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Bone marrow biopsy

A bone marrow biopsy is the removal of marrow from inside one of your bones. Bone marrow is the soft tissue inside bones that helps form blood cells. It is found in the hollow part of most bones.

Bone marrow biopsy is not the same as bone marrow aspiration. An aspiration removes a small amount of marrow in liquid form for examination.

How the Test is Performed

A bone marrow biopsy may be done in your health care provider's office or in a hospital. The sample may be taken from the pelvic or breast bone. Sometimes, another area is used.

Marrow is removed in the following steps:

- If needed, you are given medicine to help you relax.
- Your provider cleans the skin and injects numbing medicine into the area and surface of the bone.
- A biopsy needle is inserted into the bone. The center of the needle is removed and the hollowed needle is moved deeper into the bone. This captures a tiny sample, or core, of bone marrow within the needle.
- The sample and needle are removed.
- Pressure and then a bandage are applied to the skin.

A bone marrow aspiration may also be done, usually before the biopsy is taken. After the skin is numbed, the needle is inserted into the bone, and a syringe is used to withdraw the liquid bone marrow. If this is done, the needle will be removed and repositioned. Or, another needle may be used for the biopsy.

How to Prepare for the Test

Tell your provider:

- If you are allergic to any medicines
- What medicines you are taking
- If you have bleeding problems
- If you are pregnant

How the Test will Feel

You will feel a sharp sting when the numbing medicine is injected. The biopsy needle may also cause a brief, usually dull, pain. Since the inside of the bone cannot be numbed, this test may cause some discomfort.

If a bone marrow aspiration is also done, you may feel a brief, sharp pain as the bone marrow liquid is removed.

Why the Test is Performed

Your provider may order this test if you have abnormal types or numbers of red or white blood cells or platelets on a complete blood count (CBC).

This test is used to diagnose:

- Anemia (some types)
- Certain infections
- Leukemia
- Other blood cancers and disorders

It may also be used to help determine if a cancer has spread or responded to treatment.

Normal Results

A normal result means the bone marrow contains the proper number and types of blood-forming (hematopoietic) cells, fat cells, and connective tissues.

What Abnormal Results Mean

Abnormal results may be due to cancers of the bone marrow (leukemia, lymphoma, multiple myeloma, or other cancers).

The results may detect the cause of anemia (too few red blood cells), abnormal white blood cells, or thrombocytopenia (too few platelets).

Specific conditions for which the test may be performed:

- A body-wide fungal infection (for example, disseminated coccidioidomycosis)
- A white blood cell cancer called hairy cell leukemia
- Cancer of the lymph tissue (Hodgkin or non-Hodgkin lymphoma)
- Bone marrow doesn't make enough blood cells (aplastic anemia)
- Blood cancer called multiple myeloma
- Group of disorders in which not enough healthy blood cells are made (myelodysplastic syndrome; MDS)
- A nerve tissue tumor called neuroblastoma
- Bone marrow disease that leads to an abnormal increase in blood cells (polycythemia vera)
- Abnormal protein buildup in tissues and organs (amyloidosis)

- Bone marrow disorder in which the marrow is replaced by fibrous scar tissue (myelofibrosis)
- Bone marrow produces too many platelets (thrombocythemia)
- White blood cell cancer called Waldenström macroglobulinemia
- Unexplained anemia, thrombocytopenia (low platelet count) or leukopenia (low WBC count)

Risks

There may be some bleeding at the puncture site. More serious risks, such as serious bleeding or infection, are very rare.

Alternative Names

Biopsy - bone marrow

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