Surgical Treatment for a Broken Acupuncture Needle in the Retroperitoneal Space: A Case Report

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ABSTRACT

Acupuncture is a well-known traditional medical procedure in Korea and is being increasingly used to treat various conditions including pain control, especially among the older generation. However, several problems related to acupuncture have been reported. A 27-year-old woman expressed that she had back pain occurring despite her posture. She received acupuncture therapy 2 months prior. We discovered a needle-shaped foreign material near the T12 vertebra body in the retroperitoneum. We extracted 2 pieces of deteriorated broken needles by laparoscopy. Postoperatively, the woman was discharged within 5 days with no complications. We report a patient that received laparoscopy with a full recovery after having severe back pain caused by a broken needle which was stuck in the retroperitoneum.

Keywords: Acupuncture; Laparoscopy; Foreign bodies

INTRODUCTION

Acupuncture is widely accepted by the public and has a long history of use in Korea. It is a simple procedure for various symptoms including several types of pain. However, some complications associated with acupuncture have been described in the literature. Internal organ, tissue, or nerve injuries are the main complications of acupuncture especially for pneumothorax and central nervous system injury. Adverse effects also include syncope, infections, hemorrhage, allergies, burns, aphonia, hysteria, cough, thirst, fever, and somnolence.

In addition, complications caused by a broken needle are especially rare. Moreover, removing a broken needle in a deep portion of the body is a very challenging and delicate procedure. This case describes a patient with a retained acupuncture needle broken in the retroperitoneum and was removed by laparoscopy.

CASE REPORT

A 27-year-old woman who was a foreign worker from Vietnam complained about back pain which was occurring regardless of posture. She expressed that something was stinging inside
all the time. The patient received acupuncture therapy in a Korean traditional medicine clinic for back pain 2 months prior. She had no special previous medical history and laboratory results were unremarkable except for mild leukocytosis.

A simple chest X-ray showed a needle-shaped foreign object on the right side of the T12 vertebra body (FIGURE 1). A thoracolumbar spine computerized tomography (CT) scan showed a 1.5 cm linear acicular structure with high density in the right retroperitoneal space just medial aspect of the right adrenal gland (FIGURE 2). According to the acupuncture therapy history, we concluded that the foreign material was a broken acupuncture needle retained in the patient's body. The patient received an operation via laparoscopy in general anesthesia in the right semi-lateral position. After establishing pneumoperitoneum, dissection around the right adrenal gland and kidney was done. The linear metallic foreign body was embedded in the right retroperitoneal space, penetrating the crus of the diaphragm without significant peri-lesional inflammatory change (FIGURE 3). We removed 2 pieces of slightly corroded broken needles via forceps (FIGURE 4). The operation time was about 50 minutes and there were only three 10 mm incisions in the left abdomen region.

FIGURE 1. A simple chest X-ray showed a needle-shaped foreign object near the T12 vertebra body (white arrow).

FIGURE 2. A thoracolumbar spine computerized tomography scan showed a linear acicular structure with high density in the right retroperitoneal space (white arrows). (A) Sagittal view. (B) Axial view.
A simple lumbar spine x-ray and CT were performed to confirm that the broken needle was removed completely. The patient recovered normal activity one day after surgery and was discharged with no complications or pain 5 days after the surgery.

DISCUSSION

Acupuncture is used for pain control, increasing blood supply, or other medical problems. Although it is known to be an uncomplicated procedure, adverse effects such as organ injuries, tissue injuries, and nerve injuries have been reported in up to 18.7% of clinical acupuncture procedures.\(^6\) In addition, broken needle cases have been very rarely reported.\(^5,7\) Complications caused by broken needles have been fairly minor and techniques to treat the complication of acupuncture needles broken in the body are seldom reported.\(^5,7\) There were 11 reports (15 cases) including ours, of broken needle cases in a literature review from 1980 to 2019 (TABLE 1).

