Pediatric Patient with ALL and Postdural Puncture Headache: To Blood Patch or Not To Blood Patch?

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Objectives:

1) Understand the indications, risks, and benefits or epidural blood patches.

2) Discuss the additional potential complications in patients with potential for neoplastic seeding, increased infectious risk secondary to immunocompromise, and increased bleeding risk secondary to thrombocytopenia or coagulopathy.

3) Discuss alternatives to using autologous blood such as donated blood, irradiated blood, saline, fibrin, or dextran patches.

Case History:

The pediatric pain service was consulted for blood patch placement in a 17 year old male with acute lymphocytic leukemia undergoing an experimental chemotherapy regimen. He had a 5 week history of positional headache following lumbar puncture.

1) What signs and symptoms would convince you that this is a postdural puncture headache?

2) What are the indications for blood patch?

3) What alternative therapies would you recommend prior to or in lieu of blood patch?

4) What further information about the medical status of this patient would you want before determining if you would offer a blood patch? Would you order any further studies?

Case History (continued) and laboratory values:

The patient’s headache had not improved with time, or with conventional treatments such as hydration, caffeine, oral narcotics, or imitrex. His oncology team felt he was in remission and a bone marrow aspirate from a month prior showed 0% blasts. Labs from four days prior revealed a platelet count of 355 and an absolute neutrophil count of 460.
1) Would you proceed with a blood patch?

2) What risks and benefits would you tell the patient and his parents?

3) Is this patient at risk for neoplastic seeding into the central nervous system? What are your alternatives to using autologous blood?

4) Is this patient at increased risk of infection (epidural abscess, meningitis)?

5) Is this patient at increased risk of bleeding and epidural hematoma?

6) What would be your platelet count threshold to do a blood patch? Would you consider transfusing platelets to do a blood patch?

Procedure:

After reviewing the potential risk and benefits with the patient, his parent, and the oncology team, we proceeded with an uneventful epidural blood patch using autologous blood drawn steriley from the patient’s hand.

   1) What size epidural needle would you use for this 17 year old 100 kg male? What size needle would you use in a smaller pediatric patient?

   2) What volume would you inject into the epidural space? How do you determine how much blood you inject into patients of various sizes?

   3) For a younger patient unable to cooperate, would you consider doing a blood patch on a sedated patient?

Patient follow-up:

The patient reported full resolution of his headache by the next day with no known complications as of three months post blood patch.

   1) If the blood patch failed to have good effect the first time, would you consider a second blood patch?

   2) What studies or additional therapies would you recommend to his team in the event of an unsuccessful blood patch?

Conclusion:

Despite successful outcome in this case, there is no clear data to support or refute the safety of epidural blood patches in oncology and immunocompromised patients.
References:


