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Retrieval of broken Bone Marrow Biopsy Needle: a Case Report

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Abstract

The present study is a case report of biopsy needle breakage adversity happened in 45 years old female patient during bone marrow biopsy procedure in medicine department of tertiary care hospital. The study includes operative procedure performed to retrieve the broken part of needle from the patient's body and suggests precautionary measures to avoid such complications.

Keywords: *biopsy needle breakage, trephine biopsy, bone marrow, iliac bone, PSIS.*

Introduction

Bone marrow biopsy is frequently done procedure in Medicine Department to diagnose various hematological conditions and Malignancies. Improper technique and failure to take appropriate precautions during the procedure may result into a number of complications. These procedures have resulted into morbidity and even mortality (Bain et al, 2002[1]). Bain et al reported a survey of morbidity and mortality of bone marrow aspiration and trephine biopsy for the British Society of Haematology, covering the 12 months

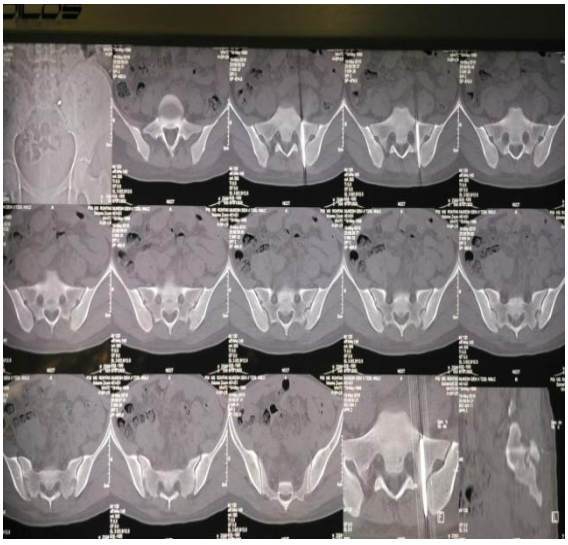
of 2002. Fifty-three centers reported 13,506 procedures, comprising 3927 aspiration biopsies and 9579 combined procedures. There were 17 adverse events including nine instances of hemorrhage, four infections and one hemorrhage complicated by infection. Two trephine biopsy needles broke during the procedure. Few cases of neurovascular injury, arteriovenous fistula formation, gluteal compartment syndrome and pseudoaneurysm formation have also been reported by various authors[6]. Breakage of biopsy needle is very rare. The present study reports a case of retrieval of broken biopsy needle in 45 years old female patient during bone marrow biopsy procedure in medicine department of tertiary care hospital.

Case Report

A 45 years old female presented to Orthopaedics department of tertiary care hospital with complaint of pain and puncure wound in left gluteal region. She was admitted in medicine department since two days for provisional diagnosis of haematological malignancy. Bone marrow biopsy from posterior iliac crest was planned for definitive diagnosis. The second year resident was doing the procedure in lateral position under all aseptic conditions and local aneasthesia (2% lignocaine). No sedation was given. An autoclaved reusable needle of unknown make was used. The patient gave a sudden jerk due to anxiety and pain which resulted into biopsy needle breakage. The Orthopedic Surgeons were consulted for corrective measure. Her vital were stable. Local examination revealed puncture wound in left posterosuperior gluteal region. There was no distal neurovascular deficit. Her Hb was 11.2gm/dl. Platelet counts were 1.8 lak/cumm. Coagulation profile was normal. Other lab investigations were within normal limits. Anteroposterior radiograph of pelvis was revealed metallic foreign body over the sacrum (Figure 1). CT of pelvis was done for exact localization of the broken needle. Biopsy needle was localized in sacrum. (Figure 2). Patient was planned for removal of needle under spinal anesthesia in prone position under all aseptic conditions. Needle was again localized under Image Intensifier (Figure 3) and skin incision of around 3 cm was given and soft tissue dissection done and needle was removed with pliers under direct vision. Homeostasis achieved and closure was done (Figure 4). Patient recovery was uneventful. Sutures removed on 12th day. Follow up at 3 months and 6months was also uneventful.

Fig 1. Anteroposterior Radiograph of Pelvis

Fig 2 CT Images of Pelvis



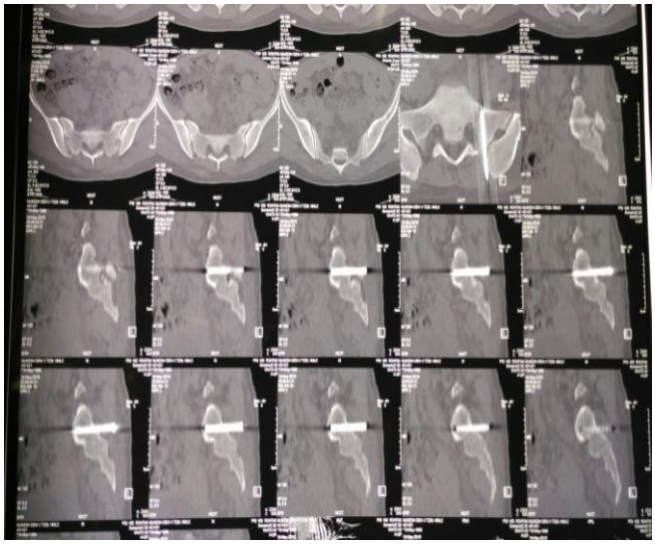


Fig 3 Localization under Image Intensifier (intra operative)

