



Case Report

Ureteral calculi secondary to a gradually migrated acupuncture needle

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Flexible transurethral
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Abstract We herein presented a case of calculi secondary to a migrated acupuncture needle. A 74-year-old woman with a history of acupuncture therapy for lumbago was referred to our hospital for treatment of ureteral and renal pelvic calculi. Abdominal multi-detector computed tomography scans showed ipsilateral hydronephrosis and two calculi secondary to a migrated acupuncture needle. First, a percutaneous nephrolithotomy was performed to extract two calculi and fine needle fragments from the pelvis. Subsequently, residual needle fragments and calculi in the ureter were then removed by flexible transurethral lithotripsy using a holmium laser. In the present case, the formation of the calculi was caused by a migrated acupuncture needle. Calculi and needle fragments were removed safely endoscopically because the whole calculi and needle fragments were located in the ureteral lumen.

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1. Introduction

Acupuncture is a conventional oriental medical treatment for various disorders and is performed in both eastern and non-eastern countries. However, it can cause not only technical complications such as infection [1] and bleeding

[2,3], but also late complications associated with remaining needle or fragments that have migrated [4].

We reported a rare case of ureteral calculi secondary to an acupuncture needle that had migrated into the upper urinary tract, both of which could be removed successfully by endoscopic approach.

2. Case history

A 74-year-old woman was referred to our department for the treatment of ureteral and renal pelvic calculi. Although

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she had no clinical symptoms or complaints, a post-operative abdominal computed tomography (CT) scan following treatment of gastric cancer showed ipsilateral hydronephrosis and two calculi measuring 6 mm and 15 mm in diameter in the left renal pelvis and ureter, respectively. Physical examination, blood tests, urinalysis, and urine cultures were all unremarkable, and there was no administration (e.g., steroids or calcium compounds) that could have led to formation of a urinary calculus. Approximately 10 years earlier, she had undergone acupuncture therapy for the treatment of lumbago.

A CT and X-ray identified two calculi (Fig. 1A, red arrows and Fig. 1B) which were connected by an unnatural bridge like structure, and buried acupuncture needles primarily in the lumbar region were observed (Fig. 1A, white arrows). To confirm the time of calculi formation, we reviewed her previous image data. A CT scan taken 3 years prior showed a left renal calculus with a conjoined acupuncture needle in the left renal pelvis (Fig. 2A, red arrow) and many embedded acupuncture needle fragments (Fig. 2A, white arrow). Moreover, a coronal CT scan taken 5 years prior indicated that an acupuncture needle had migrated to the left renal parenchyma, and a faint renal calculus was observed at the top of the needle (Fig. 2B, red arrow). Therefore, we suspected that the ureteral calculi were due to an acupuncture needle that had gradually migrated into the renal parenchyma.

First, a percutaneous nephrolithotomy using 22 Fr rigid nephroscope and holmium laser was performed to extract some calculi and fine needle fragments from the pelvis. Path dilation was performed with NephroMax™ (Boston Scientific, Natick, NA, USA) until 30 Fr. This is because the relatively big ureteral calculus was near renal pelvis and we would try to extract two calculi with one treatment by pulling out the conjoined calculi. We could extract the renal calculus safely, however, the ureteral calculus was impacted to the wall and the mucosa was so edematous that we were unable to insert a fine guide wire through the ureter and subsequently could not observe the stone even if using a flexible ureteroscope. Therefore, we stopped the procedure after one stone was extracted. After 2 weeks we selected the ureteral approach for a second procedure. As edema of the ureteral mucosa was released, we were able to observe and approach the larger stone using a flexible ureteroscope. Residual fragments of needle and calculi in

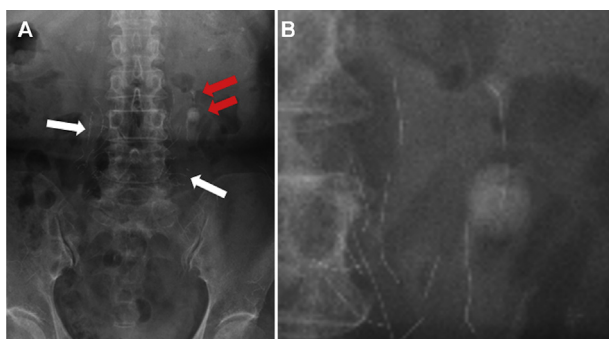


Figure 1 CT and X-ray results. (A) X-ray showing two calculi (red arrows) and many embedded needle fragments (white arrows) in the lumbar region; (B) A larger image of the stones and needle fragments.

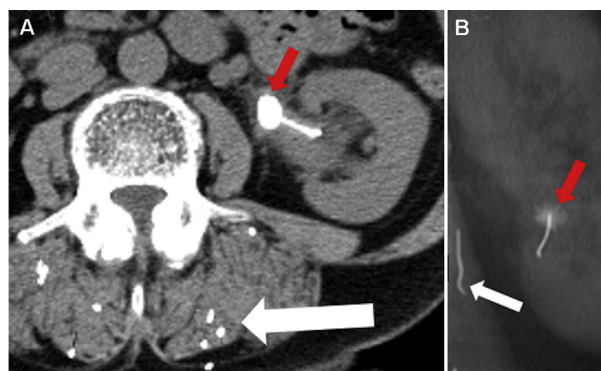


Figure 2 CT scan results. (A) Abdominal computed tomography (CT) scan taken 3 years prior showing calculus with the needle (red arrow) and many needle fragments (white arrow); (B) Coronal CT scan taken 5 years prior showing the faintly formed calculus with the needle (red arrow) and an embedded needle fragment (white arrow).

the ureter were then removed by flexible transurethral lithotripsy using a holmium laser (Fig. 3). The calculi were composed of 95% calcium oxalate (Fig. 3). Since the procedure, the patient has been calculi free as of the last follow-up at 6 months.

