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Case Report

Migration of innumerable chronically retained acupuncture needles

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ABSTRACT

We present a case of a 50-year-old female with a 2-day history of back and abdominal pain who was discovered to have innumerable chronically retained acupuncture needles, which had migrated throughout her abdomen and pelvis. Although many of these needles were in precarious positions, including the epidural space, renal parenchyma, small bowel, and vasculature, there was no evidence for acute injury. We also briefly discuss evidence for the magnetic resonance imaging compatibility of acupuncture needles. Although a rare complication, given the high frequency of acupuncture therapy in the United States, physicians must be aware of the potential for retained and migrated needles.

Case report

A 50-year-old female presented to the emergency department with a 2-day history of constant, gradually worsening lower back and abdominal pain. Vital signs were remarkable only for hypertension with blood pressure of 204/108 mm Hg. On physical examination, she was tender to palpation in the left lower abdomen and left lower paraspinal muscles. Laboratories showed a mild leukocytosis but no other significant abnormalities.

On computed tomography abdomen and pelvis with intravenous and oral contrast, innumerable acupuncture needles were demonstrated in the superficial and deep abdominal and pelvic compartments (Figs 1A–C). No acute hematoma or intravenous or oral contrast extravasation was seen. Only very mild inflammation was noted adjacent to a needle crossing the left paraspinal margin of L5 to traverse the left common iliac vein (Fig. 2A) and entering a loop of pelvic small bowel. Other critical locations of retained needles included the left renal parenchyma, the right external iliac vein, and the left L3-L4 neural foramen, with tip in the anterior left epidural space of the spinal canal (Figs 2B–D). None of these needles had any surrounding inflammatory changes to suggest acute injury. Multiple additional needles were seen in close proximity to the small bowel but without evidence of perforation. Some needles appear fractured and some intact, with the longest measuring 9 cm in length (Fig. 3).

When these findings were explained to the patient, she recalled having acupuncture approximately 5 years ago.

General surgery was consulted, but given the apparent chronicity of the findings and patient condition, they recommended outpatient follow-up. The patient was treated symptomatically with pain and antinausea medications and discharged home.

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Fig. 1 – Scout radiograph for CT of the abdomen and pelvis (A) and three-dimensional reconstructions of the CT abdomen and pelvis in the axial (B) and coronal (C) planes demonstrate innumerable linear radiopaque foreign bodies scattered throughout the soft tissues of the abdomen and pelvis. CT, computed tomography.

