BioCartilage® to Treat Osteochondral Defects of the Talus: Case Report and Technique
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Abstract
The talus is the 2nd most common site for osteochondral defect in the lower extremity. Surgery can vary from closed procedures, like core drilling or OATS procedure, massively, fresh osteochondral allografts, and autograft chondrocyte implantation. A clear advantage of these procedures can be gained with a larger technical learning curve, and with significant donor morbidity. We present a case and technique for Arthrex BioCartilage®, a micronized hyaline cartilage obtained from the less weight bearing periphery of the ipsilateral knee or talus. This technique is a staged procedure 6-8 weeks apart in an attempt to regenerate tissue with a higher percentage of hyaline-like cartilage. The BioCartilage® technique avoids harvest as well as the necessity for a second, invasive procedure. Lastly, fresh juvenile osteochondral allografts demonstrate promising early results, but are limited by accessibility, donor site morbidity, immune rejection, and the necessity for a second, invasive procedure. The BioCartilage® technique is a safe, excellent and promising alternative for the treatment of large osteochondral defects of the talus.

Introduction
Of patients with osteochondral defects 85% present after a traumatic injury to the ankle with complaint of prolonged pain, swelling, catching, stiffness, and casting. This healed without complication. Currently, the patient complained that his right ankle joint felt stiff and unstable with occasional locking. He had worn an ankle brace without improvement. A twenty-four-year-old male presented to our clinic with the complaint of hyaline cartilage growth. Surgical options for lesions greater than 1cm include OATS procedure, mosaicplasty, fresh osteochondral allografts, and autograft chondrocyte implantation. These procedures can be costly, with a large technical learning curve, and with significant donor morbidity. We present a case and technique for Arthrex BioCartilage®, a micronized hyaline cartilage obtained from the less weight bearing periphery of the ipsilateral knee or talus. This technique is a staged procedure 6-8 weeks apart in an attempt to regenerate tissue with a higher percentage of hyaline-like cartilage. The BioCartilage® technique avoids harvest as well as the necessity for a second, invasive procedure. Lastly, fresh juvenile osteochondral allografts demonstrate promising early results, but are limited by accessibility, donor site morbidity, immune rejection, and the necessity for a second, invasive procedure. The BioCartilage® technique is a safe, excellent and promising alternative for the treatment of large osteochondral defects of the talus.

Case Study
A twenty-four year old male presented to our clinic with the complaint of right ankle pain of four months duration. He reported no recent injury. However, ten years prior the patient fractured his right ankle in a four wheeler accident. He was non weightbearing for 6 weeks, the patient can begin gentle ROM exercises of the ankle joint. For 6 weeks followed by progressive weight bearing and physical therapy. If the lesion vertical as to keep the BioCartilage® in place (Figure 8). The remaining sclerotic tissue is curretted and the subchondral bone is microdrilled 5mm deep (Figure 10). Meanwhile, the BioCartilage®, a micronized hyaline cartilage allograft, is prepared (Figure 13). First, the allograft is voided form is sparkly poured into the procured nidus/ gutter, with inversion, and with passive range of motion of the right ankle. Marking the osteotomy donor site from the less weight bearing periphery of the ipsilateral knee or talus. This technique is a staged procedure 6-8 weeks apart in an attempt to regenerate tissue with a higher percentage of hyaline-like cartilage. The BioCartilage® technique avoids harvest as well as the necessity for a second, invasive procedure. Lastly, fresh juvenile osteochondral allografts demonstrate promising early results, but are limited by accessibility, donor site morbidity, immune rejection, and the necessity for a second, invasive procedure. The BioCartilage® technique is a safe, excellent and promising alternative for the treatment of large osteochondral defects of the talus.

Discussion
There are several considerations when considering the appropriate procedure for an osteochondral lesion. This is dependent upon the size of the lesion, its characteristics, and surgeon preferences. We will focus on some commonly alternatives for lesions larger than 1 cm in the absence of generalized osteoarthritic changes.

Technique
With the patient in the supine position, a 6cm longitudinal incision centered over the medial malleolus is made and carried to the periosteum. The medial malleolar osteotomy is performed according to surgeon’s preferences. We prefer on osteotomy technique. Once the osteochondral defect is visualized, it is excised using a 6mm burr (Figures 6 & 7). Once it is taken to the level of the talus vertical as it keeps the BioCartilage® in place (Figure 8). The remaining sclerotic tissue is curretted and the subchondral bone is micromilled 5mm deep (Figure 10). Meanwhile, the BioCartilage®, a micronized hyaline cartilage allograft, is prepared (Figure 13). First, the allograft is voided form is sparkly poured into the procured nidus/gutter, with inversion, and with passive range of motion of the right ankle. Marking the osteotomy donor site from the less weight bearing periphery of the ipsilateral knee or talus. This technique is a staged procedure 6-8 weeks apart in an attempt to regenerate tissue with a higher percentage of hyaline-like cartilage. The BioCartilage® technique avoids harvest as well as the necessity for a second, invasive procedure. Lastly, fresh juvenile osteochondral allografts demonstrate promising early results, but are limited by accessibility, donor site morbidity, immune rejection, and the necessity for a second, invasive procedure. The BioCartilage® technique is a safe, excellent and promising alternative for the treatment of large osteochondral defects of the talus.

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Questions
1. What is the most common site for osteochondral defect in the lower extremity? The talus is the 2nd most common site for osteochondral defect in the lower extremity.
2. What is the size of the lesion that the patient presented with? The patient presented with a lesion greater than 1cm.
3. What procedures can be costly and are limited by accessibility? Surgical options for lesions greater than 1cm include OATS procedure, mosaicplasty, fresh osteochondral allografts, and autograft chondrocyte implantation. These procedures can be costly and are limited by accessibility.
4. What is the advantage of the BioCartilage® technique? The advantage of the BioCartilage® technique is that it avoids harvest as well as the necessity for a second, invasive procedure. Lastly, fresh juvenile osteochondral allografts demonstrate promising early results, but are limited by accessibility, donor site morbidity, immune rejection, and the necessity for a second, invasive procedure. The BioCartilage® technique is a safe, excellent and promising alternative for the treatment of large osteochondral defects of the talus.
5. What is the size of the lesion that the patient presented with? The patient presented with a lesion greater than 1cm.