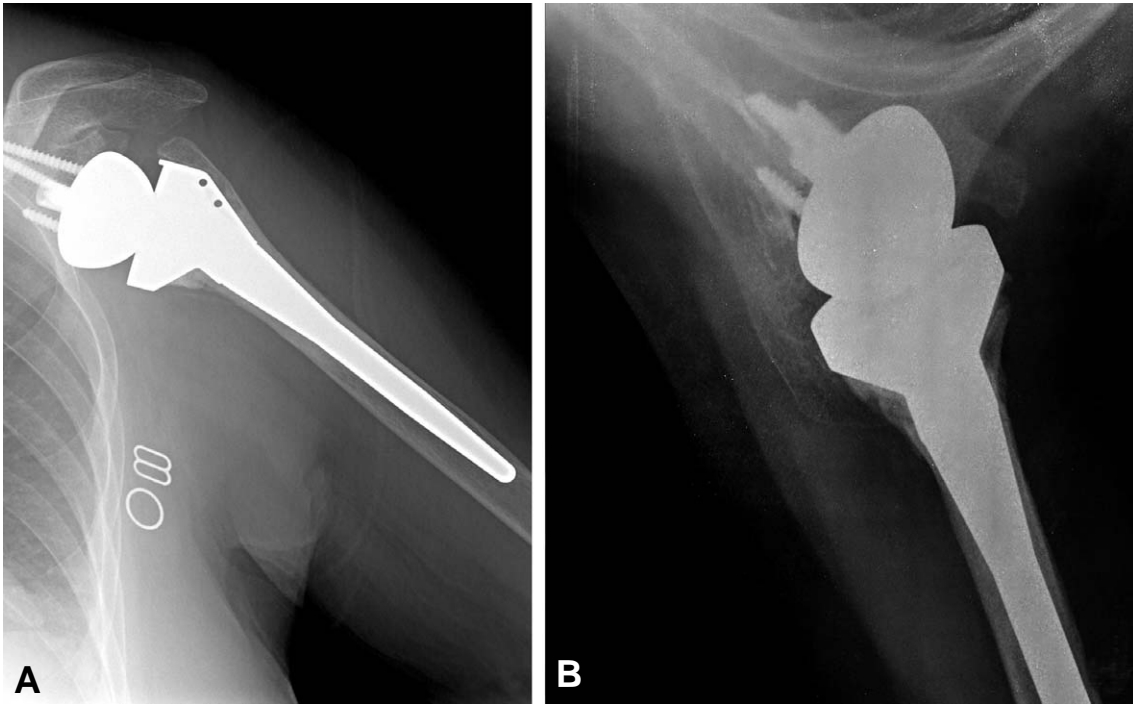


Fig. 2. Postoperative (16 months) follow-up AP view (A) and axillary view (B) shows proper alignment of the implant.

is nearly painless for most of the time (visual analogue score is 1) and her shoulder motion has improved to 150° of active forward flexion. Her UCLA Shoulder rating scale score is 32 and the ASES Total Shoulder score is 88 (Fig. 2).

Discussion

Articular infections of shoulder represent serious situations which can potentially lead to irreparable joint damage⁷⁾. In advance cases, it is usually accompanied by rotator cuff tear⁸⁾. The documented treatment modalities for destructive sequelae of septic shoulder are debridement, resection arthroplasty¹⁻²⁾ and arthrodesis⁹⁾.

Resection arthroplasty is good treatment modality in cases of intractable shoulder infections¹⁻²⁾. In our case, after the incision and drainage and the initial course of antibiotics there was no recurrence of the infection. At the time of presentation her clinical, radiological and laboratorial findings revealed no signs of active foci of infection anywhere around the shoulder joint and during the surgery also

there was no evidence of infection.

Although numerous study results demonstrated the safety and efficacy of hip and knee arthroplasty for the treatment of secondary arthritis with a history of infection^{3,5)}, there are no reports presenting protocol for treating postinfectious shoulder with arthroplasty. We believe that timing of the shoulder arthroplasty should be followed as that of hip or shoulder: when there is no sign of infection. There are no reports in the literature about the reverse total shoulder arthroplasty as a primary treatment modality for the postseptic sequelae of the shoulder but Miletì et al reported 13 cases of shoulder arthroplasty for treatment of postinfectious glenohumeral arthritis in which complication occurred in 5 cases⁶⁾. However there are no reports of treating postinfectious shoulder arthritis with severe rotator cuff defect. Hence we consider reporting this case so that this modality can be a part of the clinician's armamentarium when dealing with such serious and difficult cases.

Finally in conclusion the authors want to highlight the role of reverse total shoulder

arthroplasty as a primary procedure for such serious and difficult cases.

REFERENCES

- 1) **Braman JP, Sprague M, Bishop J, Lo IK, Lee EW, Flatow EL:** *The outcome of resection shoulder arthroplasty for recalcitrant shoulder infections. J Shoulder Elbow Surg, 15: 549-553, 2006.*
- 2) **Debeer P, Plasschaert H, Stuyck J:** *Resection arthroplasty of the infected shoulder: a salvage procedure for the elderly patient. Acta Orthop Belg, 72: 126-130, 2006.*
- 3) **Farrell MJ, Jr., Bryan RS:** *Total knee arthroplasty after septic arthritis. Orthop Clin North Am, 6: 1057-1062, 1975.*
- 4) **Grammont PM, Baulot E:** *Delta shoulder prosthesis for rotator cuff rupture. Orthopedics, 16: 65-68, 1993.*
- 5) **Laforgia R, Murphy JC, Redfern TR:** *Low friction arthroplasty for old quiescent infection of the hip. J Bone Joint Surg Br, 70: 373-376, 1988.*
- 6) **Mileti J, Sperling JW, Cofield RH:** *Shoulder arthroplasty for the treatment of postinfectious glenohumeral arthritis. J Bone Joint Surg Am, 85: 609-614, 2003.*
- 7) **Rispoli DM, Sperling JW, Athwal GS, Schleck CD, Cofield RH:** *Pain relief and functional results after resection arthroplasty of the shoulder. J Bone Joint Surg Br, 89: 1184-1187, 2007.*
- 8) **Seo KJ, Jeon IH, Cheon SH, Seo JS, Ko SH, Choi CH:** *MRI of Acute Septic Arthritis of the Shoulder Joint; Correlation with Arthroscopic Findings. J Korean Shoulder Elbow Soc, 8: 110-116, 2005.*
- 9) **Wick M, Muller EJ, Ambacher T, Hebler U, Muhr G, Kutscha-Lissberg F:** *Arthrodesis of the shoulder after septic arthritis. Long-term results. J Bone Joint Surg Br, 85: 666-670, 2003.*

초 록

목적: 71세 여자에서 견관절 감염 후 발생한 관절연골의 파괴와 회전근 개의 소실에 대한 처치를 보고하고자 한다.

대상 및 방법: 치료를 선택 전 임상적, 방사선학적, 실험실적으로 세심한 평가를 시행하여 현재 잔존할 수 있는 활동성 감염과 병소의 가능성을 배제한 후 통증과 기능적 관절운동을 회복하기 위하여 일차적 역 견관절 치환술을 시행하였다.

결과: 수술 22개월후 추사에서 UCLA, ASES 평가상 우수의 결과를 얻을 수 있었다.

결론: 감염후 심각한 회전근개의 손상이 동반되는 경우 일차적 역 견관절 치환술은 통증과 기능적 관절운동을 회복할 수 있는 술식으로 보인다.

색인 단어: 견관절, 감염성 관절염, 후유증, 역 견관절 치환술