Depending on the anatomical location of the broken needle, treatment methods in each case also varied. Kim et al.\(^6\) reported 5 cases of broken acupuncture needles that migrated to the pleural cavity or lung parenchyma via thoracotomy or video-assisted thoracoscopic surgery (VATS). Four patients with empyema and one patient with adhesion and pleural effusion recovered after surgical removal. Kang\(^6\) reported a case of the removal of a long broken acupuncture needle (length: 7.3 cm) in the abdomen near a vertebral body by open surgical exploration.\(^9\) Due to epigastric discomfort after eating, the patient was discharged 27 days after the operation. In the case of Liu et al.,\(^7\) the broken acupuncture needle in

FIGURE 3. Intraoperative laparoscopic view. (A) Two pieces of corroded broken needles between the adrenal gland and the crus of the diaphragm. (B) Removing a needle with forceps.

FIGURE 4. Two corroded broken needles.
The retroperitoneum was removed by laparoscopy, and the patient was discharged on the second day after surgery without perioperative complication. Fang et al.\(^2\) reported a case of a broken acupuncture needle in the posterior neck. They used a syringe needle for guidance and removed the broken acupuncture needle with a small skin incision. The patient was discharged uneventfully 3 days later. In short, 3 cases were treated with thoracotomy, 2 cases with VATS, 2 cases with laparoscopy, and 3 cases with immediate removal.

In this case, the patient’s stinging pain occurred irrespective of posture. We assumed that the broken needle which was placed in the right retroperitoneal space was irritating the crus of the diaphragm and was causing pain every time she breathed. When we first found foreign materials near the T12 body, we considered open spinal surgery to remove them. However, the tips of the needles were too deep in the right retroperitoneum, and open spinal surgery could be very invasive and cause possible complications.

We consulted with the laparoscopic surgeon because the tips of the needles were placed too deeply in the right retroperitoneum and he agreed that removing them via open spinal surgery could be dangerous. As a result, he removed the broken needle without difficulty by laparoscopy and he eased our concerns with an excellent outcome.

**CONCLUSION**

When a patient complains of aggravated pain after an acupuncture procedure is performed, a broken needle in the body should be considered. If a broken needle is discovered in the abdominal deep portion, laparoscopic surgery can be a good option. We report a case of the removal of a broken needle in the retroperitoneal space by laparoscopy.

**REFERENCES**

1. Cheng RS. One case about broken needle caused by wrist-ankle acupuncture. *Shanghai J Acupunct Moxibustion* 29:463, 2010
2. Fang X, Tian Z, Xie B, Guo H. Removal of an acupuncture needle accidentally broken in the neck. *Asian J Surg* 42:582-583, 2019

3. Wang HF. One case of sticking and damage of needles in acupuncture treatment of trauma patient. *J Clin Acupunct Moxibustion* 16:42, 2000

4. Geng JQ. A case about successful rescue of acute pericardial tamponade caused by acupuncturing coronary artery. *J Clin Cardiol* 21:392, 2005

5. Kang J. Long acupuncture needle broken in the abdomen. *Acupunct Med* 32:370, 2014

6. Kim DH, Kim SC, Youn HC. Surgical treatment for intra-thoracic migration of acupuncture needles. *J Korean Med Sci* 27:281-284, 2012

7. Liu ZH, Wang HD, Xu X, Man LB. Removal of a broken acupuncture needle in retroperitoneum by laparoscopy: a case report. *BMC Surg* 19:102, 2019

8. Lu YD, Teng QS. A case about hemopneumothorax caused by breaking needle in the chest during acupuncture. *Jie Fang Jun Yi Xue Za Zhi* 19:article381, 1994

9. Quan SS. A case of metal foreign body in the heart. *J Med Sci Yanbian Univ* 31:304, 2008

10. Liu WH, Yu GX. A case about pulmonary bulla caused by acupuncture. *Zhongguo Zhen Jiu* 30:674, 2010

11. Wu J, Hu Y, Zhu Y, Yin P, Litscher G, Xu S. Systematic review of adverse effects: a further step towards modernization of acupuncture in China. *Evid Based Complement Alternat Med* 2015:432467, 2015

12. Yang YD. Clinical examples of adverse events of acupuncture. *Shanxi J Tradit Chin Med* 7:319, 1986