INTRODUCTION

The anterior cruciate ligament (ACL) plays a vital role in the foundation of the knee joint's kinematics since the very early beginning of the joint. It performs, in concert with other structures in the central pivot of the knee, the function of a true gear mechanism that is responsible for the joint's integrated three-dimensional movements' pattern (Muller, 1983). Furthermore, the ligament has a highly important stabilizing role as being the primary passive restraint to excessive anterior tibial translation on the femur (Butler et al., 1980), and to anterolateral instability throughout the flexion arc of 20 - 40 degrees (Matsumoto, 1990). It has been also suggested that the anterior cruciate ligament plays an active stabilizing role by way of reflex preprogramming of the periarticular muscular tone and contractility (Johansson et al., 1991; Krauspe et al., 1992). Unfortunately, this vital ligament is frequently injured with an incidence of about one-third of sports injuries to the knee joint (Ross et al., 1995). It may be also injured during road traffic and other accidents (Warren, 1984).

ACL deficiency initiates a syndrome of functional disability of variable severity. The severity of this syndrome is influenced by several factors including: the severity of the initial injury, the patient's activity status (Noyes et al., 1985), efficiency of the secondary stabilizers (Muller, 1983), neuromuscular control of the joint (Friden et al., 1992), chronicity of the lesion (Gerber & Matter, 1983), and the individual bony configuration of the involved joint (Dejour & Bonnin, 1994; Friden et al., 1993). Accordingly, some ACL-deficient knees may be compensated for a relatively long time (Noyes et al., 1985). Nevertheless, untreated relatively tolerable instabilities will be further accentuated and complicated as time passed with inevitable decompensation of the so called "ACL independent" knees (Turek, 1982; Muller, 1983). Furthermore, neglected long-standing ACL injuries can predispose to secondary meniscal injuries (Bray & Dandy, 1989; Warren, 1990; Irvine & Glasgow, 1992), and secondary osteoarthritis of the knee (Gerber & Matter, 1983; Gerber, 1992; Lohmander & Ross, 1994). Therefore, untreated ACL dysfunction can be the beginning of the end of the knee joint (Sisk, 1992).

The treatment of complete ACL injuries is markedly controversial. In spite of the extensive number of available literature that advocate several treatment protocols, there is a lake of uniformity of opinions as to the most successful method. However, it is generally agreed that surgery is the treatment of choice for young active individuals who are willing to regain their pre-injury level of activity and sports participation (Johanson et al., 1992; Ciccotti, 1994). Primary repair with augmentation is widely recommended for acute injuries, whereas surgical reconstruction is recommended for chronic ones. Reconstructive surgical procedures involve several intraarticular, and extraarticular procedures. Intraarticular substitution of the damaged ACL is generally preferred to the relatively inadequate extraarticular reconstruction (Frank & Jackson, 1988). A combined intraarticular and extraarticular approach may be recommended for severe instabilities. However the gained benefit of this approach is doubted (Strum et al., 1989; Amis & Scammel, 1993).

The available ACL substitutes include: several autografts, allografts, xenografts, and synthetic ligaments. Nevertheless, biological autogenic grafts are the most commonly used substitutes. Of all autogenic grafts, the patellar tendon is the preferable. It is widely considered to be the gold standard ACL substitute because of its ultimately high mechanical strength, and easy fixation (Engebretsen et al., 1990; Kleipool et al., 1994). On the other hand, some authors advocate the utilization of one or two of the pesanserinus tendons. Fowler (1992) reported that this method seems to be very attractive as it avoids the most commonly reported serious complications that may follow other reconstructive methods. Other flavorings include technical simplicity, and less traumatic approach to the knee joint. Moreover, harvesting of one or two of the pesanserinus tendons will result in minimal subtraction from the involved joint (Lipscomb et al., 1982). In spite of the above mentioned advantages, the pesanserinus tendons may be criticized because of their relatively weak tensile strength (Moyer & Marchetto, 1992). However, several authors reported remarkable success following intraarticular reconstruction of the ACL using one or two of these tendons (Zaricznyj, 1987; Puddu et al., 1988; Ferretti et al., 1989; Wilsson & Scranton, 1990).

The aim of the present study is to evaluate the clinical results following intraarticular reconstruction of the ACL-deficient knee using a distally based semitendinosus tendon.