

Outpatient Shoulder Arthroplasty



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KEYWORDS

- Ambulatory surgery center • Outpatient • Shoulder arthroplasty • Joint replacement
- Cost-effectiveness • Outcomes • Complications • Readmission rate

KEY POINTS

- Outpatient shoulder arthroplasty seems to be a safe alternative to shoulder arthroplasty performed in a traditional inpatient setting in appropriately selected patients.
- Appropriate patient selection, multimodal pain management strategies, minimizing blood loss, and efficient operative times are paramount to successful outpatient shoulder arthroplasty.
- Shoulder arthroplasties performed in an outpatient setting may offer significant cost savings compared with those performed in an inpatient hospital setting.

INTRODUCTION

The demand for shoulder arthroplasty continues to see tremendous growth. With a procedure volume growth rate of 9.4% per year, total shoulder arthroplasty (TSA) demand is increasing at a rate surpassing that of lower-extremity arthroplasty.¹ This substantial increase is likely due to multiple factors, including an aging patient population, improved implant design, the expanded role of reverse TSA, and improvements in perioperative pain management. The increased number of TSA procedures being performed each year translates to increased health care–related expenditures. As health care policy continues to evolve, now more than ever, the emphasis has been placed on providing safe, high-quality health care in an efficient and cost-effective manner. Recently, bundled payment programs have been initiated to help control the costs associated with total joint arthroplasty. These programs place increased financial responsibility on the surgeon

to control 90-day episode-of-care costs, including limiting or eliminating reimbursement for early complications or readmissions. This increased responsibility underscores the important balance surgeons face today in implementing cost-saving measures without jeopardizing outcomes or safety. One particular area of cost savings is transitioning total joint arthroplasties (TJAs) from a traditional inpatient setting to an outpatient setting for selected patients.

TJA has traditionally remained an inpatient procedure because of concerns over pain control, blood loss, and potential postoperative complications. These factors underscore the key steps in the transition to outpatient TSA (Fig. 1). Overall, improved surgical techniques, pain management, and perioperative patient management have led to declining lengths of stay. A study of 2004 patients who had a TSA from 2005 to 2011 found the average length of stay after TSA was 2.2 days.² Today, many patients can be discharged after one night in

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Fig. 1. Keys to successful outpatient TSA.

the hospital. In a recent series of 30 patients who had TSA in the traditional inpatient hospital setting, the average length of stay was 1.1 days³; in a survey of American Shoulder and Elbow Surgeons members, 69.8% of shoulder surgeons responded that their patients had an average length of stay of less than 1.5 days (unpublished data Brolin, June 2017). In the authors' experience, most patients who have inpatient shoulder arthroplasty spend a night in the hospital and are discharged the following day. This practice has led to a natural transition to performing TSAs in the ambulatory setting when possible.

PATIENT SELECTION

One of the main concerns regarding outpatient TJA is whether potential complications will occur and lead to increased morbidity and hospital readmission. This concern has been refuted by multiple reports that have documented the success of outpatient lower extremity arthroplasty without jeopardizing patient safety or satisfaction.⁴⁻⁷ Nelson and colleagues⁶ recently reported their findings using the National Surgical Quality Improvement Program (NSQIP) database to identify 63,844 patients who had total hip arthroplasties (THAs). They compared those patients who had THA as an outpatient with those whose hospital stays were 1 to 5 days. There were no differences in any of the 18 adverse events they evaluated except for the need for a blood transfusion, which was significantly less in the outpatient cohort.

The rates of complications, mortality, and readmission compare favorably for TSA

compared with THA and total knee arthroplasty (TKA).^{8,9} An analysis of 15,414 THAs, 34,471 TKAs, and 994 TSAs done between 2000 and 2009 showed significantly lower mortality and complication rates for TSA than for THA and TKA.⁸ The inpatient complication rate for TSA was 7.6% compared with 14.7% for TKA and 15.5% for THA. This analysis was followed up with a study using the Veterans Administration's National Surgical Quality Improvement Program database from 1999 to 2006, which showed that the 30-day mortality rates were 1.2%, 1.1%, and 0.4% for THA, TKA, and TSA, respectively.⁹ Patients with TSA had a 30-day complication rate of 2.8%, compared with 7.6% for THA and 6.8% for TKA. This comparative complication profile has also led to increased interest in transitioning TSA to an outpatient procedure.

The recently published rates of early complications after TSA range from 2.8% to 9.4%.⁸⁻¹³ Although these are relatively low rates of complications, a complication in an ambulatory surgery center (ASC) environment could potentially be catastrophic. Courtney and colleagues¹⁴ had an important study examining which patients should not undergo short-stay THA and TKA. Their retrospective review of 1012 patients reported an overall complication rate of 6.9%. Of those complications that required physician intervention, 84% occurred more than 24 hours postoperatively. Multivariate analysis concluded that patients with chronic obstructive pulmonary disease (COPD), coronary artery disease (CAD), congestive heart failure (CHF), and cirrhosis had a significantly increased risk of complications. This finding led the investigators to strongly advocate against these patients undergoing outpatient arthroplasty. This experience underlines the importance of proper medical evaluation preoperatively to identify patient factors that put them at an increased risk of a complication or readmission after joint arthroplasty. Also, because a significant proportion of TJAs require only a 1-night stay in the hospital, most complications will occur after discharge regardless of the operative setting.

Several recent studies have examined potential risk factors for morbidity, mortality, and readmission after TSA (Box 1). These studies are critical in our understanding of which patients are eligible for outpatient TSA after appropriate preoperative medical and anesthesia evaluations. Two studies examined the risk factors associated with 30-day morbidity. Anthony and colleagues¹⁰ found that having a

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