Bone Fracture Fixation

What is Fracture Fixation with Implants?

Fracture fixation with implants, also known as internal fixation, is a surgical fracture treatment that tries to aid recovery by putting orthopaedic implants in place to realign and stabilise the broken bone. It also often enables patients to return to their regular activities earlier than with traditional treatment. The implants are typically made of stainless steel or titanium for durability. These are greatly compatible to withstand internal pressure and rarely cause any allergic reaction.

Types of Fracture Fixation with Implants

Fracture fixation with implants aims to stabilise the broken bone and avoid damage to the surrounding tissues. The type of fixation you need depends greatly on the type and location of the fracture. Here are some common types of fracture fixation with implants at our bone fracture hospital:

- **Bone Plates:** Flat metal implants are moulded into the shape of the bone to hold the fractured parts in place.
- **Bone Screws:** These can be either used with plates or alone to fix fractures by compressing bone fragments together.
- **Intramedullary Nails:** These are typically used to stabilise fractures in the medullary canal of long bones internally.
- **Pins and Wires:** These are usually used for smaller bones where the soft tissue coverage is minimal.

Why Choose Fracture Fixation with Implant Treatment?

There are many benefits of this advanced fracture treatment. Fracture fixation with implants allows for faster healing and reduced risk of malunion. They also reduce the risk of nonunion and shorten the hospital stay. Here are some common cases where fracture fixation with an implant is needed:

- **Severe Fractures:** Fracture fixation with implants is used in severe fractures that cannot heal without proper surgical intervention.
- **Complex Fractures:** If one has multiple fractures or the fracture has affected critical weight-bearing bones, it often requires internal fixation.
- **Compound Fractures:** If the broken bone is visible through your skin, it is a serious issue that requires fixation with implants.

Preparation for Fracture Fixation with Implants

Since fracture fixation with implants at a bone fracture hospital is a major procedure, proper preparation is required to ensure successful outcomes and improved healing. Here are some steps that your doctor might recommend before fracture fixation with implant surgery:

- **Preoperative Assessment:** Your doctor will closely assess your medical history, allergies, and comorbidities before clearing you for surgery. They will additionally perform imaging studies like X-rays, CT scans, or MRIs to determine fracture patterns and plan what type of implants can benefit you most. They will also perform blood tests to see if you are fit for surgery.
- **Preoperative Planning:** Talk to your doctor about your fracture type, the implants that would be used, and the recovery process. Have realistic expectations and alleviate your anxiety with stress management techniques before the surgery.

- **Postoperative Considerations:** Plan for transportation after the surgery beforehand to avoid any unnecessary last-minute issues. Arrange for a caregiver and have a proper place to relax at home. Keep your essentials at a manageable distance to avoid moving or putting pressure on the bone.

Fracture Fixation with Implants Surgery Procedure

Understanding this advanced fracture treatment is essential to reducing preoperative anxiety. Here is a brief overview of the fracture fixation with implant surgery steps:

- **Preoperative Preparation:** The patient will first be positioned on the operating table in a supine, lateral, or prone position, depending on the fracture. General or local anaesthesia is provided to make the procedure pain-free and comfortable. The surgical area will be cleaned with an antiseptic solution to reduce the chances of infection. A fluoroscope might be set up for real-time imaging guidance.
- **Surgical Procedure:** During the operation, a skin incision is made on the fracture site. Soft tissues and muscles at the fracture site are carefully dissected to expose the broken bone. The fractured bone fragments are then aligned with manual traction or reduction instruments, and a temporary K-wire is used to hold the bones in place. Implants are drilled into the frame for stabilisation. The surgeons will make some final adjustments and close the incision.
- **Postoperative Care:** You will be given pain management medicines and antibiotics after the surgery. You will be advised to initiate physical therapy after the recovery period from the surgery is over. You will need to have a follow-up visit with your orthopaedic to check for complications and monitor progress.

Recovery & Aftercare

The recovery from fracture fixation with implant surgery depends on the overall health of the patient and the type of fracture. Proper aftercare is essential for optimal healing. Immediately after the operation, you might need to stay at the hospital for a few hours or a few days, depending on the complexity of the surgery. You will be given pain relievers and cold compressions to reduce discomfort. You will be on blood thinners and antibiotics for a while to prevent blood clot formation and infections. You will be advised to keep the surgical site clean and dry.

You will be encouraged to explore physical therapy for rehabilitation. A range of motion exercises and strength training will help you build resilience in your bones. You can be prescribed crutches, walkers, or braces if needed.

Regular monitoring will be required to evaluate how the bone is healing. After 10-14 days, the sutures will be removed. Have calcium and vitamin D to aid the healing process.

Risks and Complications After Fracture Fixation with Implants

There can be many potential risks and complications of this fracture treatment. The severity of the fracture depends on the fracture location, surgical complexity, and the overall health factor of the patient.

- **Infection:** This is the most common concern, especially with open fractures where the bacteria may have already entered the bone and infected the surrounding tissues. The

surgical site needs to be handled delicately to avoid risks and complications like infections.

- **Nerve Damage:** Since the soft tissues and muscles need to be removed to get to the fractured bone, accidental nerve damage is a possibility.
- **Blood Clots:** There is a risk of blood clots forming in the veins near the fracture site. This is especially common in patients with a high-risk factor.
- **Malunion:** If the fractured bones are positioned in a misaligned way, they will not heal properly.
- **Nonunion:** Sometimes, the bones may not heal properly and leave a gap between the bone ends.
- **Tissue Irritation:** If the implant irritates the surrounding tissue, it can cause discomfort.
- **Bleeding:** Excessive bleeding during and after surgery is a potential risk factor that may require transfusion.
- **Complications from Anaesthesia:** You can have an adverse reaction to anaesthesia, which can lead to complications.