3. Discussion

Acupuncture is a traditional treatment same as Chinese herbs in China and commonly used to manage lower back pain and as an alternative therapy performed to alleviate various diseases and symptoms, such as not only pain relief but also chemotherapy-induced nausea/vomiting and idiopathic headache [5]. Although acupuncture is a safe procedure in the hands of a competent practitioner, it can be associated with several complications [1–4]. It is reported that the most frequent adverse events are pneumothorax and infection [6]. However, there are few reports of adverse events related with urinary tracts [7].

There have been few independent reports of a foreign body located in the upper urinary tract. Yuzawa et al. [7] reviewed 49 cases of foreign bodies detected in the upper urinary tract, with the first case being published in 1936. Most of them were embedded acupuncture needles or surgical sutures. Though a calculus around a metal clip as a foreign body after a laparoscopic pyeloplasty was reported [8], there

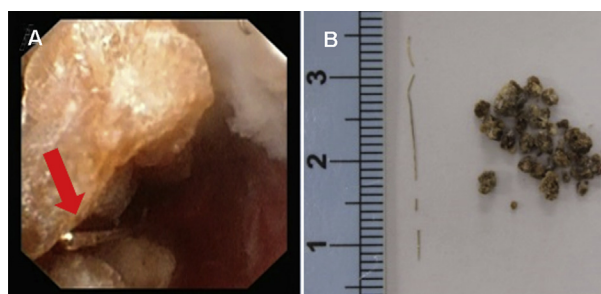


Figure 3 Flexible ureteroscopy results. (A) Ureteroscopy showing the calculi fragments and a fine needle (red arrow); (B) Removed fine needle fragments and calculi.

have since been no recent reports of urinary stones that were associated with an acupuncture needle in the upper urinary tract. Furthermore, migration of remaining needles into several organs has also been reported as late complications. Therefore, when we examine a patient with urolithiasis who has previously received acupuncture therapy, it may be necessary to pay attention to calculus formation that may have occurred due to needle migration.

In our case report, the main calculi with an acupuncture needle were located near to the left renal pelvis. Therefore, at first a percutaneous nephrolithotomy was performed. However, because there were residual needle fragments and calculi discovered in the left ureter after the first procedure, we tried to extract them by flexible transurethral lithotripsy as a second procedure. Both were removed safely endoscopically because the whole calculi and all needle fragments were located in the urinary tract.

4. Conclusion

We report a rare case of ureteral calculi secondary to an acupuncture needle that had migrated into the upper urinary tract, both of which could be removed successfully by endoscopic approach.

Author contributions

Study design: Masahiro Matsuki, Atsushi Wanifuchi, Ryuta Inoue, Fumiyasu Takei, Yasuharu Kunishima.

Data acquisition: Masahiro Matsuki, Ryuta Inoue.

Data analysis: Masahiro Matsuki.

Drafting of manuscript: Masahiro Matsuki.

Critical revision of the manuscript: Yasuharu Kunishima.

Conflicts of interest

The authors declare no conflict of interest.

References

- [1] Rempel S, Murti M, Buxton JA, Stephens W, Watterson M, Andonov A, et al. Outbreak of acute hepatitis B virus infection associated with exposure to acupuncture. *Can Commun Dis Rep* 2016;42:169–72.
- [2] Domenicucci M, Marruzzo D, Pesce A, Raco A, Missori P. Acute spinal epidural hematoma after acupuncture: personal case and literature review. *World Neurosurg* 2017;102:e11–4. <https://doi.org/10.1016/j.wneu.2017.03.125>.
- [3] Chun KJ, Lee SG, Son BS, Kim DH. Life-threatening cardiac tamponade: a rare complication of acupuncture. *J Cardiothorac Surg* 2014;31:61. <https://doi.org/10.1186/1749-8090-9-61>.
- [4] Lewek P, Lewek J, Kardas P. An acupuncture needle remaining in a lung for 17 years: case study and review. *Acupunct Med* 2012;30:229–32.
- [5] Ernst E. Acupuncture: what does the most reliable evidence tell us? *J pain Symptom Manage* 2009;37:709–14.
- [6] White A. [A cumulative review of the range and incidence of significant adverse events associated with acupuncture]. *Acupunct Med* 2004;22:122–33. [Article in Japanese].
- [7] Yuzawa M, Hara Y, Kobayashi Y, Ishiyama S, Tozuka K, Nakamura S, et al. Foreign body stone of the ureter as a complication of acupuncture: report of a case. *Hinyokika Kyo* 1991;37:1323–7.
- [8] Minamida S, Iwamura M, Soh S, Sasamoto H, Ishikawa W, Kurosaka S, et al. [Spontaneous migration of a metal clip into renal pelvis after laparoscopic pyeloplasty: a case report]. *Nihon Hinyokika Gakkai Zasshi* 2007;98:835–8. [Article in Japanese].