Shoulder Tendon Patch Among Biologics for Soft Tissue

Two major themes in orthopedic surgery today are: operations that can delay or prevent eventual joint replacement and use of biologics, including treatments to replace or enhance connective tissue. Consistent with these advances, Lourdes orthopedic surgeons are performing a variety of innovative procedures, including the use of a bioinductive patch to induce healing of the rotator cuff tendon in patients with degenerated shoulders.

“Repairs prevent progression of rotator cuff disease, stabilize a shoulder, return function and minimize joint degradation. Factors that enhance soft-tissue healing are a big emphasis. There is a strong clinical need for this,” said Lourdes orthopedic surgeon Kristen A. Herbst, DO, whose specializations include shoulder reconstruction.

Strength and Restoration of Cuff Tendon Improved
The group of four tendons and muscles that converge around the shoulder, holding the arm in place and providing movement, is the subject of injury in millions of Americans. In the rotator cuff, tendinopathy, partial- and full-thickness tears (in which a cuff tendon pulls away from the bone or tears in the middle) and calcific tendinitis are potential reasons for surgical intervention. All can cause pain, disability and worsening instability.

MR imaging is usually definitive for these conditions, and high-grade partial-thickness tears are the best application for the new arthroscopically placed bioinductive implant, which Lourdes is the first and only center in New Jersey to offer. Until now, surgeons had simply reattached high-grade tears to the bone with suture anchors. But recovery can take six months or more. Now, surgeons can place the new tissue implant (made of bovine achilles tendon) over the injured tendon arthroscopically and secure it with dissolvable sutures, decreasing the time needed for return to function.

The arthroscopically applied patch fosters natural regeneration of additional tendon tissue, which gradually reabsorbs the implant.

“Up until now, rotator cuff repair procedures did not improve the underlying tendon tissue structure,” explained Sean McMillan, DO, FAOOA, chief of Orthopedic Sports Medicine at Lourdes Medical Center of Burlington County, where only he and Dr. Herbst offer these procedures. “Surgery allowed for torn tendons to be reconnected to bone but not restored otherwise.” Dr. McMillan has completed more than 50 of these shoulder-tendon patch implants.

Biologic Regrowth of Tendon into the Patch
As blood vessels infiltrate it, the bioinductive implant fosters natural regeneration of additional tendon tissue, which gradually absorbs the implant. The process leaves a new layer of tendon tissue to augment the existing tendon. The team can also use the implant for major tears, with the rehabilitation being much the same.

“These injured tendons are like a frayed rope, and treatment decisions are highly individualized,” noted Dr. Herbst. “Some patients can tolerate the injury with injections and physical therapy. So we don’t use the MR finding alone as the decision point. However, the injury often won’t heal on its own and brings the risk of more significant or repeat tears without a surgical repair.”

Special Procedure for Severe Shoulder Dislocations
In addition to providing reverse shoulder replacement and other advanced shoulder treatments, Lourdes orthopedists are among the first in the region to perform the Latarjet procedure for patients with severe repeat shoulder dislocations. Named after the French surgeon who originated it in the 1950s, the operation involves transferring the coracoid with its attached muscles to the deficient area over the anterior of the glenoid. The step replaces missing bone and adds a muscular strut, both acting against further dislocations. Lourdes is also one of only a handful of centers in the U.S. developing an arthroscopic approach to the procedure.

For more information, visit www.lourdesnet.org or call 1-888-LOURDES (1-888-568-7337).
Natural Tissue Injectables Calm Joints and Stimulate Healing

Today, orthopedics emphasizes biologics to aid connective tissue repair. This is apparent in surgical procedures (such as those to replace cartilage with implants) and nonsurgical procedures, such as natural tissue injections aimed at regeneration and calming tissue reactivity. Traditional cortisone injection achieved temporary relief for patients, but newer injectables aim at enhancing healing in addition to reducing inflammation. They can be safely used in any joint area as part of outpatient treatment for tendinitis, arthritis or other injury or inflammatory process, or postsurgically to reduce pain and improve function — in some patients potentially reducing the risk of needing surgery, in others stimulating recovery from it.

Drs. Herbst and McMillan apply these injectables to surgical sites prior to closure during operating room procedures. Lourdes sports medicine specialists Craig Kimmel, MD, and Thomas Plut, DO, inject these natural agents in sites of injury or inflammation as in-office outpatient procedures.

AmmioFix® is composite amniotic tissue membrane minimally manipulated by a proprietary process to protect the collagen matrix and its natural properties. (The tissue, which would otherwise be discarded, is donated by healthy consenting mothers undergoing scheduled Caesarean sections.) This innermost layer of the placenta includes epithelial cells, basement membrane, avascular connective tissue matrix and stem cells. It has been used for various clinical purposes for more than a century. The preparation, injected into joint areas, reduces scar tissue formation, modulates inflammation and facilitates healing. Components of the preparation exchange cell-growth signaling at the site that helps in the formation of cartilage and tendon tissue.

PRP injections are platelet-rich plasma injections that, in joint spaces, also promote the healing and tissue-formation process. Using less than an ounce of the patient’s whole blood in the operating room or the outpatient office, the team can process and separate several milliliters of high-platelet-concentration injectable. These PRP injections enhance the natural recruitment of platelets and white blood cells from the blood that facilitates a restorative and anti-inflammatory response. Platelets release growth factors in response to signals from the injured tissue. This autologous blood therapy stimulates and accelerates a healing process in damaged tissues.

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A publication of: Lourdes Health System
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