

Musculoskeletal Imaging and Intervention Section Imaging Procedures

Blood Patch for CSF Leaks

Indications

Severe, persistent spinal headaches for more than 2 days after a spine procedure (e.g. epidural steroid injection, myelogram, lumbar puncture) despite conservative treatment. Spinal headaches consist of severe throbbing head pain that starts one day after a spinal procedure. The throbbing occurs with standing and disappears after a few minutes of lying supine. The initial treatment should consist of fluids and rest prior to treating with a blood patch.

RISKS

1 Infection

CONTRAINDICATIONS

- None

PREPROCEDURE

Review the patient's cross sectional imaging studies. Identify the level the previous procedure was performed, as this is the site of probable violation of the thecal sac which is where you will place the patch (Figure 1).



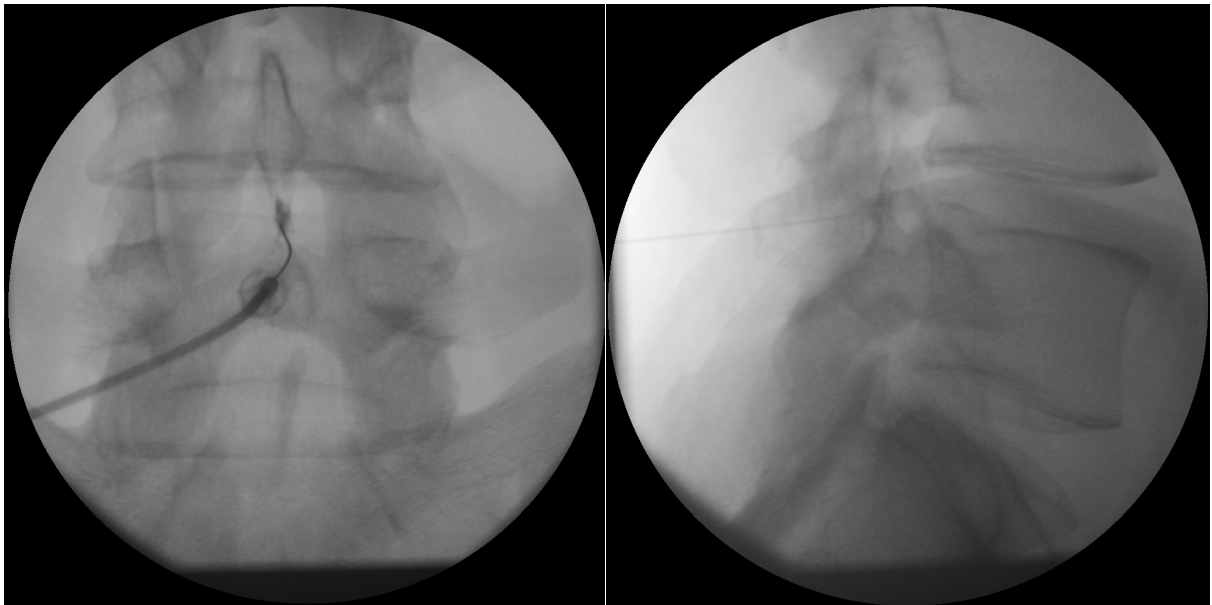
Fig 1: Intrathecal injection.

MATERIALS

- 20 G IV with hep lock (do not flush with heparin)
- 18 or 20 G spinal needle

TECHNIQUE

1. The most important aspect of this procedure is strict adherence to absolutely sterile technique as blood is an excellent culture medium and complicating a relatively simple spinal headache with an epidural abscess would be a disaster!
2. A 20G intra-cath (hep lock) should be placed in the hand or antecubital fossa of the patient prior to starting the procedure. Do not use heparin with the IV; flush with saline. This should be done in a sterile fashion, preferably with a nurse handling the IV setup.
3. The blood patch should be done with a 20G or 18G needle placed in the routine interlaminar ESI fashion to the same location as where the initial procedure was done. Inject about 1 cc of contrast to confirm the proper epidural location of the needle tip in the lateral position (Figure 2 and 3).



Figs 2 and 3:
Epidural contrast injection, AP and lateral views.

4. Once the epidural needle is in proper position, the nurse draws off 10 cc of blood in a 10 cc syringe from the IV, wearing sterile gloves, and hands it to the physician. You must work rapidly to inject the blood before it clots; do not inject clotted blood. The nurse draws off a second syringe of blood from the IV as the physician is injecting the first syringe of blood into the epidural space, so that a total of 10-12 cc of blood is injected. Do not inject if the patient gets leg symptoms or other signs of pain during the injection. Inject the blood slowly, but steadily.
5. After injection of the blood and removal of the needle, the patient is turned over supine for at least 10 minutes, and then slowly brought to a sitting position over the next 30 minutes. They may then go home. The pain is generally relieved immediately. Have them continue to take it easy and take lots of fluids for the following 24 hours.