**Sternal Puncture**

Sternal puncture is a common procedure performed by hematologists, i.e. physicians specializing in investigation and treatment of blood diseases.

**Principle**

The examination is used to obtain a sample of the bone marrow. The patient is in horizontal position, the examiner disinfects the chest and administers a local numbing agent. After that, the breastbone (sternum) is punctured with a special needle and the bone marrow is sucked out. The sample is rubbed on a glass slide and examined under a microscope.
**Preparation**

The examination does not require any special preparation and it is performed in hospitalized patients or outpatients.

**Indications**

The procedure has the greatest benefit in diagnostics of blood disorders. We may perform it when there are certain abnormalities in the sample of peripheral blood and we want to know the status of cells in bone marrow. If we suspect a primary blood disorder (aplastic anemia, leukemias, multiple myeloma and many others), the sternal puncture may help us by evaluation, how much blood cells are produced by bone marrow and what type of cells are present (including tumor cells).

**Disadvantages**

There are no major disadvantages of the procedure alone. The puncture may accompanied with a short and mild pain, but this problem is usually prevented by the local numbing agent. The biggest limitation is the fact that basic sternal puncture is "just" a form of cytological examination. This means that it only allows to investigate particular cells, their type and attributes, but it is unable to assess the histological structure of the bone marrow, i.e. the organization of cells in the tissue. This fact makes the examination less accurate and reliable. When we want a real piece of bone marrow for histological examination, we have to perform a more invasive procedure such as the trephine biopsy.

**Advantages**

Sternal puncture is a simple, widely-used and only little invasive procedure that gives us many information about the cytology of the patient's bone marrow.