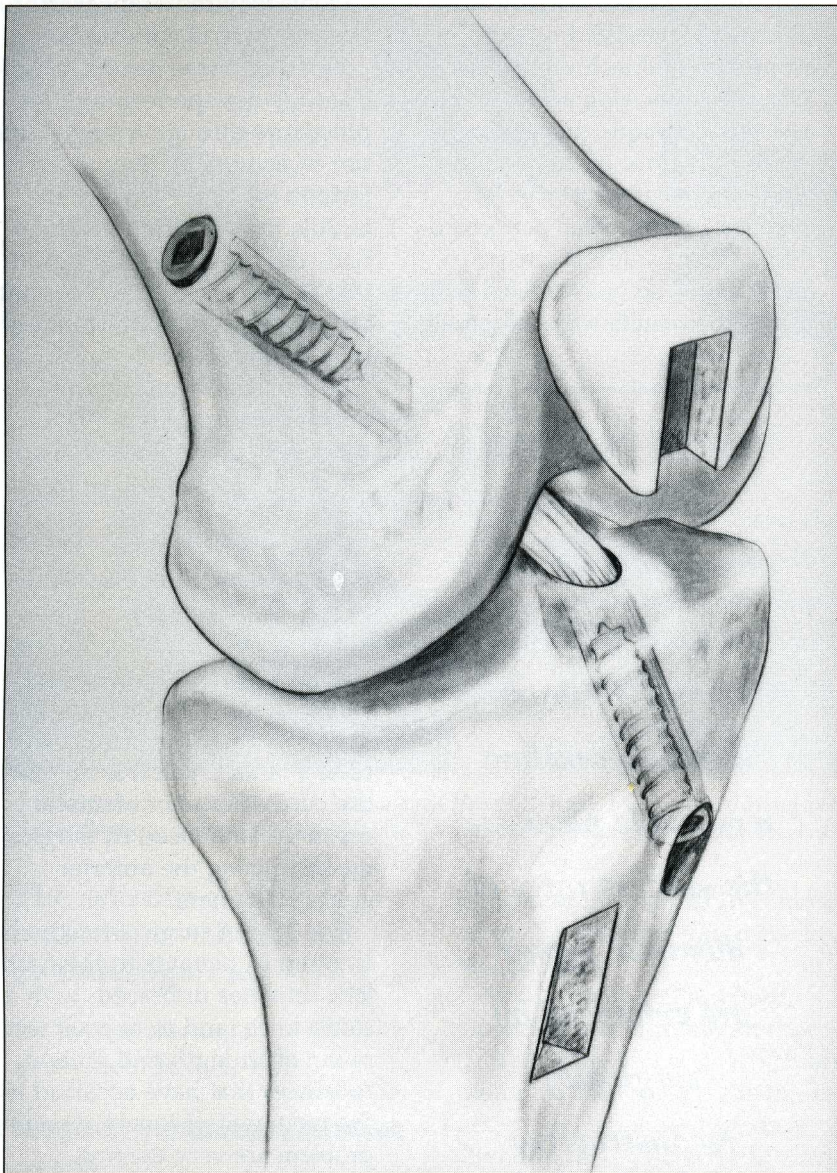


ACL

ADVANCES



This schematic diagram demonstrates removal of the middle third bone tendon graft, which has been used to replace the formerly torn anterior cruciate ligament via an arthroscopically assisted technique. Interference screws are used to rigidly fix the grafts, allowing the surgeon to use a more aggressive postoperative rehabilitation program.

Exciting advances have occurred in treating patients with an ACL deficient knee.

**By Bernard R. Bach, Jr., M.D.,
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Major advances have occurred in treating the patient with an anterior cruciate ligament (ACL) deficient knee. Recently, improved physical examination techniques, the use of instrumented laxity devices to confirm diagnosis, and advances in ligament healing and rehabilitation have occurred. Also, advances in surgical treatment via arthroscopic-assisted procedures have improved results in the patient with an ACL deficient knee.

Patients may tear the ACL in contact or noncontact athletics or in such activities as skiing, basketball, and football. An audible pop or tearing sensation is noted in 40% of patients, and a rapid development of a hemarthrosis generally occurs in 70% of patients within a three-hour time period.

Significant pain precluding return to activities usually occurs and concomitant meniscal tears may occur simultaneously in nearly two-thirds of patients.

Diagnosing ACL

Establishing a diagnosis is critical when counseling patients

about nonsurgical versus surgical treatment of ACL deficient knee. The Lachman, anterior drawer, and pivot shift tests are confirmatory for an ACL deficient knee. Joint line tenderness and meniscal rotation signs may be observed. Hemarthrosis may be encountered in acute situations and may warrant aspiration using a sterile technique. Radiographs must be obtained to exclude an intra-articular fracture, although radiographs generally are normal.

This radiographic series should include AP, lateral, tunnel, and skyline views. Although many physicians routinely order magnetic resonance imaging (MRI), it does not replace first order imaging—namely radiographs. No MRI need be ordered to establish the diagnosis of a torn anterior cruciate ligament. However, it may provide useful information about bone contusions of the lateral femoral condyle and meniscal tears.

Treatment options

Patients who are not candidates or who are not interested in reconstruction of the knee may benefit from the use of a custom ACL knee orthosis. The orthosis enables one-third of these patients to perform all athletic activities without buckling of the knee; one-third of patients have mild disability that necessitates modification of athletic activity; and one-third of patients continue to have persistent episodes of giving way that require either arthroscopic or reconstructive surgery of the knee.

Some patients may warrant arthroscopic evaluation from either a diagnostic or therapeutic standpoint. Partial meniscectomy or meniscal repair may be warranted in patients who do not desire reconstructive surgery but who are persistently symptomatic

secondary to meniscal tear pathology. No longer is ACL reconstructive surgery limited to patients in their teens and 20s. Increasing numbers of recreational athletes in their 30s, 40s, and 50s are seeking ACL treatment options.

New techniques

Advances in arthroscopic techniques and instrumentation have resulted in the ability to perform ACL reconstructive surgery with arthroscopic-assisted or endoscopic-assisted techniques. Since 1986, a two-incision arthroscopic-assisted technique that utilizes the middle third of the patellar tendon to reconstruct the ACL deficient knee has been performed.

In a recent study of the two-incision arthroscopic-assisted technique, the results were extremely

encouraging. Stability was restored to normal in 91% of patients; arthrometric demonstration of stability was noted in 95% of patients; Cybex strength evaluations revealed an average of 10% deficit in the effected quadriceps muscle; such functional indices as a vertical jump, single leg jump, and timed triple jump revealed average deficits of less than 10%; and less than 5% of patients required a repeat arthroscopy for lysis of adhesions.

Based on these results, physicians are now performing the procedure through a single anterior incision in an endoscopic fashion but are still using the middle third patellar tendon. Early clinical observations note that at least one day of hospitalization has been eliminated and motion is more easily regained. However, this is an extremely demanding procedure that is more difficult to perform than the arthroscopic-assisted double-incision ACL technique.

Patients who wish to continue particular activities are at high risk for reinjury to the anterior cruciate deficient knee. Age is no longer an absolute contraindication to performing the procedure. If patients have concomitant repairable menisci, the success rates of meniscal repair are enhanced by surgically reconstructing the anterior cruciate ligament.

The goal of surgical treatment is to return patients to their athletic activities unbraced, with a stable knee, and to normal restoration of strength and motion. Advances that have occurred in the treatment of this challenging problem are very exciting. ■

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