A rare case of unusual migrated foreign bodies in kidney and their successful extraction using retrograde percutaneous nephrostomy

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ABSTRACT

Foreign body ingestion is a common presentation in the emergency room and most cases are without any major symptoms, or go unnoticed and later cause severe complications that can potentially threaten patient life. We report a case of multiple migrated metallic foreign bodies in the right kidney presenting as right renal colic and gross haematuria one year after its accidental ingestion, treated successfully with retrograde percutaneous nephrostomy.

Keywords: foreign body, percutaneous, retrograde, nephrostomy

INTRODUCTION

The development of endourological techniques has expanded the ability of urologists to treat many intrarenal disorders. Accidentally ingested foreign bodies and their subsequent migration out of the gastrointestinal tract can generate serious complications depending on the anatomical location and type of foreign body.¹,² The approach to the patient must start with a complete and detailed clinical history plus a physiological assessment to corroborate the patient's symptomatology and to identify the clinical scenario. Imaging can be of great assistance to locate foreign bodies, reveal complications, confirm diagnosis and suggest therapeutic options such as endoscopy or more invasive interventions such as open surgery.³,⁴,⁵ We report a rare case of metallic foreign bodies located in the renal collecting systems that is likely to have migrated from the gastrointestinal tract. Successful extraction was achieved by the retrograde percutaneous nephrostomy (RPCN) technique.
CASE REPORT

A 20-year-old male was admitted to the urology department with history of gross haematuria and colicky right loin pain for a period of about three weeks. Past medical history revealed a history of hospitalisation in the surgical ward for acute abdominal pain one year prior. Radiological report of abdominal computed tomography (CT) in the patient’s previous admission file reported some linear metallic foreign bodies just outside the duodenum. Unfortunately he had lost all his diagnostic images from that time. On detailed questioning, the patient admitted history of hospitalisation for pain in the abdomen following accidental ingestion of metallic objects which might have been mixed with minced meat of a kebab. He was advised to undergo laparoscopy/laparotomy to identify and extract the foreign body, but refused any surgical intervention at that time and requested only medical management. He was managed with simple analgesia and antibiotics and was discharged home after a few days of observation in the hospital.

Investigations during his admission to the urology department revealed evidence of multiple linear metallic foreign bodies occupying the right renal pelvis, partly extending into the adjacent renal parenchyma (Figures 1 & 2).

Haematology and biochemistry laboratory investigations were within normal limits except urine analysis which revealed many red blood cells (RBC), but urine culture was negative for any microorganism. The patient was later subjected to cystoscopy with right retrograde pyelogram (RGP) which showed two metallic objects in the right renal pelvis partially encroaching into the adjacent parenchyma (Figure 3). Retrograde nephrostomy using Lawson’s technique was performed through the middle posterior calyx and the nephrostomy tract was then dilated up to 32F in an antegrade approach. Nephroscopy revealed three encrusted metallic foreign bodies of varying sizes in the renal pelvis, partially embedded in the parenchyma. All the three foreign bodies were removed in toto and a nephrostomy was placed which was removed on
the second postoperative day (Figure 4). The postoperative course was uneventful and the patient was discharged home after a week. On subsequent follow up visits, he did not report any symptoms.

**DISCUSSION**

Most cases of foreign body ingestion is accidental, although it may be linked to physiological, anatomical, mechanical, and psychosocial factors. About 90 percent of foreign bodies pass through the gastrointestinal tract without any major problem. Reports suggest that only 1 percent of these cases present with some kind of associated complication such as laceration, impaction, obstruction, perforation with peritonitis, and rarely migration to the adjacent organs\(^6,7\). The duodenum was found to be the most common site of perforation due to its anatomical structure\(^6\). Migratory foreign bodies in the kidney are very rare and the most common route is through the gastrointestinal tract (GIT). Case reports of migration of foreign bodies with sharp ends such as fish bones, needles, pins, hair grips, tooth picks etc., from the GIT to renal parenchyma has been reported in the literature\(^8\). Foreign bodies in the kidney can present as a nidus for infection or stone formation, or may mimic a renal neoplasm and present with typical renal colic with or without gross haematuria\(^9\) as in our case. Urinary tract infection is usually caused by urea-splitting organisms which lead to the formation of struvite stones. For this reason, these objects should be removed from the kidney especially if symptomatic\(^10\).

Methods for extraction of such foreign bodies depend on the anatomical location, size, shape and mobility of the object\(^11\). Surgical approach for such foreign bodies can be open, endoscopy, antegrade and retrograde percutaneous nephrostomy. Traditional techniques involve open surgery that often requires partial or simple nephrectomy\(^12\). However, with recent advances in endoscopic and imaging techniques, such foreign bodies can be safely removed by antegrade percutaneous nephrostomy as previously reported in the literature\(^13,14\). Use of the antegrade technique is very challenging especially when the collecting system in the kidney is not dilated. The novelty in our case is that we used a retrograde approach for safe and successful removal of these foreign bodies. Cystourethroscopy was considered but no foreign body was visible to the endoscopist. As the renal collecting systems were not dilated for antegrade approach, retrograde percutaneous nephrostomy was chosen as the first line approach and open nephrostomy as a rescue technique. We chose to use the retrograde technique as it can be safely and easily used in a non-dilated collecting system, there is less risk of bleeding and infection, it provides comfortable patient positioning and there is less risk of radiation in comparison to the antegrade nephrostomy technique.

Figure 3. Retrograde pyelogram image showing foreign bodies in the right renal pelvis.

Figure 4. The extracted foreign bodies.
CONCLUSION

Foreign bodies migrating from the gastrointestinal tract to the kidneys is very rare and usually causes symptoms over time and should be removed.

Retrograde percutaneous nephrostomy should be considered as it is a safe and alternative option for extraction of such foreign bodies.

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