The Acute Knee Ligament Injury

The Treatment of Acute Knee Ligament Injuries

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The basic principle of treatment of acute knee ligament injuries is the restoration and preservation of joint stability. Ligament healing must be accompanied by careful attention to the surrounding muscles. In each case the importance of the injured structure, the degree of injury, and the measures necessary to obtain rapid healing must be taken into careful consideration.

Injuries may be divided into three stages: strains, sprains, and ruptures. If possible, long periods of immobilization should be avoided because of the danger of muscle atrophy. Approximately 84% of all injuries are strains or sprains [4]. Because of their frequency it is important to consider the optimal treatment of these less severe injuries.

**Ligament Strains:** These are managed by elastic bandages, analgesics, and antiinflammatory agents for 8–14 days. If an effusion is present with significant pain, the joint is aspirated and immobilized in a plaster slab. After 48–72 hours a walking cast is applied. This plaster should fit the contours of the leg well and its edges must be padded. The knee is flexed 10°–20°. Knees with previous injuries are immobilized for only 4–5 days to minimize the risk of muscle atrophy. Exercises are encouraged in plaster and continued after the plaster is removed. The patient should be observed for 2–3 weeks.

**Sprains:** Sprains with slight laxity can be difficult to differentiate from complete ruptures. There is a continuous transition from the sprain through an isolated rupture to complete capsular disruption. We feel that an angulation of 3° or more is an indication for surgery. If less, the management is essentially that of the simple strain.

**Ligament Rupture:** When stress X-ray shows significant instability, we favour surgical treatment for the following reasons:

1. Ligament injuries treated initially by surgery recover faster in our experience.

2. The accurate apposition of the torn ends reduces defective healing and thus improves the prognosis.

3. Surgery allows an accurate assessment of damage to neighboring structures such as menisci and articular cartilage.

4. Prompt diagnosis, suture, and early immobilization reduce the risk of further damage.

**Surgical Technique**

Ligament injuries should be repaired as early as possible. Rapid degeneration of the ligament ends makes delayed suture more difficult and even impossible after only two weeks. “Every day that elapses between accident and operation diminishes the success of the result”[6].

Bleeding should be controlled during surgery by meticulous hemostasis. Ligaments should be sutured by fine atraumatic material which is absorbable. Massive sutures do not improve stability and may interfere with blood supply. They may also cause granulomatous reactions. When possible, ligaments should be reinserted into cancellous bone under a bony cortex (Fig. 1). Larger bony avulsions can simply be reattached with wires or screws. If the ligaments are shredded or weak, grafts or free transplants may be necessary.

Damage to other structures is treated at the same time. Detached but undamaged menisci should be retained if possible and large fragments of cartilage reimplanted. In the case of fractures, restoration of the joint surfaces takes precedence over the ligament injury.

![Fig. 1. Replacement of a periosteal avulsion of a collateral ligament underneath the cortex and reinforced with screws](image)