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BECKER'S
ASC REVIEW

Key Trends on Incorporating Knee Allografts Into Orthopedic ORs

By Laura Dyrda

Question: Fresh osteochondral allografts use increased over the past couple of years. Will the trend continue?

William Bugbee, MD (Scripps Health, La Jolla, Calif.): Yes, because it's proven effective. Once surgeons are comfortable with it they'll realize it's hassle-free. Changing techniques is daunting but the instrumentation and technique for a cartilage transplant is fairly straightforward. The other complaint has been it takes a long time to receive the allograft but these days it takes less than a month.

Brian Cole, MD (Rush University Medical Center, Chicago, Ill.): When we look at the frequency of utilizing osteochondral allografts over the last 10 years for the treatment of symptomatic articular cartilage problems, it has increased dramatically to the point where we are performing nearly 100 transplants each year. Initially, at Rush, we often used cell-based treatment for non-bone defects in younger patients. We were concerned that using an osteochondral allograft would potentially lead to subsequent problems related to the development of a symptomatic osteochondral problem. However, the procedure has become easier, more efficient and cost-effective with predictably good outcomes.

We recently published outcomes in elite athletes with successful results related to return to sports. Among the older age group, fresh osteochondral allografts seem to work as well or better than other joint replacement treatments when the disease is relatively limited.

Q: What factors affect which cartilage therapy you use?

BC: Insurance coverage is highly variable across the country and graft availability can be an issue. In Illinois, we are a procurement state with an active donor program. In states that do not have established donor programs, graft availability can be an issue.

WB: I've been an advocate for allografts for just about any cartilage problem. Now it's becoming clear that allografts are helpful for the worst and most difficult cases, but also effective for the more straightforward procedures.

Q: What challenges do you face when using fresh osteochondral allografts?

WB: There are still some logistical issues getting the patients and allografts ready as soon as possible to preserve the allograft's variability. We look at different ways to store the graft. Getting the patient, graft and insurance approval can be difficult in some cases, especially for physicians starting out. It takes persistence because you have to write letters and have the patients appeal negative decisions in some cases.

BC: There are some scheduling challenges with donated tissue. Once we obtain the graft, we try to perform the procedure as soon as we can to maintain the fitness of the graft. Insurance reimbursement is rarely a challenge at this point. The trochlea is more challenging to topographically match the graft than the femur. We are working on different ways to prepare the graft for larger defects.

Q: What are the important factors of deciding on which tissue bank to use?

BC: The processes tissue banks follow are reasonably uniform to the best of my knowledge. The FDA has solid regulations for the best practices in cleanliness.

For me, it's about the service. You have to have a very good relationship with the people who touch these grafts from donation time to implantation. There are 25 to 30 people who are in touch with the graft in some way, directly or indirectly, before getting to the patient; if one person fails, you won't have everything you need. You can't take it for granted because things can go awry.

WB: You want a tissue bank with a proven track record of safety and recovery processing and storage protocol that is validated and demonstrates high graft viability. ■

How Innovative Fresh Osteochondral Allografts in Orthopedics Affect Patient Care

By Laura Dyrda

Q: How have you used fresh allografts in new or innovative ways?

Matthew Provencher, MD (Massachusetts General Hospital, Boston, Mass.): Traditionally, fresh osteochondral allografts have been used in and around the knee joint. They were first described for use in the condyles of the knee, but the indications have since expanded due to additional allograft availability, improved instrumentation, and demonstration of good long-term outcomes. I've expanded the allograft technology to use in multiple other joints, such as using ankle allograft tissue for shoulder reconstructive procedures. For example, we were the first to describe the use of a fresh distal tibial allograft for reconstruction of glenoid bone defects. This has been done since 2008 with very promising results both clinically as well as healing on computed tomography scan demonstrating solid incorporation.

Raffy Mirzayan, MD (Kaiser Permanente, Southern California): The trochlea and patella are two challenging areas to treat chondral injuries for surgeons. I typically see two types of patients with chondral loss in the patellofemoral joint. The first type are patients in their teens and early 20's with recurrent patellar instability who have underlying trochlear dysplasia and have severe chondral loss of the patella. The second type are patients in their 40's who have isolated patellofemoral arthritis. In these cases, I resurface the entire patella by cutting off the damaged articular portion from the patient (similar to a total knee replacement) and obtaining a fresh patellar graft, cutting the articular surface off the donor, and then fixating it to the patient's native patella with headless compression screws. The trochlea is typically transplanted with a 35 mm osteochondral graft from the donor who has been carefully screened to have a deep groove to address the trochlear dysplasia.

Scott Rodeo, MD (Hospital for Special Surgery, New York City, N.Y.): One of the significant advantages of these osteochondral allograft plugs is the "off-the-shelf" availability. On the rare occasion where patients with ACL injury have an actual osteochondral defect at the site of the translational contusion, the fresh allograft can be used to resurface this defect. Although this is uncommon, some patients will have such a deep defect.

Q: How do fresh osteochondral allografts affect patient care?

RM: Many patients come to me with little hope after having seen other physicians who gave them no options. These patients are in their 30s and 40s with arthritis and are told the only other option is an artificial knee replacement. This biologic solution frequently allows them to return to their regular activities and positively impacts their lives.

MP: It opens up more options for me. Fresh osteochondral allograft is FDA-approved for joints throughout the body and it has allowed more options and creative solutions for cartilage and/or bony impacts of the joint. The JRF Ortho products are available much sooner than others; instead of waiting three to six months for allografts, we wait two to three weeks at most.

SR: The availability of tissue allows treatment of such defects without the necessity to delay surgery to wait for availability of fresh osteochondral tissue.

Q: How can JRF Ortho encourage surgeons to use fresh allografts in new and innovative ways?

SR: The primary advantage will be the improved availability of tissue. This could allow us for indications where tissue transplant is less commonly used, such as for large Hill-Sachs lesion in the shoulder or capitellar defects in the elbow in athletes with osteochondritis dissecans.

MP: Think of areas where joints may be reasonably conserved. You are looking at cartilage bone solutions and you don't have to use the same joint to reconstruct that joint and have a good outcome.

RM: JRF Ortho has been supportive of my innovative techniques using fresh grafts by making custom order grafts for me and ensuring they meet my patient's needs. They have also credited me for the development of the BioPFJ™ technique. I am pleased to share this technique with other surgeons and improve patient outcomes.

This article has been edited for space. Visit www.beckersasc.com for the full article. ■

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