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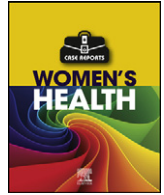
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Finding a needle in a haystack: Ultrasound guided extraction of a sewing needle from the perineum



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1. Case

A 36 year-old G4P2 presented to the emergency department with acute onset severe left perineal pain. She denied prior history of psychiatric illness. She stated that when sewing, she dropped a box of needles and in bending down to gather them, fell backwards and accidentally stuck herself in the left labia majora with a foreign body (FB), specifically, a 3.81 cm (1.5 in.) needle (see Figs. 1, 2).

Vital signs were within normal limits. Physical examination revealed a soft, non-tender, non-distended abdomen. Genitourinary examination revealed tenderness in the left labia majora 2 cm lateral from the introitus at the 3 o'clock position. The exam was otherwise unremarkable and the puncture site was not visible. Rectovaginal and speculum exams were deferred due to patient intolerance. Attempts were made to extract the needle at the bedside in the emergency department, but were unsuccessful. Bedside procedures that were attempted included: manual palpation of the needle with digital compression, magnetic attraction, ultrasound localization, and infiltration with lidocaine followed by a stab incision and exploration with a small clamp. Despite two tablets of 5/325 acetaminophen/hydrocodone, as well as intravenous administration of 6 mg IV of hydromorphone, 50 mcg of fentanyl, and 1 mg of lorazepam, the patient experienced persistent uncontrollable pain and was unable to tolerate further bedside extraction attempts.

The patient was transferred to the operating room. General anesthesia was administered and the patient was placed in high lithotomy. The previously made skin incision was extended superiorly to a length of 4 cm. Digital exploration of the incision was performed. However, the needle was unable to be located. Intraoperative anterior–posterior (A–P) portable radiograph demonstrated a thin FB parallel to the left pubic ramus (Fig. 3). However, the precise tissue depth was difficult to determine. Digital exploration was again attempted and unsuccessful. A second A–P radiograph with surgical instruments placed in the field to assist in localization showed the FB to be localized closer to the pubic symphysis than previously thought. Another attempt using digital exploration and Kelly clamps was unsuccessful. At this point, a 5.0–13.0 Mhz wide-band linear array (12 L-RS) ultrasound (LOGIQ e Ultrasound 2008, GE Healthcare, Wauwatosa, WI) was applied to the perineum. The FB was in the superior aspect of the left labia majora at a depth of 1 cm from the skin. A Kelly clamp was placed through the incision site and directed under ultrasound guidance to the needle, which was successfully extracted intact. The incision was closed in layers with delayed absorbable sutures. The patient tolerated the procedure well and was discharged home the following day.

2. Discussion

Sewing needles have been found in the forearm, liver tissue, and cardiac tissue [1,2,3]. Needles found in extra-genitourinary areas tend to be accidental, secondary to stabbing trauma, or for purposes of attempting self-harm. However, needles found in genitourinary areas,

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Fig. 1. A–P image from X-ray taken in the ED showing the sewing needle in the left labia majora.

such as the rectum, bladder, urethra, vagina, or perineum are commonly associated with autoerotic sexual activity [4].

Autoerotic cases by self-insertion of FBs have been recorded since the 1960's [5]. In these cases, FBs include: pencils, pens, pins, candles, plastic strips and tubes, straws, cuticle knife, lipstick tube, eraser and metal cylinders. In our experience, the number of reported cases of self-insertion of needles for the purpose of sexual gratification seems to be increasing. The underlying reasons for self-insertion are varied and can be voluntary or non-voluntary. Deliberate self-harm may activate nociceptors and the release of substance P and other neurotransmitters, which ultimately give a subjective sense of pain. On the other end of the spectrum, deliberate self-gratification may activate the brain reward pathway, which involves dopamine and various other neurotransmitters. Regardless of the initial intentions of the patient, whether self-harm or self-gratification, the consequences of FB insertion can be life-threatening. This is especially important in the perineum, which is a highly innervated and well-vascularized region. Removal of FBs in these areas is often referred to urologists, gynecologists, and colorectal surgeons. Evaluation of female patients with needles in genitourinary areas should include a thorough genitourinary exam and consultation with a surgeon familiar with the neurovascular anatomy of the perineum.

If the patient's pain is uncontrollable, then extraction under regional or general anesthetic in the operating room may be necessary. In this



Fig. 2. Lateral image from X-ray taken in the ED showing the sewing needle in the left labia majora.

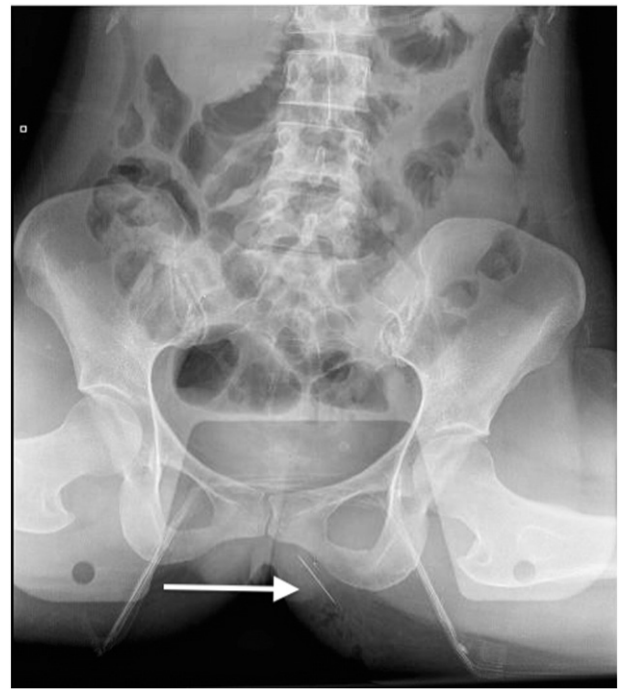


Fig. 3. A–P image from X-ray taken in the operating room showing the sewing needle in the left labia majora.

case, ultrasound guidance was successful in locating the needle after the patient's pain was adequately controlled. If the puncture site cannot be located, imaging techniques may be utilized to localize the FB. Physicians should be aware that multiple modalities may be employed to localize and extract a needle from the perineum. Radiographs are often used as part of the initial evaluation; however, many materials such as wood, plastic, glass, fish and chicken bones may not be seen in radiographs. FBs can be too small to be clearly resolved using radiographs and three-dimensional localization with plain film x-rays is challenging. Additional modalities to assist in localization include ultrasound-guided localization or fluoroscopy [6]. Some limitations of intra-operative ultrasonography may include limited tissue penetration operator-dependent reliability, and limited intra-operative availability. Fluoroscopy has better soft tissue penetration, but will expose the patient to ionizing radiation and may not be available in low resource settings. Despite the limitations of these imaging modalities, localization with image-guidance allows for a smaller incision with more localized dissection and minimal injury to nerves, blood vessels or soft tissue. The current report represents the first case of ultrasound guided extraction of a perineal sewing needle and illustrates the need for clinicians to occasionally utilize conventional imaging tools for an unconventional purpose.

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