Surgical Management Of Articular Cartilage Defects Of The Knee

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Articular cartilage injury can be caused by acute or repetitive trauma, osteochondritis dissecans, rheumatoid arthritis, osteoarthritis, or various other conditions. The wide spread of sports activities in every generation and the increased number of elderly people provide us with many opportunities to treat patients with cartilage injury.

Articular cartilage is hyaline cartilage that mainly consists of a small number of chondrocytes and a surrounding dense extracellular matrix. Because articular cartilage has a poor healing capacity due to its lack of vessels, nerve supply, and isolation from systemic regulation, if cartilage injury is not diagnosed accurately or not treated properly, it gradually deteriorates by causing kissing cartilage lesions or degeneration of neighboring tissue, leading to secondary osteoarthritis. Even with the recent progress in orthopaedic surgery, cartilage injury remains one of the most problematic diseases.

Despite a variety of treatments for articular cartilage defects, such as drilling, microfracture techniques, soft tissue grafts, and osteochondral grafts, none has managed to repair a large osteochondral defect with long-lasting hyaline cartilage. Until now, there has been no well-established gold-standard procedure for cartilage injury. The procedure for cartilage injury must be determined by various factors, such as age of the patient, size or depth of the cartilage lesion, location of the lesion, co-existing ligamentous injury or instability of the joints. We have to evaluate these evidence-based factors both preoperatively and intra-operatively, in order to perform the most appropriate procedure. However, there is a lack of well-established algorithms for cartilage injury decision-making.

In this instructional course lecture, I present several treatment procedure for the cartilage defects of the knee, and discuss about future perspective of cartilage repair.