Letter to the Editor

Bony Increased-offset Reversed Shoulder Arthroplasty

Minimizing Scapular Impingement While Maximizing Glenoid Fixation

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To the editor

We congratulate Boileau et al. on their article, “Bony Increased-offset Reversed Shoulder Arthroplasty” [1], and their innovative idea of using an autograft to avoid the reduced motion and notching associated with humeral medialization. Their results are encouraging. However, we have some comments regarding parts of the Methods and Discussion sections.

In the Methods section, they state that a 36-mm-diameter glenosphere usually was used for women, whereas the 42 mm was preferred for men. The disc of cancellous bone graft thickness was adjusted according to the size of the sphere. They stated that the reason why the thickness of the bone graft was adjusted according to the size of the sphere was because a 42-mm sphere already is more lateralized than the 36-mm sphere. It is unclear what they mean when they say it is already more lateralized. If they mean the center of rotation, then this is not correct. The center of rotation does not change by enlarging the diameter of

the glenosphere. Unlike with a normal shoulder of an anatomic prosthesis, with a reverse prosthesis the humerus is not spinning around the center of rotation but is hinging around the center of rotation. Therefore by changing the diameter of the glenosphere, one does not change the center of rotation, but lateralize the hinging humerus [3]. If they mean that the humeral stem is lateralized more in the 42-mm glenosphere this is correct and it means that the humerus is lateralized in the same extent in both options (10-mm graft with 36-mm glenosphere [radius 18 mm] = 28 mm = 7-mm graft with 42-mm glenosphere [radius 21 mm]).

In the Discussion section, Boileau et al. stated inferior scapular notching occurred in 19%. This is lower than that reported with a standard medialized RSA [4]. Boileau et al. did not describe if there was a difference between the prevalence of scapular notching between the group with a 36-mm glenosphere and the group with a 42-mm glenosphere. This would be interesting to know because using a larger hemisphere on the same position of the baseplate means that there is more prosthetic overhang. Using a computer model we found that prosthetic overhang should reduce inferior impingement and presumably notching [2]. We believe that using a cancellous bone graft of 29 mm in diameter (identical to the radius of the baseplate) with either a 36-mm or a 42-mm glenosphere is likely to decrease the risk of inferior impingement similarly (36-mm glenosphere [18 mm radius] and 29-mm diameter bone graft [14.5 mm radius] = 4.5-mm prosthetic overhang, 42-mm glenosphere [21 mm radius] and 29-mm diameter bone graft [14.5 mm radius] = 7.5-mm prosthetic overhang).

We believe that prosthetic overhang caused by a larger sphere and a smaller bone graft can contribute to the lower rate of scapular notching reported by Boileau et al.

(Re: Boileau P, Moineau G, Roussanne Y, O'Shea K. Bony increased-offset reversed shoulder arthroplasty: minimizing scapular impingement while maximizing glenoid fixation. *Clin Orthop Relat Res*. 2011 Feb 1. [Epub ahead of print])

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