Rotator Cuff Retears Remain High

Surgeons know that massive (very large) rotator cuff tears are at great risk of retears. Studies show a retear rate as high as 94 per cent. Not all of those retears are symptomatic but that is still not a very successful outcome. What can be done to improve the results of surgery for large rotator cuff tears?

In this study, surgeons take a look at the timing of the tears. They hoped to see if the timing of the tears might offer some clues as to the reason for the tears. Tears that occur early after surgery might be an indicator of a mechanical failure of the surgery itself.

Perhaps the type of sutures used or the way the stitches are put in place contributes to mechanical failure. Some studies have pointed to the way the soft tissue attachment is prepared at the start of surgery. This area is called the footprint -- the place where the rotator cuff pulls away from the bone.

Another thought about the timing of tears has to do with biologic failure. This has more to do with the tendon healing where it is repaired or reattached to the bone. There is some thought that if the healing tendon can be protected long enough from stress, strain, and overload, then the patient is much less likely to retear the repair.

In addition to looking at the timing of rotator cuff repair tears, the authors also examined the clinical outcomes (motion, strength, function). They wanted to see if retears were somehow linked with decreased function after recovery.

In fact what they found with this study was a high rate of early ruptures. The tears occurred while the patients were still in a sling. They had not even started moving the arm or seeing the Physical Therapist yet. This points to the strong possibility of the repair itself being the problem (a mechanical failure where the suture and tendon interface).

There weren't any tears after six months, which supports the idea that once the repair is healed, unless there is a biologic weakness in the repair, the surgery should hold up quite well. Using serial ultrasound studies, the surgeons could see how the tendons were healing for each of the patients in the study.

This study confirmed what other studies have shown and that is the strength of the repair is superior when surgeons used suture anchors with a double-row fixation technique. The suspicion that where the tendon is stitched back to the bone (tendon-bone interface) is part of the problem or the "weak link" was also investigated.

Ultrasound images showed sutures in the gap between the tendon and the bone. This is an indication that the tendon has pulled away from the bone leaving the suture behind. The fact that the suture anchor is still in place and hasn't shifted further confirms mechanical failure as the cause of early retears.

In cases where the failure didn't occur until three months after rotator cuff repair, there was a different story. There simply wasn't enough tendon-bone healing to hold the repair. This is more of a biologic failure. And that raises a whole new set of questions.

For example, are there some other biologic or patient factors to explain this result? Does it have to do with the patient's age, general health, medications being taken, or the presence of other problems (e.g., diabetes, heart disease, cancer)? Some other studies have shown that the use of antiinflammatory drugs may have a negative impact on where the tendon is reattached to the bone.

How does this new information on the timing of massive rotator cuff repair tears help surgeons? The authors of this study suggest two things. First, it may not be necessary to follow patients past the six-month anniversary of their surgery. If there haven't been any problems, it's not likely any will develop.

And second, with most of the retears early after surgery, surgeons must investigate ways to improve the surgical technique. It's possible the sutures are too tight or the way the tendon is prepared before applying sutures makes a difference. At this point, all we really know is that there are some mechanical issues related to the surgical procedure that must be investigated further.

Reference: Bruce S. Miller, MD, MS, et al. When Do Rotator Cuff Repairs Fail? In The American Journal of Sports Medicine. October 2011. Vol. 39. No. 10. Pp. 2064-2070.