

Bone Marrow Aspiration/Adult Mesenchymal Stem Cells

What is bone marrow aspirate concentrate?

Bone marrow aspirate concentrate is made from fluid taken from bone marrow. The bone marrow aspirate contains stem cells that can help the healing of some bone and joint conditions. Bone marrow aspirate concentrate is obtained with a minimally invasive procedure that avoids the risks of an open bone graft procedure.

What conditions will might be helped by stem cells?

Stem cells can be used to help with bone healing, cartilage repair and new blood vessel growth. Using stem cells may treat delayed union or nonunion of bone fractures, cartilage defects, osteonecrosis, chronic tendon problems or chronic wounds. Bone Marrow derived stem cells have also been used in the treatment of hair loss, lung disease and nerve damage.

When should I avoid this procedure?

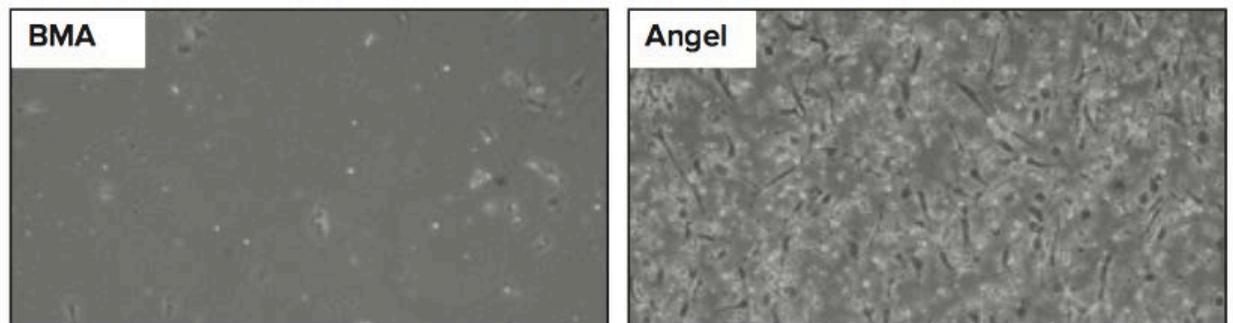
This method is avoided in patients who have an infection or cancer.

General Details of Procedure

A needle is used to remove bone marrow from within the bone. This is typically done under sedation. Marrow is commonly taken from the pelvis but may be taken from other sites.

Bone marrow aspiration usually is performed on the back side of the pelvis. The sample of bone marrow is removed and then spun down in a centrifuge to separate the cells. The Arthrex Angel system is used to produce a concentrate of the stem cells (Fig 2). Your physician will then use ultrasound or X-ray guidance to inject the stems cells directly into the treatment site.

Figure 2: Donor 1 - BMC samples of two donors after 96 hours in culture



Specific Techniques

The pelvis is marked and prepped to keep the site sterile. A hollow needle is inserted into the bone and a syringe is used to withdraw fluid from the bone marrow. After enough fluid has been collected, the needle is removed. Pressure is applied to the needle site and a small dressing is then applied.

What happens after the procedure?

After aspiration, there usually is pain at the pelvis that goes away within several days. A small dressing or bandage is kept at the aspiration site until it has healed.

Potential Complications

Complications may include pain, bleeding, infection and nerve injury. Intra-abdominal injury may occur because of the needle.

Frequently Asked Questions

How much pain can I expect after the procedure?

Postoperative pain from aspiration of the pelvis usually is much less intense than the pain from an invasive surgery. The pelvic pain may be present for approximately one week. The pain medicine prescribed by your physician should be sufficient to treat the pain at the pelvis.