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Short Communications

Presurgical, ultrasound-guided anchor-wire marking of impalpable cervical lymph nodes

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Abstract
This case illustrates the surgical use of wire localization, a well tried technique from a different field of surgery, in the removal of an ultrasound-detected, impalpable deep lower cervical lymph node in a high-risk patient. A localization needle with an echogenic tip was placed freehand under ultrasound guidance, immediately before surgery. The imaging and marking of the impalpable cervical lymph node resulted in a precise surgical dissection and a reduction in operating time whilst minimizing risks to the patient and staff.

Key words: Lymph Node Excision; Needle; Cytology; Ultrasonography

Case report

A 37-year-old woman of African origin who had tested positive for human immunodeficiency virus and hepatitis B and C viruses was referred by the infectious diseases team for lymph node biopsy to aid diagnosis of possible lymphoma or tuberculosis. An ultrasound of her neck had shown enlarged lymph nodes in both supraclavicular fossae which were impalpable on clinical examination. A fine-needle aspirate from the enlarged node taken under ultrasound guidance (Figure 1) was sent for cytology and microbiological investigation. Unfortunately, the specimens were suboptimal and it was felt that the only means of achieving a definitive diagnosis was through histological examination.

Excision biopsy of a cervical lymph node is a common diagnostic procedure in which the node is normally palpable pre- and peri-operatively. However, in this case the enlarged cervical node had only been identified by ultrasound scan. The location of the node had indeed made it impossible to palpate because it lay behind the left clavicle. The use of an anchor wire was proposed to localize the node for dissection.

Method

The ultrasound-guided puncture and wire localization within the enlarged lymph node was performed immediately before surgery by an experienced radiologist. The procedure took 10 minutes, with no need for local

Fig. 1
Ultrasound image of enlarged lymph node during fine-needle aspiration.

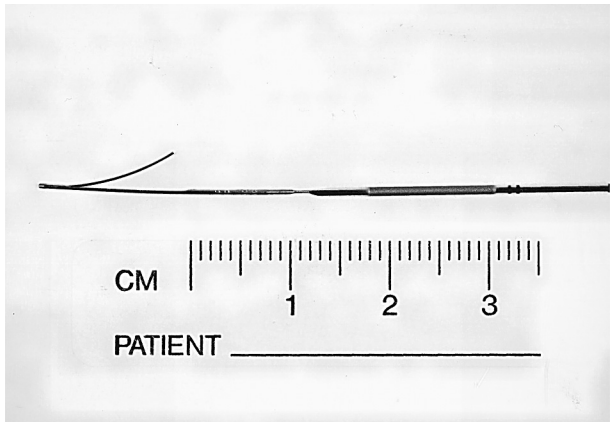

Fig. 2
Illustration of anchor wire with harpoon end. The hook wire springs open when protruded beyond the carrier needle tip.

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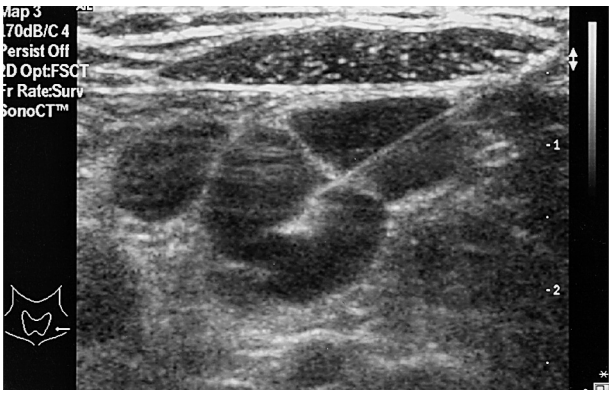

FIG. 3
Ultrasound image of hook wire anchored in the lymph node.

anaesthesia and was well tolerated by the patient. A Hawkins™ III Hardwire BLN localization needle (Medical Device Technologies, Stenløse, Denmark) (20 ga × 10 cm) with an echogenic tip, also known as a Kopans modified needle hookwire[1] (Figure 2), was used to mark the lymph node and was placed freehand under ultrasound guidance (Figure 3). The protruding end of the 20 gauge / 10cm wire was then taped to the skin of the left shoulder to prevent movement of the wire. Under general anaesthesia, the removal of the enlarged lymph node in the left supraclavicular fossa was facilitated by the localization wire. The 'harpooned' specimen was removed and sent for pathological and microbiological examination, resulting in a diagnosis of an Epstein Barr virus-driven type of Hodgkin's disease in the presence of immunosuppression.

Discussion

A review of the literature showed that the proposed technique is widely used to mark impalpable breast lumps,[2–4] soft tissue metastases in patients with melanoma[5] and impalpable soft tissue tumours.[6] However, there are two references to the use of this technique in head and neck surgery. Needle hookwire localization with computed tomographic guidance has been described for localization and surgical removal of a traumatically introduced foreign body deep within the infratemporal fossa,[7] and ultrasound-guided needle localization has been used intra-operatively to identify and guide the resection of medullary thyroid carcinoma lymph node metastasis.[8]

This case demonstrates that pre-operative, ultrasound-guided anchor-wire marking is a simple, safe and reliable technique[9–11] suitable to facilitate biopsy of impalpable cervical lymph nodes. Possible complications could include damage to vascular, neural, lymphatic or other nearby structures. The only extra implications related to time requirements, staff skill mix and coordination with the surgical list.

This use of a well tried technique from a different field of surgery ensures a more precise approach and minimal surgical dissection, whilst reducing operating time and risk to the patient and staff.

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