

Patella Fracture Treatment Guidelines Handout

A patella fracture, commonly known as a kneecap fracture, occurs when the patella bone breaks. This injury typically results from direct trauma, such as a fall onto the knee or a blow during sports activities. The treatment approach depends on the fracture type and the condition of the surrounding structures, particularly the extensor mechanism, which is crucial for knee extension.

Treatment approaches

Nonsurgical management

Nonsurgical treatment is typically recommended for nondisplaced fractures or when the extensor mechanism remains intact. The goal is to allow the fracture to heal naturally while minimizing complications.

- **Immobilization:** The affected knee is usually immobilized using a knee brace or a cast. This immobilization helps keep the knee straight and prevents movement that could disrupt the healing process. The immobilization period typically lasts 4 to 6 weeks, depending on the fracture's healing progress.
- **Weight-bearing:** Patients are often advised to limit weight-bearing activities during the initial healing phase. Partial weight-bearing may be permitted, allowing the patient to increase activity gradually as tolerated. Full weight-bearing is generally reintroduced after 6 to 8 weeks, contingent on the patient's pain levels and healing status.
- **Rehabilitation:** A structured rehabilitation program is essential for restoring knee function. The rehabilitation process can be divided into two phases:
 - **Phase 1 (0-6 weeks)**
 - **Range of motion exercises:** Gentle range of motion exercises are initiated to prevent stiffness. These may include passive and active-assisted movements to encourage flexibility.
 - **Isometric strengthening exercises:** Focus on strengthening the quadriceps and hamstrings through isometric exercises, which engage the muscles without moving the joint. This helps maintain muscle strength while protecting the fracture site.
 - **Pain management:** Techniques such as ice application, elevation of the leg, and over-the-counter pain medications can help manage pain and swelling.
 - **Phase 2 (6-12 weeks)**
 - **Progressive range of motion:** Patients are encouraged to achieve full knee flexion and extension. This may involve more active exercises and stretching techniques.
 - **Closed kinetic chain exercises:** As healing progresses, exercises like mini squats and lunges can be introduced. These exercises are beneficial for strengthening the lower extremity while minimizing stress on the knee joint.

Surgical management

Surgical intervention is often necessary for displaced fractures, fractures with significant articular step-off, or when the extensor mechanism is compromised. The primary goal of surgery is to restore the alignment and stability of the patella.

- **Open Reduction and Internal Fixation (ORIF):** This is the most common surgical technique for displaced patella fractures. The procedure involves making an incision over the knee to access the patella. The surgeon then realigns the bone fragments and secures them using various fixation devices, such as screws, plates, or tension band wiring. The tension band wiring technique is particularly effective for transverse fractures, as it converts tensile forces into compressive forces across the fracture site, promoting healing.
 - **Management of comminuted fractures:** In cases where the patella is shattered into multiple pieces, the surgical approach may involve removing small, nonviable bone fragments and reconstructing the patella. The surgeon may also need to repair the surrounding soft tissues, including ligaments or tendons, to restore knee function.
 - **Patellectomy:** This procedure involves the partial or complete removal of the patella and is generally reserved for fractures that cannot be repaired due to extensive damage. While patellectomy can relieve pain and restore some function, it often decreases knee extension strength and increases the risk of osteoarthritis.
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Postoperative care

Post-surgery, the knee is usually immobilized in a brace or cast for approximately 6 weeks for proper healing. The specific type of immobilization and duration will depend on the surgical technique used and the surgeon's recommendations.

- **Rehabilitation:** Similar to nonsurgical management, rehabilitation after surgery focuses on restoring function and strength. The process may be more intensive, especially if significant soft tissue repair is performed.
 - **Early phase (0-6 weeks):** To maintain muscle tone, emphasis is placed on gentle range-of-motion exercises and isometric strengthening.
 - **Later phase (6-12 weeks):** More active rehabilitation exercises are introduced, including weight-bearing activities and functional exercises to prepare the patient for a return to normal activities.
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Prognosis

The recovery timeline for patella fractures varies based on the fracture type and treatment approach. Nondisplaced fractures generally heal within 6 to 8 weeks, while displaced fractures may take longer, especially if surgical intervention is required. Patients can expect to regain full function, but some may experience long-term complications such as stiffness, pain, or post-traumatic arthritis.

References

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