The effects of meniscal allograft transplantation on articular cartilage
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Chapter 1

Introduction and Aims of the Thesis
Treatment of meniscus lesions is the most frequent procedure in knee surgery.\(^1\) Since the role of the meniscus in functioning of the knee joint and prevention of degenerative changes has been recognized, treatment of meniscal lesions has evolved from total excision, through partial excision, to meniscus-retaining procedures.\(^2\)-\(^5\) However, total or subtotal meniscectomy remains necessary for irreparable tears. Meniscal allograft transplantation has been performed to restore normal knee anatomy and biomechanics in these patients. Experimental and clinical studies have shown that ingrowth from the adjacent capsule of the knee into a transplanted meniscal allograft takes place.\(^6\)-\(^9\) However, success of meniscal allograft transplantation is not only dependent on whether the graft can be transplanted into a host knee, but also whether the transplanted meniscus can prevent degenerative changes of the articular cartilage on the long term. To date, clinical studies on effects of meniscal allograft transplantation on articular cartilage have not been performed and only a few controlled experimental studies have been published. Furthermore, most experimental studies report on the effects of meniscal transplantation that is performed immediately after meniscectomy in knees with normal biomechanics and articular surfaces and without destructive enzymes being present in the joint as is the case in osteoarthritis. However, the indication for meniscal transplantation in humans is mostly symptomatic degenerative joint disease. To determine the ultimate success of meniscal transplantation, adequate animal models must be used to investigate effects of transplanted menisci on articular cartilage of knee joints. Therefore, the study described in the present thesis has addressed the following objectives:

- To review the literature on meniscal allograft transplantation (chapter 2).
- To evaluate radiologically, scintigraphically, histologically, and histochemically changes in articular cartilage after immediate and delayed meniscal allograft transplantation in rabbits and compare these on the short and long term with changes in articular cartilage after meniscectomy only (chapter 3, 4, 5, and 6, respectively).
- To evaluate structural changes in meniscal allografts after immediate and delayed transplantation on the short and long term (chapter 7).

In chapter 8, meniscus regeneration and alternative treatments to meniscal allograft transplantation are reviewed as well as the effect of meniscal allograft transplantation on articular cartilage. Remaining questions and future directions are considered in a final discussion.

References


