Guest editorial

The anterior cruciate ligament problem

The treatment of the complete anterior cruciate ligament injury has been debated since the early days of orthopedics. The classical work by Palmer (1938) defined the problem and since then anatomy, mechanics, injury pattern and instability/laxity questions, as well as operative principles, have dominated the discussion. The prognostic effect of associated injuries, especially of the menisci, have also been highlighted. Recently, also the sensory role of the ligament, the postinjury activity level and the role of nonoperative treatment with rehabilitation only have attracted attention.

The young and active patient, notably the competitive athlete, is more often subjected to an operation than the non-athlete. The major reason for this choice is to bring active individuals back to their sports as soon as possible for as long as possible. The operative technique to achieve this has varied from time to time and has been onerous for the patients, especially as changes in the operative styles soon also became the standard for orthopedic hospitals doing routine work. Suture alone of the acutely injured ligament was initially believed to be the best treatment but is now regarded as insufficient. In the 1970s and part of the 1980s, intraarticular open reconstructions, using various biologic tissues and with the limb fixed in plaster for 4–8 weeks, had a period of success, but acquired with time a less good reputation due to either a too stiff knee or, more often, to the return of laxity. Extraarticular procedures have also been popular, but intermediate follow-up revealed drawbacks. Today, intraarticular reconstructions are once again looked upon as the ideal method, using either biologic tissue or artificial grafts, but now with many important operative details, like notchplasty, isometricity, pretension and fixation of the graft, in combination with a faster and more physiological rehabilitation program. Despite this progress in operative technique, we know little about the long-term function in these patients or the late consequences on return to a high activity level. In particular, the development of cartilage disease is not fully understood and needs more attention. Likewise, the use of artificial grafts and the arthroscopic operative technique may be questioned. As some of the artificial grafts rupture with time, and as some also may create debris, with the risk of synovial and cartilage problems, these procedures must be regarded as investigational. The arthroscopic surgical technique is demanding, especially for general use and may have drawbacks, particularly in the placement and fixation of the graft.

No national studies have been published where the outcome of the treatment of the anterior cruciate ligament by the orthopedic surgeon in the average hospital is evaluated. In this issue of *Acta Orthopaedica Scandinavica,* the study by Roos et al. (pp 107–112) comes close to a national study and it shows a higher permanent retirement from organized soccer after an anterior cruciate ligament injury, independently of operative or nonoperative treatment. Although the study is based on a questionnaire, although there may have been more serious injuries in the operative group and although only a few patients are treated in each hospital, an anterior cruciate ligament injury means a major problem for the players' future in soccer. Today, 8 years after the Roos study was done, we should have better results with modern surgical techniques. But how much better is unknown. Doubts concerning today's results have been expressed in a recent book review by Gillquist.

One conclusion from the Roos study may be that any type of anterior cruciate ligament surgery is demanding in very active individuals and therefore requires more research for this specific group before being routinely used. The problem can even justify centralized treatment in fewer units with randomized clinical trials. Today, we know that we cannot reestablish a complete normal function and perhaps that a return to the most extreme knee-demanding sports during a long period entails a high risk for future knee function in the ligament-injured patient. This information needs to be adapted properly to each individual patient and certain doctors feel that it is highly justified to reduce the activity level for these patients. The use of various training programs instead of surgery, which presently indicates at least

a return to a normal daily life and even to some less demanding sports on a recreational level, also needs to be studied more.

The treatment of the ruptured anterior cruciate ligament is as controversial today as during the last 50 years. We need more well-planned randomized clinical trials with reasonably long follow-up periods. Meanwhile, the debate will continue.

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