



BONE MARROW COLLECTION--STERNUM

1. Place the icepack from the shipping container in a freezer for at least 24 hours.
2. Assemble all necessary supplies.
3. Sedate the horse as for any other standing surgical procedure.
4. Clip a 10 x 15 cm area of hair from the central aspect of the sternum.
5. Prepare the site with surgical scrub and solutions for aseptic collection.
6. The insertion site is exactly on ventral midline and bisects a parallel line between the points of both elbows (Figure 1).
7. Infiltrate the skin, muscle, and the periosteum with 10-12 ml of local anesthetic using a 1.5-inch, 21-gauge needle.
8. Perform final application of preparation solution.
9. Create a sterile field with the packaging from sterile gloves. Place two 60 ml syringes or four 35 ml syringes, two 18-gauge needles, a #15 or #11 scalpel blade, and sterile gauze sponges aseptically on the field.
10. Open the 3.5-inch, 13-gauge bone marrow aspiration needle and leave it in its internal packaging to maintain sterility.
11. Wearing sterile gloves, fill each 60 ml syringes with 10 ml each of heparin (1000 IU/ml) or each 35 ml syringe with 5 ml of heparin. Set aside on the sterile field.
12. Create a stab skin incision with the scalpel blade to facilitate insertion of the aspiration needle. After locking its stylet into place, insert the needle through the skin and muscle until it contacts the body of the sternebrae. Stab incision is optional.
13. Advance the needle with constant firm pressure, in a back and forth twisting motion, through the exterior cortex until it is seated firmly into the center of the medullary cavity (Figures 1&2). The needle is inserted approximately 3-5 mm into the bone.
14. Remove the stylet. Attach one heparin loaded syringe and aspirate to initiate flow (Figure 3). Once flow is confirmed, inject 2-3 ml of the heparin into the marrow cavity to prevent clotting. Leaving the syringe attached, continue to aspirate 60 ml of bone marrow using steady firm negative pressure. If no marrow blood is obtained, reposition the needle (deeper or more superficial) to find the center of the marrow cavity and repeat the above describe procedure.
15. Cap the syringe with an 18-gauge needle. Mix the sample thoroughly by rocking the syringe gently back and forth.
16. Repeat the same process for the second heparin loaded syringe (injecting 2-3 ml of heparin into the marrow space and then aspirating marrow to fill the syringe). The final bone marrow volume is 120 ml.
17. Remove the aspiration needle and apply pressure to the site with sterile gauze sponges to stop bleeding.
18. Agitate both syringes back a forth several times to ensure that clotting does not occur.
19. See "Transfer and Shipping" instructions for final processing.

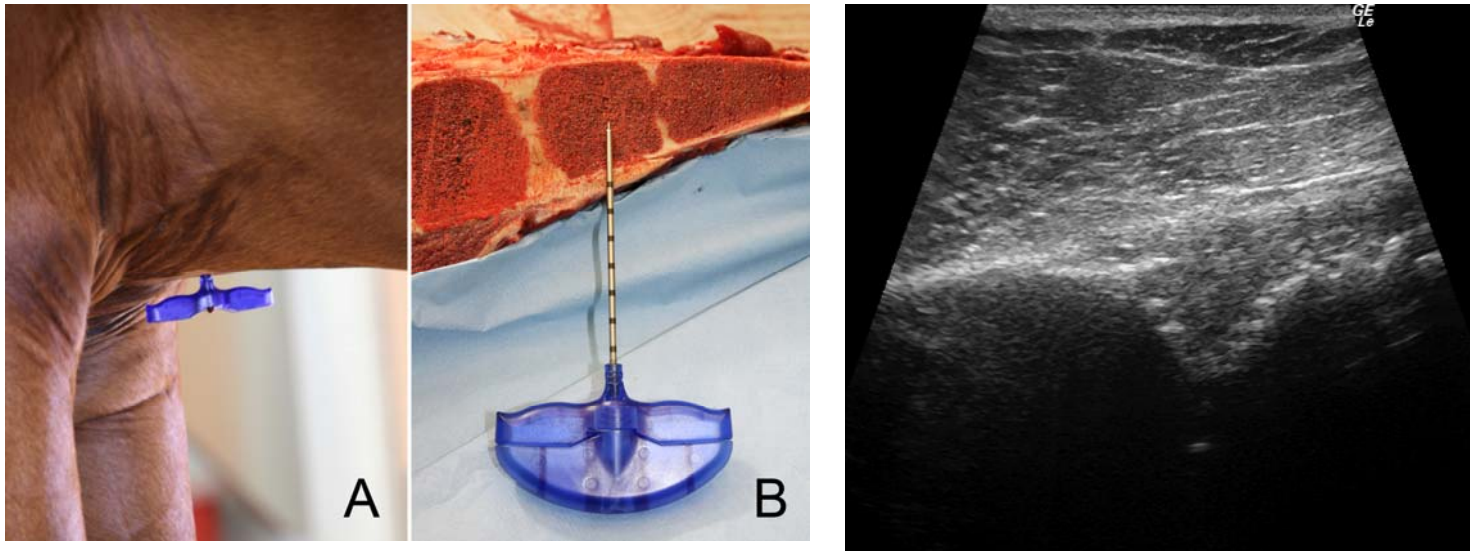


Figure 1: Ultrasound can be used to identify the proper location. The arrow indicates the intersternabral space.



Figure 2: Remove the stylet. Attach one heparin loaded syringe and aspirate to initiate flow. Once flow is confirmed, inject 2-3 mls of heparin into the marrow cavity to prevent clotting. Leaving the syringe attached, continue to fill each syringe for a total bone marrow volume of 120 mls.