



Department of Orthopaedic Surgery

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Core Decompression and Inoculation of Stem Cells for the Treatment of Avascular Necrosis with a Minimally Invasive Technique

What is AVN?

Avascular necrosis (AVN) is a disease that is characterized by decreased blood flow to the femoral head, which can lead to collapse of the femoral head and subsequent degenerative changes. Collapse of the femoral head is typically accompanied by severe pain, and the disease course rarely regresses.

Risk factors for AVN:

Although the pathophysiology of AVN is not yet well-understood, it is thought to be a multifactorial disease, with patients reporting a history of exposure to one or more risk factors, including trauma to the hip, alcohol abuse, corticosteroid use, hemoglobinopathies, pregnancy, coagulopathies, organ transplant, chemotherapy, caisson disease, HIV and autoimmune conditions.

A new approach to treatment:

Dr. Pascual-Garrido has recently started the use of stem cells as adjuvant to minimally invasive decompression to treat patients with early-stage AVN. After decompression of the femoral head is performed, adult mesenchymal stem cells obtained from the iliac crest are injected into the area of osteonecrosis. After this procedure, patients are discharged from the hospital using crutches to assist with ambulation as tolerated for approximately two weeks. In patients who undergo bilateral procedures, crutches are recommended until hip pain subsides.

Procedure:

The technique basically consists in first obtaining your stem cells from an iliac bone marrow aspiration (Figure 1).



Figure 1

Bone marrow aspiration is performed using a specific needle. Once this sample is obtained, a special machine is used to centrifuge the sample.



Figure 2: Bone marrow concentration

Bone marrow concentration after it is centrifuged.

Once the cells are ready (figure 2) a decompression and inoculation of the stem cells in the area of the necrosis is performed in a minimally invasive manner (Figure 3).

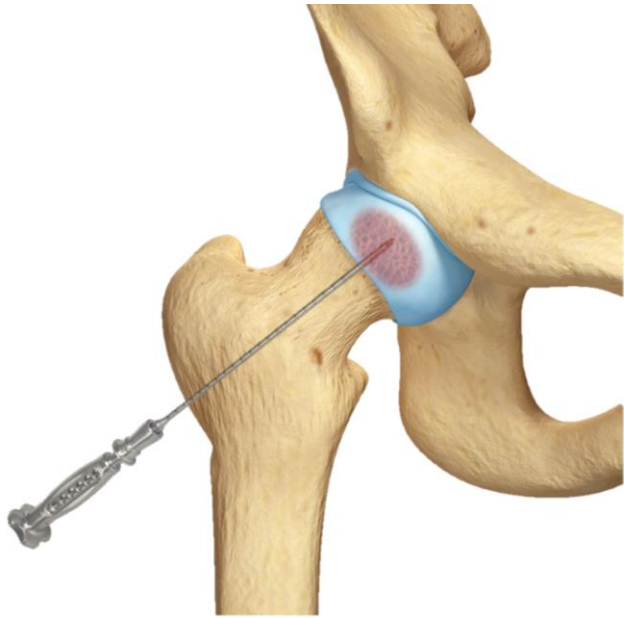


Figure 3: Identification of the lesion is performed.
and inoculation of stem cell

AVN Core Decompression and Stem Cells inoculation POST-OP INSTRUCTIONS

WEIGHT BEARING: “Toe touch” weight bearing with crutches for two weeks

HIP ROM (RANGE OF MOTION): Hip range of motion is not restricted following the procedure.

DRESSINGS: Please leave the dressings and steri-strip till next follow up appointment (2 weeks after surgery).

PAIN MEDICATION AND ICE: Pain medication will be given when you are discharged from the Hospital.

ASPIRIN: You will be asked to take aspirin 325 mg twice a day for 3 weeks.

BACK TO NORMAL ACTIVITY OR WORK: If you have a “desk type job” you will be allowed to go back to work after 10 days. If you have a “physical job” you will need to request 6 weeks.