Unnoticed Foreign Bodies that Penetrated the Spinal Dura Mater after Acupuncture Procedures

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INTRODUCTION

Acupuncture is very popular treatment method in Asia. However, numerous adverse events have been reported in relation to acupuncture; these include infection, spinal cord injury, spinal nerve root injury, and migration of foreign bodies such as gold pins. In general, hypodermal gold pin implantation is performed by inserting fine gold pins into subcutaneous muscle tissues. These gold pins do not cause serious adverse effects and are easily detected in radiological examinations. We report a rare case of a 67-year-old woman with low back and left leg pain who had underwent acupuncture at oriental medical clinics for several years to control the pain. The patient visited our hospital because the pain had recently worsened. Radiological examinations revealed multiple foreign bodies in the spinal dura mater and far lateral herniated discs at the left L4-5-S1. In addition to the gold pins, this revealed plastic pins penetrating the spinal dura mater during the surgery that had not been detected in the radiological examinations. We experienced a rare case of spinal dura punctured foreign bodies, which were plastic pins that are easily overlooked in radiological imaging studies.

Key Words: Acupuncture - Complication - Foreign body.

CASE REPORT

Patient introduction
A 67-year-old woman who had complained of severe left buttock and lateral thigh pain for several years. The pain had begun 20 years earlier after a sacral fracture occurred when she fell. She had received treatment at oriental medical clinics, etc. to control the pain. In physical examinations, she complained of pain in the L5 nerve region, but there was no muscle weakness. Visual analogue scores (VAS) for the low back pain and leg pain were determined to be 8 each. In radiological examinations, many gold pins were found in the L3-S1 paraspinous muscles (Fig. 1). Computed tomography (CT) revealed multiple gold pins in the spinal epidural region (Fig. 2). In magnetic resonance imaging (MRI), although no foreign bodies were identified, leftward extra-foraminal herniated discs were identified at the L4-5 and L5-S1 levels.

Diagnosis
1. Spinal epidural foreign body (gold pins)
2. Left extra foraminal disc extrusion at L4-5 and L5-S1

Surgical plan
1) Left partial hemilaminectomy at L3-4, L4-5 and L5-S1 with removal of gold pins
2) Left paraspinous discectomy at L4-5 and L5-S1

Procedure
Under general anesthesia, conventional left partial hemilaminectomy at L3-4, L4-5, and L5-S1 was performed. During ligament flavectomy, multiple black dots penetrating the
ligament were found. Most of these were gold pins, but some were clear plastic tubes, which penetrated the spinal dura mater. Eight gold pins and three plastic pins were removed (Fig. 3). One of the plastic pins had penetrated the dura mater at L5-S1 (Fig. 4). A left paraspinous discectomy at L4-5 and L5-S1 was then performed.

**Result of operation**

After the surgery, the patient’s postoperative course was uncomplicated, and she was observed to be in good health. A postoperative MRI revealed complete removal of the left L4-5 and L5-S1 extra-foraminal herniated discs (Fig. 5). Although the patient complained of a cold feeling in the Lt. lateral and calf regions during ambulation on day four after the surgery, her condition generally remained good, and the VAS for leg pain was improved at 2 weeks after the surgery. She was discharged 2 days later.

**DISCUSSION**

Acupuncture is a very popular procedure used for managing acute and chronic musculoskeletal pain and analgesia in Oriental culture areas. Hypodermal gold pin implantation has been regarded as a cure-all treatment for the past several decades. However, recently, the effects of acupuncture have come to be perceived negatively. Although this proce-
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Acupuncture is commonly performed alternative medicine in Asia and fine gold needle is easily found in radiological imaging study. In most cases of asymptomatic patients do not need surgical removal but foreign body near the spinal nerve or can migrate to spinal nerve or canal for long time.

CONCLUSIONS

Acupuncture is performed by well-trained acupuncturists, adverse effects are still common.

In general, acupuncturists argue that hypodermal or intramuscular gold pin implantation is not only effective, but also free of serious problems. However, according to Abumi et al. and Murata et al., implanted acupuncture pins can injure the spinal cord or nerve root and migrate to deeper layers due to muscular relaxation and contraction. In our case, the patient had been treated by acupuncture at oriental medical clinics since she fell down 20 years earlier. In the cases reported by Abumi et al. and Murata et al., after the first acupuncture, the first expression of symptoms took 20 years and 30 years, respectively. Silvestro et al. reported that the expression of symptoms took 5 years after the injury. The foreign bodies in the epidural space of our patient can be assumed to have migrated there due to muscle contraction and relaxation. Most asymptomatic patients with paraspinous muscle foreign bodies after acupuncture do not need immediate surgical removal. As mentioned earlier, intramuscular foreign bodies such as gold pins can migrate into deeper tissues, and such migration can occur over several years.

Therefore, if foreign bodies have been incidentally found in the vicinity of the spinal nerve or cord, long-term follow up is required, even if that patient is asymptomatic for a few years. In addition, the potential for foreign bodies that cannot be radiologically identified, as with those in our case, to cause severe complications such as dura puncture should be kept in mind.

![Fig. 3. Preoperative T2-weighted sagittal (A) and axial MRIs showing left L4-5 (B) and L5-S1 (C) extraforaminal extruded disc.](image)

![Fig. 4. The removed foreign bodies were variable-sized eight gold pins and three plastic pins that resembled nylon fishing guts.](image)

![Fig. 5. Postoperative T2-weighted sagittal (A) and axial MRIs showing the completely removed left L4-5 (B) and L5-S1 (C) extraforaminal herniated disc.](image)
so long term follow up required. We experienced a case of spinal dura punctured foreign bodies, which were plastic pins that are easily overlooked in radiological imaging studies.

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• Conflicts of Interest
I have no financial relationship or conflicting interest regarding any subject matters, materials, or organizations discussed in this manuscript.

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