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Imaging of cartilage repair procedures.

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Abstract

The rationale for cartilage repair is to prevent precocious osteoarthritis in untreated focal cartilage injuries in the young and middle-aged population. The gamut of surgical techniques, normal postoperative radiological appearances, and possible complications have been described. An objective method of recording the quality of repair tissue is with the magnetic resonance observation of cartilage repair tissue (MOCART) score. This scoring system evaluates nine parameters that include the extent of defect filling, border zone integration, signal intensity, quality of structure and surface, subchondral bone, subchondral lamina, and records presence or absence of synovitis and adhesions. The five common techniques of cartilage repair currently offered include bone marrow stimulation (microfracture or drilling), mosaicplasty, synthetic resorbable scaffold grafts, osteochondral allograft transplants, and autologous chondrocyte implantation (ACI). Complications of cartilage repair procedures that may be demonstrated on magnetic resonance imaging (MRI) include plug loosening, graft protuberance, graft depression, and collapse in mosaicplasty, graft hypertrophy in ACI, and immune response leading to graft rejection, which is more common with synthetic grafts and cadaveric allografts.

KEYWORDS: Cartilage; magnetic resonance imaging; repair

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