

Utility of Radiographs for Asymptomatic Patients Following Primary Anatomic and Reverse Total Shoulder Arthroplasty

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INTRODUCTION:

Radiographs are frequently obtained after total shoulder replacement (TSA) to confirm implant placement and follow the status of the bone and prostheses; however, standardization of their use is lacking. There are concerns regarding frequent use of radiographs due to their cost and patient radiation exposure. The aim of this study is to assess the post-operative radiograph frequency and efficacy in primary anatomic and reverse total shoulder replacements. We hypothesize that multiple radiographs taken beyond the initial 2-week postoperative interval are of uncertain benefit for both primary anatomic and reverse total shoulder arthroplasties, regardless of the presence of symptoms.

METHODS:

A retrospective chart and imaging review was conducted on all patients who underwent primary TSA (Current Procedural Terminology code 23472) at a university hospital between January 2014 and June 2021, with documentation of at least 2 years of follow-up. All available postoperative radiographs, radiologist interpretations, and clinic notes were followed up for 2 years after the date of surgery, or until another surgery was performed within the 2-year timeframe. Radiographs were assessed for joint alignment, fractures, component loosening, and dissociations. Patients were grouped by surgery type (anatomic/reverse). We evaluated follow-up radiograph frequency across time intervals and changes in patient management.

RESULTS:

A total of 213 patients (234 surgeries) were identified (55 aTSA, 179 rTSA). The mean number of radiographs within the first 2 years of surgery was 3.6 for aTSA and 4.0 for rTSA. Patients in 166 surgeries were asymptomatic, and among them, 1.8% reported abnormal radiographic findings. No changes in management were implemented based on these routine radiographs, even in cases with abnormal findings. Conversely, patients in 68 surgeries had symptoms or required revision. Among these, 47 had normal radiographs with 38.3% undergoing revision, 21 had abnormal radiographs with 90.5% undergoing revision.

DISCUSSION AND CONCLUSION: Routine radiographs are overused and typically not needed in the first year in both anatomic and reverse TSA for asymptomatic patients. For patients experiencing pain or limited range of motion, ongoing assessment using additional X-rays, CT scans, or other diagnostic tests is recommended for effective monitoring.