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Removing a large sewing needle from the left kidney parenchyma using laparoscopic technique: A case report

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ABSTRACT

We present case of left flank pain and a large sewing needle in the left kidney of a 34-year-old man, which was later removed using laparoscopic approach. To the best of our knowledge, our case appears to be the second case of its kind successfully treated using laparoscopic approach.

Introduction

Foreign bodies in the kidney are a rare condition and the most common etiology for foreign bodies in the kidney is brought about by external violence. Numerous varied approaches have been described and proposed for the management of these foreign bodies. In our case, we successfully used transperitoneal laparoscopic approach for removing the sewing needle from the inside of the kidney.

Presentation of case

A 34-year-old man was referred to our center complaining of left flank pain for two months duration. The pain did not accompany other symptoms such as hematuria. The patient was evaluated using ultrasound examination in which a 6 mm calculus was reported in the left renal middle calyx. In KUB, a foreign body resembling a needle (5 cm long) was detected in the left kidney (Fig. 1). The patient did not mention or recall any previous history of abdominal or urinary tract surgeries. Neither did he recall ingestion of any foreign bodies. He only reported a left varicocelectomy about 12 years ago. Routine blood tests and urinalysis were within normal ranges and with no significant findings. Plain CT scan of the abdomen and pelvis was performed, which revealed the presence of a 5 mm calculus in the middle pole of the left kidney and a thin needle-like foreign body in the middle and upper poles of the left kidney (Fig. 2). The patient was scheduled for laparoscopic surgery and later underwent operation by transperitoneal approach in left flank position. Two 10 mm ports (one in midline and one in mid-clavicular line) and two 5 mm ports (one in mid-clavicular and one in anterior axillary line) were inserted. After cutting the Toldt line in the left side, we entered the retroperitoneal space, and the kidney was exposed opening the Gerota's fascia. The upper part of the kidney was separated from the spleen. At the first steps we could not be able to find the foreign body but finally the tip of foreign body was hardly observed among the fibrotic scaring tissue of the upper pole of the left kidney (Fig. 3). Due to severe adhesion of needle to the scaring renal tissues, we performed a gentle dissection in renal parenchyma and finally removed the needle out. The object was a metal sewing needle (5 cm long). The needle location was monitored for bleeding and the dissection area in renal paranchyma was closed by two stitches. No further complication was observed and the patient was discharged on the third postoperative day.

Discussion

Presence of foreign bodies in the upper urinary system is rare. They can reach the kidneys through four routes: 1. through the skin following trauma; 2. through the urethra, bladder and ureter; 3. through digestive system following ingestion; 4. Iatrogenic in the course of an operation.[1] In a study conducted by Osmond et al., the most common way to be affected by foreign bodies in kidneys might be through accidents including bullets, shells, needles and fragments from the explosion. Accordingly, the second reported most common cause was swallowing; almost in all reported cases, the duodenum was perforated in the second part during the passage of the foreign body and later entered the right renal system.[1] In our patient, it remained unclear how the foreign body entered the left kidney. Foreign bodies can cause infections or act as nuclei to form renal calculi or mimic symptoms of kidney stone or malignancy with or without hematuria,[2] which was also the same in our

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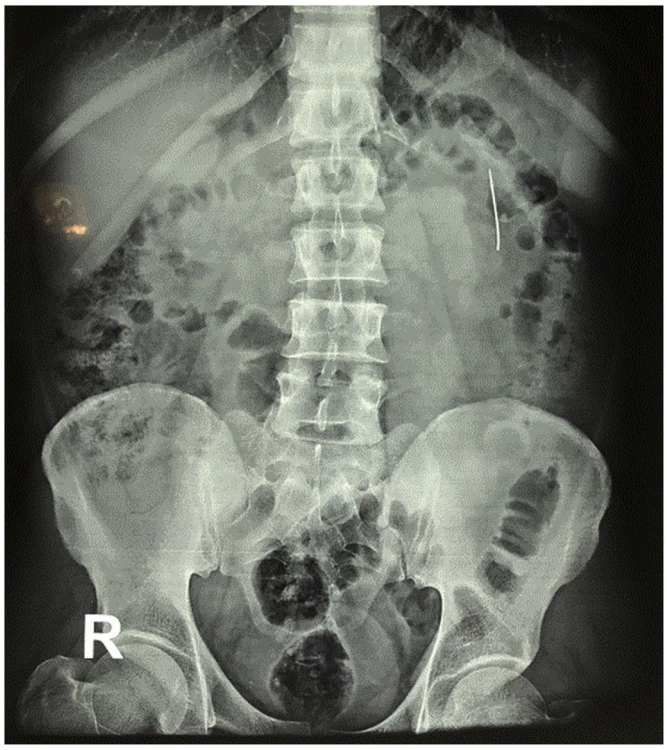

Fig. 1. Plain X Ray showed a linear radio-opaque shadow in the left kidney.