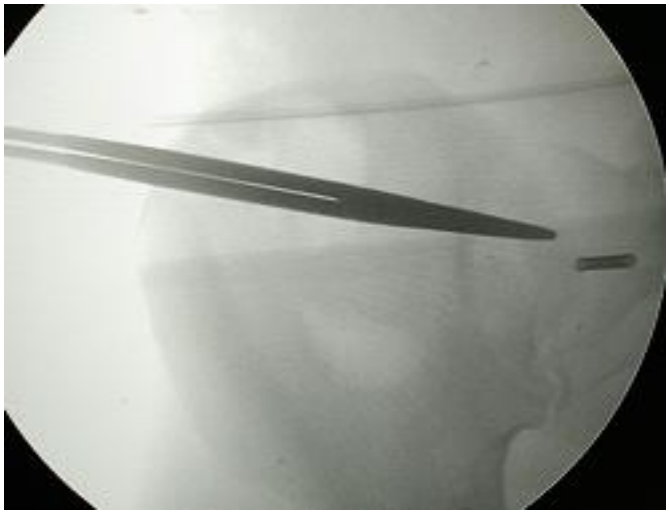


Fig 4 Skin Incision after Closure

Fig 5 Retrieved broken part of needle

Discussion

Bone marrow biopsy is a minimal risk involving procedure that is performed commonly for the diagnosis and staging of Hematological Malign-ancies and benign Hematological Disorders. A Trephine Biopsy[4] easily carried out on the Posterior Superior Iliac Spine, with the patient lying in the lateral position and the hip& knees in flexion. Ilium just below the Anterior Superior Iliac Spine is an alternative site, with the patient Supine and the approach being perpendicular to the Ilium. The satisfactory needle designs include Jamshidi and Islam needles.

Breakage of biopsy needle is very rare. The latest annual survey documented 15 adverse events, mainly hemorrhagic and three needle breaking among 20,323 procedures. The two specific brands of disposable needles were identified in needle breaking adversity. In three patients, surgical removal was required and each of these patients spent an extra 2 day in hospital. In two instances, removal was effected with pliers or similar implements, and in two instances part of the needle was left in situ (Bain, 2006[3]). Local anesthesia must be given adequately with particular attention to infiltrating of the Periosteum. Sedation is useful in anxious patients[5], or if there is an anticipation of technical difficulties. Hjortholm et al has summarized the current knowledge of pain reduction measures in the bone marrow biopsy and aspiration [5]. Burkle et al has observed that the use of deep sedation for outpatient BMBA is as safe as using local anesthesia[7]. The patient's

demographics and vitals should be carefully read. It is a requisite for doctor to inform the patient about the procedure being followed and necessary information on what will be done. The experience of the personnel is related to patient's anxiety so it is preferable to have an experienced doctor for first biopsy in order to keep check on conditioned anxiety and pain during following biopsies. In our case a second year resident was doing the procedure and he rotated the needle too much. Moreover the quality of needle may not be of high standards and it was being repeatedly reused. The site was also inappropriate as needle was embedded in sacrum instead of ilium

In Trephine Biospy a stab skin incision should be given. The trocar is removed after engaging the biopsy needle in outer cortex in order to avoid including soft tissues in the biopsy specimen. The ideal length for biopsy specimen should be at least 20 mm after processing. The Coagulation and Thrombocyte defect should be corrected, up to the extent possible, before the procedure is undertaken.

A good quality pre sterilized disposable needle should be used. A cadaveric study[6] on needle orientation during Iliac Crest Biopsy shows that the orientation of needle toward the ipsilateral ASIS before caused less damage to neurovascular structures and avoided the Sacroiliac joint compared to the needle orientation perpendicular to PSIS.

Conclusion

Although bone marrow biopsy procedure is associated with few complications but to further minimize these adversities the procedure must be done by an experienced personnel using standard techniques and required precautions. The adequacy of anesthesia must be ensured and sedation is considered for anxious patients if facilities permit. Hardware used in the procedure must be of good quality. If still there is any complication it should be managed by involving concerned specialties on emergency basis.

References

1. Bain BJ. Bone marrow biopsy morbidity and mortality. Br J Haematol 2003;121:949-51.
2. Bain BJ. Bone marrow biopsy morbidity and mortality: 2002 data. Clin Lab Haematol 2004; 26:315-8.
3. Bain, Barbara J. "Morbidity associated with bone marrow aspiration and trephine biopsy-a review of UK data for 2004." *Haematologica* 91.9 (2006): 1293-1294.
4. Bain, B. J. "Bone marrow trephine biopsy." *Journal of clinical pathology* 54. 10 (2001): 737-742.
5. Hjortholm, Nikolaj, et al. "Strategies of pain reduction during the bone marrow biopsy." *Annals of hematology* 92.2 (2013): 145-149.
6. Konda, Bhavana, et al. "Safe and successful bone marrow biopsy: An anatomical and CT-based cadaver study." *American journal of hematology* 89.10 (2014): 943-946.
7. Burkle, C. M., Harrison, B. A., Koenig, L. F., Decker, P. A., Warner, D. O., & Gastineau, D. A. (2004). Morbidity and mortality of deep sedation in outpatient bone marrow biopsy. *American journal of hematology*, *77*(3), 250-256.