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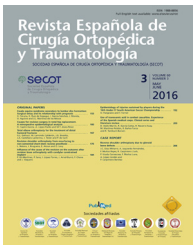

ORIGINAL ARTICLE

Revision shoulder arthroplasty from resurfacing to non-cemented short-stem reverse prosthesis☆

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KEYWORDS
Revision arthroplasty;
Shoulder resurfacing;
Perioperative complications;
Reverse prosthesis

Abstract
Objective: To assess the surgical parameters and the clinical and radiological outcomes of revisions of resurfacing shoulder arthroplasty to non-cemented short-stem reverse total shoulder arthroplasty.
Material and methods: A total of 23 revisions from resurfacing shoulder arthroplasty to reverse total shoulder arthroplasty were performed. The mean age was 70.3 ± 11.95 years. The patients included 82.6% (19/23) revised for cuff failure; 13.04% (3/23) cuff failure and aseptic loosening, and 4.35% (1/23) peri-prosthetic fracture. The need for humeral osteotomy or structural allograft, operation length, blood loss, blood transfusions and intraoperative fractures were recorded. Minimum follow-up 25 months.
Results: No humeral osteotomy or humeral structural allograft was required, and 2/23 (8.69%) required allograft for glenoid reconstruction. The mean operation time was 113.35 ± 21.30 min. Intra-operative blood loss was 374 ± 245.09 ml. Blood transfusion was required in one case. Intra-operative fracture occurred in 1 case. The Constant score improved from 17.32 to 59.78 (age/sex adjusted, 84). Overall satisfaction improved from 1.37 to 8.04. The range of motion increased 79.57° in forward elevation, 72.88° in abduction, 38.06° in internal rotation, and 13.57° in external rotation. There was no evidence of radiolucency, subsidence, or bone resorption.

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Conclusion: Revisions of resurfacing implants to non-cemented short-stem reverse prosthesis show good clinical and radiological outcomes, with minimal intra-operative complexities.
Level of evidence: IV, case series.

PALABRAS CLAVE
Artroplastia de revisión;
Prótesis de superficie de hombro;
Complicaciones perioperatorias;
Prótesis invertida

Artroplastia de revisión de prótesis de superficie de hombro hacia prótesis invertida no cementada con vástago corto

Resumen
Objetivo: Valorar los parámetros perioperatorios y los resultados clínicos y radiológicos de la cirugía de revisión de las prótesis de superficie de hombro recambiadas hacia prótesis invertida no cementada con vástago corto.
Material y métodos: Entre 2005 y 2012, se realizaron 23 revisiones de prótesis de superficie de hombro a prótesis invertidas. La edad media fue 70,3 años ± 11,95. Un 82,6% (19/23) de los recambios se realizaron por rotura secundaria del manguito rotador; 13,04% (3/23) por aflojamiento aséptico del componente glenoideo más insuficiencia del manguito y 4,35% (1/23) por fractura periprotésica. Se documentaron: necesidad de ventanas humerales y aloinjerto estructural, duración del procedimiento, pérdidas hemáticas, transfusiones y fracturas intraoperatorias. Seguimiento mínimo de 25 meses.
Resultados: En ninguno de los casos se necesitó realizar una ventana humeral para la extracción del implante de superficie, así como tampoco aloinjerto estructural. En 8,69% (2/23) de los casos se requirió aloinjerto para reconstrucción glenoidea. La duración del procedimiento fue 113,35 ± 21,30 min. Las pérdidas hemáticas intraoperatorias fueron 374 ± 245,09 mls. Se requirió hemotransfusión en un caso. Se produjo una fractura intraoperatoria. El Constant mejoró de 17,32 a 59,78 (ajustado por sexo y edad, 84). La satisfacción general aumentó de 1,37 a 8,04. El recorrido articular aumentó 79,57° en elevación anterior; 72,88° en abducción; 38,06° en rotación interna; y 13,57° en rotación externa. No hubo evidencia de radiolucencias, hundimientos, ni resorción ósea.
Conclusión: La artroplastia de revisión de las prótesis de superficie de hombro recambiadas hacia prótesis invertida no cementada con vástago corto ofrece buenos resultados clínicos y radiológicos, representando una técnica con complejidades intraoperatorias mínimas.
Nivel de evidencia: IV, serie de casos.

Introduction

The most frequent indication for revision surgery of a shoulder prosthesis is breakage secondary to insufficiency of the rotator cuff.[1] Absence of the depressor effect of the cuff on the humeral head leads it to rise, which finally leads to subacromial impingement, pain and functional impotence. These reasons finally become the indication for revision arthroplasty.

Revision shoulder arthroplasty is a complex procedure with potential complications. Loss of bone stock at the level of the humeral diaphysis and at the level of the glenoid, the involvement of soft tissues and technical matters in connection with the extraction of the implants all make this technique very demanding.

When a resurfacing shoulder prosthesis fails, revision arthroplasty for an anatomical or reverse prosthesis only involves the extraction of the resurfacing implant from the head of the humerus. The fact that the resurfacing prosthesis lacks a stem avoids the need to create a sarcophagus at the level of the humeral diaphysis. Likewise, the fact that the resurfacing prosthesis does not need to be cemented makes it possible to preserve the bone stock and humerus anatomy.[2]

The results of revision shoulder arthroplasties using anatomical prostheses are disappointing.[3,4] Good medium term clinical results have been described with the use of reverse shoulder prosthesis as the primary implant in arthroplasty secondary to rotator cuff insufficiency.[5–7] Several studies have shown that the inverted prosthesis represents an alternative which may improve pain and articular function when it is used as a revision implant.[8–10] In spite of the fact that the results of the reverse prosthesis as a revision implant are worse than those obtained when it is used as a primary implant[11]; and in spite of the fact that information on long-term results is still very limited[12]; reverse shoulder prosthesis is currently considered to be the best alternative in revision surgery.[10]

The reported complication rates in connection with revision shoulder arthroplasties to reverse prosthesis vary from