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Bilateral Inlay Total Shoulder Arthroplasty. Midterm Functional Outcomes

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Baptist Health

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Disclosures:

RELATED TO THIS STUDY:

Luis A Vargas, MD, PhD: No Financial Conflicts to Disclose

Eduardo Salazar, MD: No Financial Conflicts to Disclose

Nicolette Schurhoff, BS: No Financial Conflicts to Disclose

Matthias Schurhoff, MD: No Financial Conflicts to Disclose

John E. Zvijac, MD: No Financial Conflicts to Disclose

John W. Uribe, MD: No Financial Conflicts to Disclose



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Background & Purpose

- US national total shoulder arthroplasty (TSA) volume has been predicted to grow by 235.2% with 350,558 procedures by 2025¹
- TSA utilization is dominated by reverse (rTSA) and stemmed (sTSA) procedures² with an incidence of bilateral TSA of 6.3%³
- Our experience with primary inlay TSA (iTSA) since 2011 showed a growing patient acceptance
- The purpose of this study was to quantify clinical results in bilateral OA treated with iTSA



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Methods: Patient Selection & Outcomes

- **Advanced OA treated with Inlay Total Shoulder Arthroplasty (iTSA)**
- **Minimum Follow-up of 24 +/-2 months in both shoulders**
- **Patient Reported Outcomes:**
 - ASES, WOOS, VAS-Pain, Satisfaction
- **Clinical Outcomes:**
 - Range of motion
 - Perioperative transfusions
 - Radiographic assessment

Results: Demographics*

Description	Total	Group I Prospective	Group II Retrospective
Shoulders, n	50	27	23
Gender, male, n	29	14	16
Gender, female, n	21	13	7

Description	Total	Group I Prospective	Group II Retrospective	Group Comparison
Age, mean, (range), yr	66.2 (43-80)	65.6 (43-80)	66.9 (48-79)	p=0.591649
Follow-up, mean, (range), mo	69 (22-134)	79 (33-134)	58 (22-114)	p=0.00717

* Demographics calculated based on shoulders

Results: Preoperative Radiographic Assessment

Glenoid (Walch)	Total N=50	Group I N=27	Group II N=23
A1	12/50 (24%)	6/27 (22%)	6/23 (26%)
A2	13/50 (27%)	7/27 (26%)	6/23 (26%)
B1	12/50 (24%)	6/27 (22%)	6/23 (26%)
B2	11/50 (22%)	7/27 (26%)	4/23 (17%)
C	2/50 (4%)	1/27 (4%)	1/23 (4%)

OA Grade (Samilson Prieto)	Total N=50	Group I N=27	Group II N=23
Grade III	46/50 (92%)	25/27 (93%)	21/23 (91%)
Grade II	4/50 (8%)	2/27 (7%)	2/23 (9%)

Results: Patient Reported Outcomes

- Incidence, bilateral iTSA: **20.2%** (n=50) among 247 procedures performed between 8/2011 and 1/2020

PRO (mean)	Total: Last Follow-up	Group I Preop-Last Follow-up	Group II Last Follow-up
ASES	78.8	22.9 – 77.0	81.7
VAS Pain	1.6	7.8 – 1.6	1.7
WOOS	398.5	1436.3 – 394.6	403.2
Satisfaction	8.5	n/a – 8.5	8.5



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Results: Patient Reported Outcomes

- Significant improvement ($p \leq 0.05$) in PROs in Group I
- Non-significant differences in PROs between Group and I and II at mean follow-up of 69 months
- High overall patient satisfaction at final follow-up (8.5/10)



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Results: Clinical Outcomes

- No blood transfusions, readmissions, or re-operations
- No intra- or postoperative complications
- Range of motion improved from 101° degrees to 154° on forward elevation and 21° to 51° on external rotation in all patients



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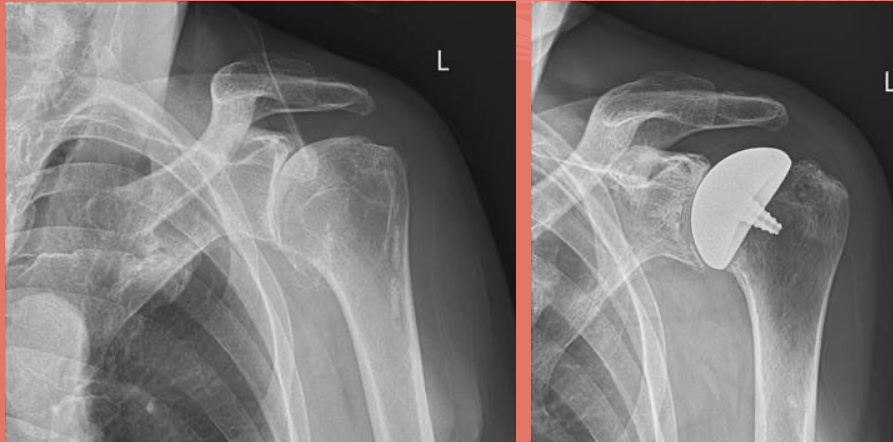
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Results: Radiographic Outcomes

- Radiolucent lines were observed in 6% (3/50)
- No gross component loosening or taper disengagement



AP radiograph:
Preoperative and 2 yr
follow-up

Conclusion

- Staged bilateral inlay TSA showed high patient satisfaction, significant pain relief and improvement on functional outcomes
- Patient adoption for contralateral iTSA showed a 220% higher incidence compared to national averages
- The patient experience from the initial shoulder arthroplasty is an important factor in the decision-making process for patients with advanced bilateral arthritis

References

1. Wagner ER, Farley KX, Higgins I, Wilson JM, Daly CA, Gottschalk MB. The incidence of shoulder arthroplasty: rise and future projections compared with hip and knee arthroplasty. *J Shoulder Elbow Surg.* 2020 Dec;29(12):2601-2609.
2. Shoulder & Elbow Registry (SER): 2022 Annual Report. Rosemont, IL: American Academy of Orthopaedic Surgeons (AAOS), 2022.
3. Walters JD, Denard PJ, Brockmeier SF, Werner BC. The relationship of bilateral shoulder arthroplasty timing and postoperative complications. *J Shoulder Elbow Surg* 2021;30:317-323.