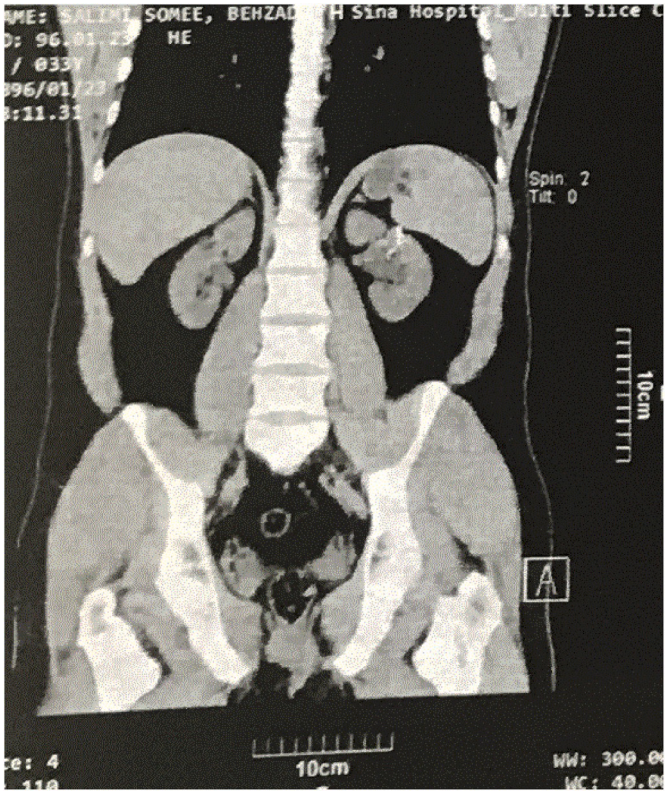

Fig. 2. Non contrast CT scan showed a needle like object in the upper pole of left kidney.

patient. The methods of removing these foreign bodies depend on the anatomical position of the foreign body, its shape, size and mobility. Various methods have been reported for the approach to the foreign body of the kidney including open surgery, and endoscopic, laparoscopic and percutaneous nephrostomy. If a conservative surgery is not feasible for the removal of the foreign body, partial or complete

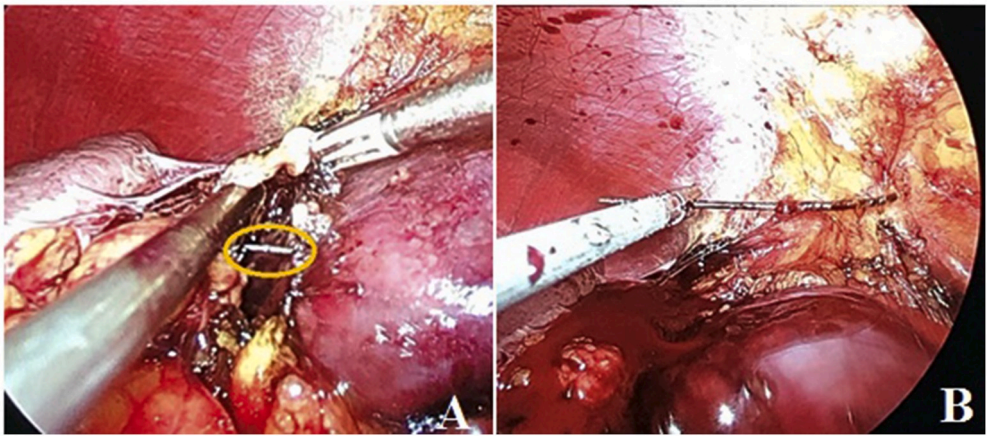

Fig. 3. (A) The tip of the needle was seen out of the kidney. (B) Foreign body extracted from kidney.

nephrectomy should be performed.[3] If the foreign bodies are inside the collecting system, they can be removed using endoscopic ante-grade and retrograde techniques.[2] Laparoscopy is currently considered as the best option for abdominal and retroperitoneal investigation and its use for removing foreign bodies of the digestive system and peritoneal cavity is recommended broadly in the literature. Nevertheless, while reviewing the literature, we found only one report of removing the kidney's foreign body using laparoscopy, in which laparoscopy was used to remove a swallowed electrical wire from the left kidney of the patient.[4] To the best of our knowledge, our case is the first case of large sewing needle in the left kidney that was removed using laparoscopic technique.

Conclusion

Laparoscopy is a safe, minimally-invasive and acceptable surgical approach for many procedures. Considering the successful surgical outcomes and accelerated recovery, laparoscopy might be considered as a golden standard for the detection and extraction of foreign bodies in both peritoneal and retroperitoneal cavities.

Author disclosure statement

The authors declare no potential conflict of interest.

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