Outcomes After Shoulder Replacement Surgery in the Young Patient

How Do They Do and How Long Can We Expect Them to Last?

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KEYWORDS

• Shoulder arthroplasty • Young patients • Outcomes • Implant survival
• Ream and run • Resurfacing • Hemiarthroplasty • Total shoulder arthroplasty

KEY POINTS

- Young patients with glenohumeral arthritis present treatment challenges to shoulder surgeons, as there are no clear consensus recommendations to guide clinician management.
- Although total shoulder arthroplasty remains the "gold standard" in geriatric patients with osteoarthritis, concerns over placement of a glenoid component in young patients remain.
- Hemiarthroplasty without glenoid preparation, "ream and run," hemiarthroplasty with biologic glenoid resurfacing, and humeral head resurfacing have all been proposed as alternatives in the treatment of osteoarthritis in the young patient.
- Most of the arthroplasty options offered can provide improvements in both pain and function; however, there remain certain limitations to each procedure.

INTRODUCTION

Young patients with glenohumeral arthritis present specific challenges to shoulder surgeons. Instead of arbitrarily placing an age definition for "young," we instead define this after detailed discussion with the patient in which his or her age, comorbidities, activity level, and expectations are taken into account. The surgeon must use these patient factors along with the available literature to make appropriate

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recommendations regarding shoulder arthroplasty options. At this time, there exists no clear consensus recommendations to guide surgeons in this decision-making process. This is in contrast to geriatric patients with osteoarthritis (OA), in whom anatomic total shoulder arthroplasty (TSA) has shown to reliably provide pain relief and restore function with excellent long-term survivorship. However, concerns remain regarding implant longevity, especially with the placement of a prosthetic glenoid component in young patients. These concerns are valid, as young patients have higher activity levels, greater functional expectations, more complex pathology, and greater potential for revision shoulder arthroplasty in the future. This has led surgeons to explore other options besides TSA in the treatment of glenohumeral arthritis in young, active patients, including hemiarthroplasty (HA) without glenoid preparation, "ream and run," HA with biologic glenoid resurfacing, and humeral head resurfacing (HHR).

One of the concerns with glenoid placement is that younger patients not only have higher activity levels, but are more likely to participate in sporting events.[1] Schumann and colleagues[1] showed that the vast majority are able to continue participating in their respective sport after TSA as well. Younger patients also have increased expectations of TSA, as shown by Henn and colleagues.[2] In their study, multivariate analysis showed that younger age was the only independent predictor of greater expectations. Increased expectations may translate to increased motivation and better postoperative outcomes, but also are likely to generate increased demands seen by the prosthesis. This has the potential to accelerate polyethylene wear, which may contribute to an increased likelihood of glenoid wear and loosening (**Fig. 1**). As such, most shoulder surgeons place patients on permanent activity restrictions following shoulder arthroplasty. Surgeons are generally more restrictive after TSA than HA.[3] There remains considerable variation in long-term activity restrictions among surgeons, and in all likelihood, patients are likely to resume activities they feel comfortable with despite postoperative restrictions.

Another important point to consider for younger patients is the etiology of their shoulder pathology and the effect on long-term outcomes. Saltzman and colleagues[4] showed that only 21% of shoulder arthroplasties performed for patients younger than 50 were for OA as compared with 66% for patients older than 50. These other diagnoses, including rheumatoid arthritis (RA), avascular necrosis (AVN), chondrolysis, posttraumatic arthritis, and instability, have less predictable outcomes,

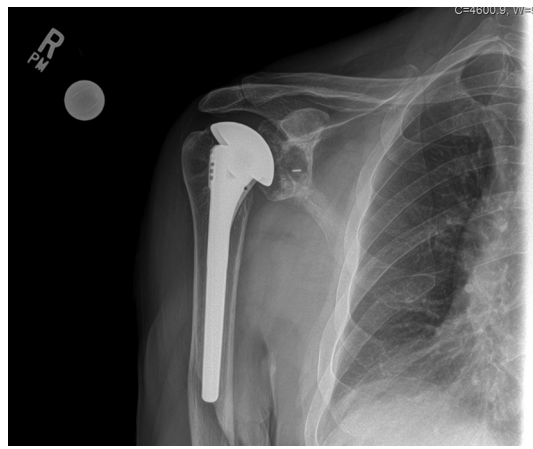

Fig. 1. Shoulder radiograph depicting glenoid component loosening.