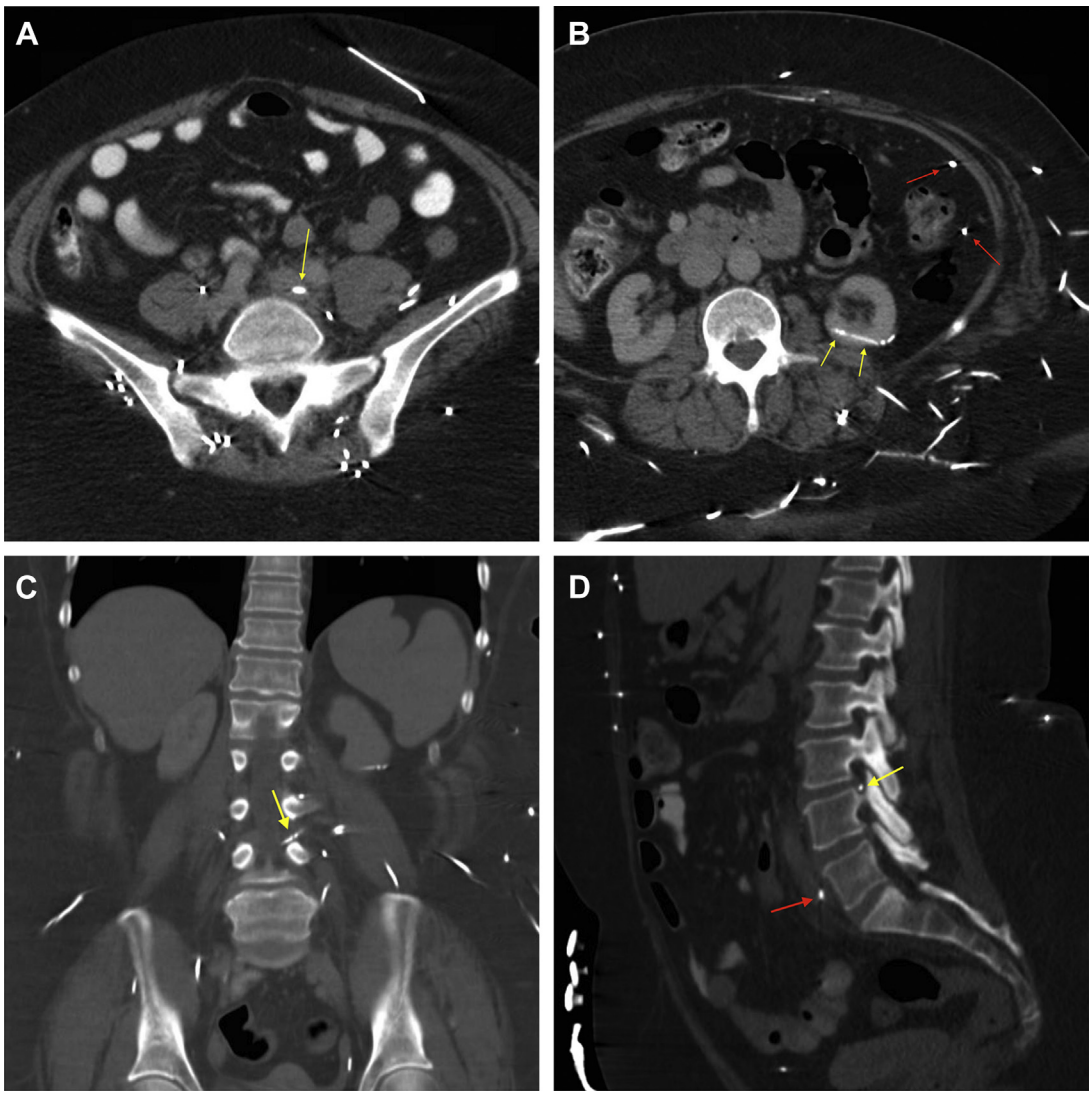

Fig. 2 – (A) Axial image from a contrast-enhanced CT of the pelvis showing acupuncture needle positioned with a portion traversing the left common iliac vein (yellow arrow), with a small amount of adjacent inflammatory changes. (B) Axial CT image through the level of the kidneys demonstrates an acupuncture needle traversing the posterior cortex of the left kidney (yellow arrows) as well as 2 additional needles freely inside the peritoneal cavity (red arrows). (C and D) Coronal and sagittal reconstructions show a needle within the left L3-L4 neural foramen (yellow arrows). Needle in the left common iliac vein can also be seen (red arrow). CT, computed tomography.

Fig. 3 – Coronal MIP reconstruction demonstrating a presumably intact acupuncture needle (yellow arrows) measuring approximately 9 cm in length that has migrated into the pelvic viscera and traverses a loop of small bowel. MIP, maximum intensity projection.

Discussion

Acupuncture has been used in the treatment of pain and other medical ailments for centuries, and its usage is reportedly increasing in the United States, with over 3 million adults undergoing treatment annually [1]. Although multiple randomized controlled trials have been conducted, there is no definitive consensus on the efficacy of acupuncture [2]. Despite this, acupuncture is slowly gaining acceptance within the Western medical community, with some anesthesiology fellowships now offering training in acupuncture techniques [3].

The most common type of acupuncture involves insertion of very thin (usually less than 1 mm diameter) needles made of stainless steel, silver, or gold into the subcutaneous soft tissues [4]. The needles can range anywhere from 7 to 200 mm in length [4]. After a brief period, these needles are then removed and the session is concluded. However, there are variants of acupuncture where needles are placed permanently. The migration of acupuncture needles to such locations as the bladder, heart, lung, and medulla oblongata has been previously reported [5].

Complications of acupuncture severe enough to merit imaging evaluation are very rare but include septic arthritis, pneumothorax, nerve and spinal cord injury, and death [6,7]. Cases of cardiac tamponade have been reported in patients with sternal foramina [8]. More mild complications of acupuncture include pain, bleeding, and bruising [9].

In our case, as in similar cases, the sheer number of these needles, as well as their location and duration of implantation, prohibits complete removal. Patients are then left with multiple foreign bodies, which are not externally visible, some in very delicate locations. As these patients may benefit from magnetic resonance (MR) imaging in the future, the question of MR compatibility becomes an issue. A 2013 study found no heating of standard stainless steel, austenitic stainless steel, or gold needles with exposure to a 3T magnet [10]. While the standard stainless steel needles produced large artifacts, austenitic stainless steel and gold needles were deemed MR compatible [10]. However, specifically manufactured magnetized acupuncture needles do exist, which would preclude MR imaging [11]. Most patients are likely unaware of the material composition of the needles that were utilized, especially if their treatment was remote, as in the case of our patient. Therefore, extreme care must be used when evaluating these patients for MR imaging.

Our patient had innumerable acupuncture needles scattered throughout her body, with many needles in particularly precarious positions, extending into the spinal canal, through the iliac veins, and through bowel. However, no acute complication was seen, and the patient was hemodynamically stable, so she was discharged with outpatient follow-up. As these retained acupuncture needles are not externally visible, it is important to educate patients regarding the extent of the imaging findings to ensure they can alert future physicians, and a high index of suspicion can be maintained for further migration of the needles, which may result in acute damage. While rare, the complications of acupuncture can be extremely serious, especially in cases of chronically retained and migrated needles.

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