

Editorial Commentary: A Bridge to Nowhere?...Do Patches Help Improve Our Outcomes After Rotator Cuff Surgery?



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Abstract: Patches have been used in a variety of ways to improve outcomes after repair of large to massive rotator cuff tears. Some authors have advocated using these patch grafts as augmentation, whereas other authors have used them as bridging tissue from the rotator cuff to the tuberosity. A recent study reports a well-written systematic review on healing rates and outcomes of the 2 different graft indications, showing no significant differences in healing. I do think that, equally as important, this study highlights the lack of well-designed studies on the use of patches in rotator cuff surgery.

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Orthopedic surgeons continue to strive for improved clinical outcomes and healing rates after repairs of large to massive rotator cuff tears. Particularly in large to massive tears, anatomic healing can be tough to obtain.¹ Grafts are commonly used either to reinforce repairs deemed less likely to heal or as a bridge when the torn tendon cannot be mobilized back to bone. In "Graft Augmentation Versus Bridging for Large to Massive Rotator Cuff Tears: A Systematic Review," Ono, Herrera, Woodmass, Boorman, Thornton, and Lo² report the results of their well-written systematic review on healing rates and outcomes of the 2 different graft indications. When used for augmentation, grafts are incorporated over the top of the repaired tendon, potentially enhancing the strength of the repair. In some cases, the torn rotator cuff tendon cannot be mobilized back to its insertion onto the greater tuberosity, so a graft is used as a bridge to span the area from the lateral end of the tendon back to the tuberosity.

Over the past decade, in many studies, grafts and patches, particularly when used to bridge rotator cuff tissue back to bone, have gotten a bad "rap." Results seemed to be inconsistent at best, and at worst, some patches had unacceptably high rates of inflammatory reactions requiring revision surgery.³ Interestingly

though, for me, the initial success of the superior capsule reconstruction (SCR) procedure of Mihata et al.⁴ generated a renewed interest in patches for rotator cuff surgery. This also highlights the fact that all patch constructs are not the same. To clarify, an SCR differs from using a patch as a bridge in the conventional sense in that the graft is fixed medially to the glenoid and laterally to the tuberosity. This may be a better graft construct because the medial fixation is not to typically poor-quality tendon but rather to bone (the glenoid).

Ono et al.² did a great job reviewing the limited studies on patch use in rotator cuff surgery, but I think inherently it is flawed to compare bridging versus augmentation. For me, these are 2 very distinct indications. I will consider augmentation when I can bring the tendon back to bone in a tension-free construct; however, there are other factors that make me think healing may be an issue. These include revision cases, poor-quality tissue, and patients with brittle diabetes, among other variables. Bridging is reserved for those cases when the tissue cannot be brought back to bone. I must admit that I was impressed by the healing rates of both groups but, in particular, that of the bridging group, as I expected it to be inferior. In my experience, when I have used patches as a bridge, I did not feel very confident that the remaining rotator cuff tissue would be viable enough to allow for graft incorporation. To that end, I switched to using the SCR in cases in which I would have previously bridged with a graft. Seeing the results presented by Ono et al. made

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me think that it would be interesting to perform a Level I study comparing SCR versus a bridging graft for massive, irreparable rotator cuff repairs.

To be fair, a Level I study comparing any of the potential treatments for massive rotator cuff tears would be of benefit to surgeons. One of the largest problems with this review is that it is based on 1 Level II study; the rest of the studies were Levels III and IV. In addition, no bridging study had a level of evidence greater than IV. It is very tough to draw meaningful conclusions when the results presented are based on low levels of evidence. I realize that these are extremely difficult cases, and when one is considering using a patch, it is typically after other options have been exhausted. Given that, the healing rates of 64% in the augmentation group and 77.9% in the bridging group are impressive. Moreover, I would argue that they may underestimate the actual healing rates given that partial tears on follow-up imaging studies were graded as retears. In truth, in many of these cases, poor rotator cuff tissue is debrided, leaving thinner tissue or partial tears in some areas. Magnetic resonance images obtained at time zero would likely be read as showing partial tears in these cases, which are not necessarily failures.

Clearly, in larger tears that are less likely to heal, the use of patches, either as an augmentation or bridge (or even superior capsular reconstruction), is a viable option. More important, though, I think this article highlights the need for better, well-designed studies truly comparing the outcomes for each of the treatment options used for massive rotator cuff tears. Better studies will lead to improved treatment algorithms, which ultimately will enable us to treat our patients better.

References

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