ACL RECONSTRUCTION WITH PRESS-FIT TECHNIQUE

A THESIS

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Hesham Abdel Ghafour

Abstract

The use of a hollow oscillating saw enabled harvesting a bone plug of completely circular shape more precisely and consistently.

The technique of Press-fit ACL reconstruction is most forgiving and usable in every case. The harvested bone material is enough to guarantee a complete Press-fit fixation at femur and tibia. If a bone cylinder is lost the tibia head is big enough to harvest another one. Especially in the case of very osteoporotic bone quality it may be necessary to take a second tibial cylinder for press fit fixation in femur.

Press-fit ACL reconstruction avoids the disadvantages associated with hardware fixation, such as graft damage during screw driving divergence between the bone plug and the screw, bio-incompatibility, biodegradability or allergic reactions, and technical problems in case of reoperation or MR scanning. Moreover it has the following advantages:

Key words:

ACL RECONSTRUCTION WITH PRESS-FIT TECHNIQUE

1- list of abbreviations :

ACL	Anterior cruciate ligament
AM	Anteriomedial
PL	Posteriolateral
PCL	Posterior cruciate ligament
IFS	Interference screws
FATCs	Femur ACL tibial complexes
TNF	Tumor necrosis factor
BPTB	Bone patellar tendon bone
IDKC	International knee documentation committee
BPLA	Bone-plug ligament angle
CKC	Closed kinetic chain
OKC	Open kinetic chain
ROM	Range of motion

list of tables :

list of figures :

list of chapters : **page**

Introduction

ACL reconstruction has become a great challenge and many techniques has been evolved and created according to way of graft fixation such as metal and biodegradable interference screws, staples, buttons, press-fit. The success of the surgery depends on several factors including the timing of the surgery, graft choice, tunnel placement, graft tensioning, graft fixation methods, and postoperative rehabilitation protocol. Orthopedic surgeons use bone–patellar tendon–bone or hamstring tendon grafts most frequently. Secure graft fixation is an important factor, especially in the early postoperative period.

Nowadays, interference screw fixation is one of the most popular methods for the fixation of the graft. However, there are some known disadvantages of this technique. The graft may be damaged during the insertion of the screw, and in revision ACL reconstruction there will be obstacle of hardware removal if not absorbed yet . Furthermore, chronic synovitis may occur because the bioabsorbable screw is placed next to the joint line.

Therefore, press-fit fixation method can be a good alternative in ACL surgery. It is a simple technique and the biomechanical properties of this press-fit fixation have been tested.

Press-Fit technique is based on graft harvesting then by using an oscillating hollow saw cylindrical bone blocks from Femoral and tibial tunnels are used for graft fixation **.** Several biomechanical studies compared the press fit fixation with commonly used hardware fixations methods. The press fit fixation has been shown to have a similar pullout strength and stiffness compared to fixation with interference screws in animal models.

Aim of work

The aim of this study is to evaluate press fit technique in fixation of the graft in construction of ACL and outcome of this technique regarding stability and graft incoraporation within femoral and tibial tunnels. Evaluation of patients was done using tegner -lysholm knee scoring and knee stability testing as lachman , pivot shift and anterior drawer tests .