

## **Nonunion/Malunion Information Sheet**

### **Oncology/Trauma Section of the Orthopedic Department**

#### ***General indications for the procedure:***

Repair of a nonunion/malunion means a surgical procedure to fix an unhealed bone or a bone that has healed in the wrong position. This involves loosening up the fragments or cutting the bone, realigning them, and then fixing them with either rods, plates and screws or an external fixator to get them to heal. Often a bone graft is necessary to facilitate healing, and this can be a combination of the patient's own bone from the pelvis or the knee or a combination of cadaver bone or bone marrow aspirate from the pelvis and bone graft substitutes.

#### ***Description of Procedure:***

The procedure is a surgical incision to open the area of unhealed or poorly healed bone. The scar tissue in this area is cut out or the bone is cut depending on what is needed. Many times samples will be sent to the lab to test for infection. If an infection is found, a clean-up procedure will be done, antibiotic pellets will be placed to try to treat the infection, and often a device called an external fixator is placed with pins put in the bone away from the area of infection and attached to bars outside the skin to keep the bones from moving around during the treatment of the infection. If infection is not found, then the area of the unhealed scar tissue will be cleaned up and the ends of the bone will be prepared for the grafting procedure to maximize healing. At this point, either an intramedullary rod or plates and screws will be placed to stabilize the bone. Rods are placed through small incisions in the hip, knee, or shoulder. Plates and screws are placed through the main incision. Grafting will be performed if necessary, and the graft will be individualized to the patient. It can be taken from the pelvis or where a significant amount of bone is taken from the pelvis, a needle can be used to take bone marrow out of the pelvis to be combined with cadaver bone, or bone graft substitutes of various types will be used. These will be discussed with the patient prior to surgery on a case-by-case basis. The procedure is done with either a regional or a general anesthetic.

**NONUNION/MALUNION - page two**

***Risks of the Procedure:***

The risks of these procedures are significant and include infection of the bone or the incision site, nonhealing of the bone, suboptimal alignment of the bone, suboptimal rotation of the bone, suboptimal length of the bone, damage to arteries or nerves in the area of the incision, numbness near the incision, pain from the hardware, pain at the incision sites, excessive pressure built up at the muscles called compartment syndrome which would necessitate a surgical release of the muscles, pulmonary embolism, and stiffness of the surrounding joints.

***Procedure Alternatives, if any:***

The treatment alternatives would be nonoperative treatment using casts, braces, or occasionally bone stimulators.

***Probable Consequences of Refusing Procedure:***

The consequences will be continued crookedness or pain from the unhealed bone or perhaps even progressive deformity of the bone.

***Person(s) Performing the Procedure:***

The key portions of this procedure will be performed by the attending physician with the assistance of the resident staff. The portions of the procedure performed by the Resident staff will be based on their level of competency and under the direct supervision of the attending physician.