Technical Section [TECHNICAL NOTES AND TIPS

Novel technique for percutaneous biopsy of a peri-acetabular lesion

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Background

The acetabulum has a complex anatomy and is covered by thick musculature and neurovascular structures. Access to acetabular lesions requires extensive dissection of soft tissue, and is associated with blood loss and prolonged operative time. Percutaneous fixation of fractures of the anterior column to circumvent these problems has been described.^{1,2} This percutaneous technique can also be used to access lesions in the roof of the acetabulum through a minimally invasive approach. Here, a technique for biopsy of lesions in the acetabular roof using a percutaneous approach is described.

Technique

The entry point for the needle is the intersection of a line vertically upwards from the midpoint of the greater trochanter (GT) and another line drawn from the pubic symphysis upwards through the anterior inferior iliac spine. It is usually just proximal to the midpoint of a straight line joining midpoint of the iliac crest to the tip of the GT (Fig 1).

An 18-G spinal needle is inserted under C-arm guidance to confirm the exact location of the lesion (Fig 2). We use a Osteochondral Autograft Transfer System™ cartilage harvester (Arthrex, Naples, FL,

Figure 2 C-arm image showing insertion of a 18-G spinal needle to localise the lesion

USA) for the biopsy because it is robust and can be hammered into hard, innominate bone. The spinal needle is withdrawn and the harvester is introduced under C-arm guidance (Fig 3). Gentle hammering may be needed to perforate the hard peripheral cortex of the lesion. Harvested tissue can be drawn from the harvester by pushing with the inner trocar (Fig 4).

Figure 1 Entry point of the biopsy needle (marked by a cross)

Figure 3 Insertion of the Osteochondral Autograft Transfer System™ graft harvester in the lesion under image guidance to harvest tissue for biopsy

Figure 4 Biopsy tissue being removed from the harvester using a trocar

Discussion

This is a simple, inexpensive, and safe method of harvesting tissue from the acetabular roof for biopsy, and allows early and rapid post-operative recovery.

References

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Z-entry technique reduces the risk of trocar-site hernias in obese patients

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BACKGROUND

Open laparoscopy and techniques using a Veress needle permit entry into the peritoneal cavity, and are recommended.^{1,2} These approaches require fascial closure of 12mm trocar sites, thereby reducing the risk of trocar-site hernias in obese patients.^{3,4}

TECHNIQUE

We propose a novel 'Z-entry' technique to enter the abdominal cavity under direct vision of an optical trocar that (theoretically) can reduce the risk of trocar-site hernias in obese patients. After induction of a pneumoperitoneum through a Veress needle, a 12mm optical trocar system is inserted with a 30° laparoscope. Under direct laparoscopic vision, the trocar is inserted in subcutaneous fat in a perpendicular

Figure 1 Trocar placement using the Z-entry technique. **A)** The trocar is inserted in a perpendicular direction through the anterior sheath plane by applying traction to the skin with towel clips. **B)** Movement at 45° is made through the muscular plane. **C)** Trocar is inserted through the posterior sheath plane, preperitoneal fat, and peritoneum at 90°. Insets show the operative view.

direction through the anterior rectus muscle sheath (Fig 1A) and then advanced at 45° through the muscular plane (rectus abdominis muscle or flat abdominal muscles; Fig 1B). A distance of 1.5–2cm from the skin incision is obtained, and the abdominal wall is entered at 90° (Fig 1C). The anatomical structures encountered are readily recognisable by the optical trocar system. At the skin incision, the towel clips holding the abdominal wall should be dragged upwards to achieve the correct distance between the two perpendicular openings.