KSES 2026
"Together, We Can Go Further"
The 33rd Annual International Congress of the Korean Shoulder and Elbow Society
March 27(Fri) ~ 28(Sat), 2026
BEXCO, Busan, Korea

- Abstract No. : F-0110
- Category : Shoulder
- Detail Category : arthroplasty

Radiographic comparison of humeral and glenoid lateralization and distalization between onlay and inlay reverse shoulder arthroplasty designs in Asian shoulders

Eriki Yanagi [1,3], Yoshihiro Hirakawa [2,3], Tomoya Manaka [3], Katsumasa Nakazawa [3], Rei Nishiura [3], Yoichi Ito [4], Hidetomi Terai [3]

Orthopedics, Kashibaseiki Hospital , Japan[1]
Orthopedics, Ishikiriseiki Hospital , Japan[2]
Orthopedics, Osaka Metropollitan University Graduate School of Medicine , Japan[3]
Orthopedics, Ito Clinic, Osaka Shoulder Center , Japan[4]

Introduction and Background

Lateralization shoulder angle (LSA) and modified distalization shoulder angle (mDSA) have been proposed as radiographic parameters for evaluating reverse shoulder arthroplasty (RSA). Schippers et al. recently subdivided these indices into humeral and glenoid components. However, comparative studies of implant types using these parameters are limited, and none have focused on smaller-bodied Asian populations. This study aimed to assess postoperative distalization and lateralization in Japanese patients and compare two implant designs. We hypothesized that onlay-type implants would yield greater lateralization.

Material and Method

We analyzed 153 shoulders of 153 Japanese patients who underwent RSA at a single institution. The Aequalis Ascend Flex (Group A, onlay type) and Tornier Perform (Group P, inlay type) were compared. Group A used a stem with a neck shaft angle (NSA) of 145°, while Group P used a 135° stem with a 10° insert, resulting in a 145° total NSA. Both groups employed a 36-mm glenosphere with increased bony offset. Postoperative radiographs measured LSA, mDSA, and Schippers' indices (GLA, HLA, GDA, HDA). Stem alignment was assessed, and correlations with range of motion (ROM), Constant score, and American Shoulder and Elbow Surgeons (ASES) score were examined.

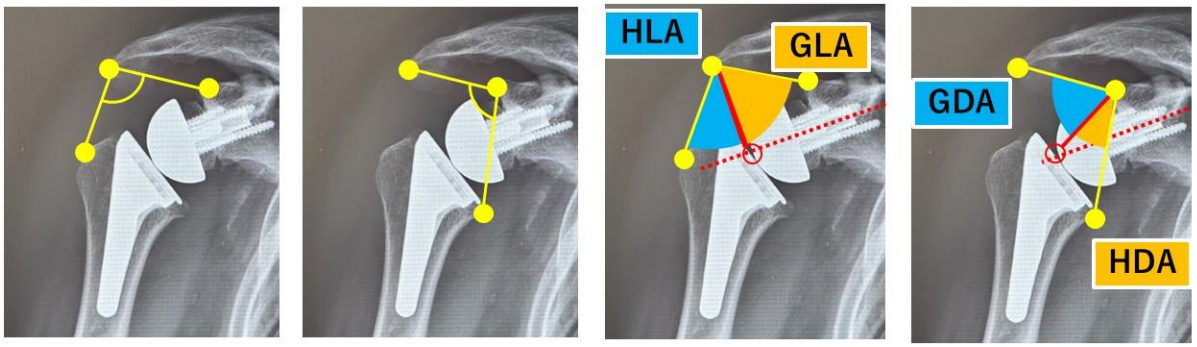
Results

LSA (77.8 ± 6.4° vs. 82.7 ± 7.1°) and HLA (27.3 ± 5.3° vs. 32.2 ± 6.5°) were significantly higher in Group P ($p < 0.001$), indicating greater humeral and overall lateralization. Distalization indices showed no significant differences. Varus alignment was more frequent in Group P. In correlation analysis, Group P demonstrated negative associations between LSA/GLA and ROM, Constant, and ASES scores, while GDA positively correlated with flexion and abduction ROM.

Conclusions

Inlay-type implants demonstrated significantly higher lateralization parameters (LSA and HLA). Stem alignment and proximal humeral resection extent likely contributed to these differences. Implant design and alignment should be considered when interpreting the postoperative geometry, particularly in smaller Asian shoulders.

Figure & Table 1.



LSA mDSA

Figure & Table 2.

	Group A	Group P	p-value
LSA	78±6.4	83±7.1	<0.01*
HLA	27±5.3	32±6.4	<0.01*
GLA	51±4.8	50±4.7	0.92
mDSA	111 ± 9.6	10 ± 10.5	0.44
HDA	31 ± 10.4	34 ± 8.9	0.06
GDA	79 ± 8.9	77 ± 7.9	0.20

LSA, lateralization shoulder angle; HLA, humeral lateralization angle; GLA, glenoid lateralization angle; mDSA, modified distalization shoulder angle; HDA, humeral distalization angle; GDA, glenoid distalization angle