Intra-articular cruciate reconstruction. II: Replacement with vascularized patellar tendon


Abstract: The patellar tendon offers a number of advantages (strength, location, bone-to-bone fixation, vascularity) as a tissue for intra-articular cruciate ligament reconstruction. The critical factor is to preserve the vascularity, thereby maintaining tendon viability and facilitating tissue remodeling. Laboratory studies on human cadaver knees were conducted to define the blood supply to the patella, and vascularity was assessed by blood flow studies in three animal species, including nonhuman primates. In humans, the patellar ligament receives blood anteriorly from the retinaculum and posteriorly from the fat pad, which is relatively smaller and less adherent than the fat pad in other animals. The medial third of the patellar tendon and its contiguous neurovascular pedicle were used in a vascularized patellar tendon reconstruction procedure. During a period of three years, reconstruction with the vascularized patellar tendon was performed in more than 100 patients. Although only 35 patients have been followed up for more than two years, the clinical results are encouraging. At present, however, the technique is not recommended for general use; the surgical procedure is demanding, and the ultimate clinical results may not warrant the extra effort required to perform the surgery as well as commit the patient to a long rehabilitation program.