

CASE REPORT

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

Surjya Prasad Upadhyay<sup>1,2</sup>, Mohammad Zahir<sup>3</sup>, Hasan Al Muttari<sup>3</sup>, Piyush N Mallick<sup>1</sup>

Address for Correspondence:

**Surjya Prasad Upadhyay**

<sup>1</sup>Department of Anaesthesiology and Critical Care, Al Jahra Hospital, Ministry of Health, Kuwait

<sup>2</sup>Department of Anaesthesiology, NMC Speciality Hospital, Dubai, United Arab Emirates

<sup>3</sup>Department of Urology, Al Jahra Hospital, Ministry of Health, Kuwait

Email: run77in@yahoo.com

<http://dx.doi.org/10.5339/qmj.2015.7>

Submitted: 11 February 2015

Accepted: 7 May 2015

© 2015 Upadhyay, Zahir, Al Muttari, Mallick, licensee Bloomsbury Qatar Foundation Journals. This is an open access article distributed under the terms of the Creative Commons Attribution license CC BY 4.0, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

Cite this article as: Upadhyay SP, Zahir M, Al Muttari H, Mallick PN. A rare case of unusual migrated foreign bodies in kidney and their successful extraction using retrograde percutaneous nephrostomy, Qatar Medical Journal 2015;7 <http://dx.doi.org/10.5339/qmj.2015.7>

## 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.<sup>(1,2)</sup> 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<sup>(3,4,5)</sup>. 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.



**Figure 1. Abdominal x-ray showing foreign bodies in the renal area.**

## 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



**Figure 2. Reconstructed CT image showing foreign bodies in the right kidney.**



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

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<sup>(6,7)</sup>. The duodenum was found to be the most common site of perforation due to its anatomical structure<sup>(6)</sup>. 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<sup>(8)</sup>. 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<sup>(9)</sup> 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.<sup>(10)</sup>

Methods for extraction of such foreign bodies depend on the anatomical location, size, shape and mobility of the object.<sup>(11)</sup> Surgical approach for such foreign bodies can be open, endouroscopy, antegrade and retrograde percutaneous nephrostomy. Traditional techniques involve open surgery that often requires partial or simple nephrectomy.<sup>(12)</sup> 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.<sup>(13,14)</sup> 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 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.

## REFERENCES

- Mitnik M, Weil WB, Wolfson SL, Drummond CD. Renal foreign bodies. Unusual cause of hematuria and pyuria. *Clinical Pediatric*. 1969;8(5):281 – 281.
- Mackby MJ. Foreign body in the second portion of duodenum perforating pelvis of right kidney. *J. Mt. Sinai Hosp. N Y*. 1948;14:929 – 930.
- Nelson OA, Kertz AW, McCormack JL, Docter JM, Douglass CW. A bobby pin in the renal pelvis. *J Urol*. 1953;69(5):618 – 620.
- Senger FL. Case report of a wooden toothpick found in the renal pelvis at operation. *J Urol*. 1933;30:75.
- Macaulay D, Moore T. A foreign body in the kidney. *BMJ*. 1955;1:205 – 206.
- Arango LAA, Sierra LPL, Guitierrez DCM, Grisales MJ. Incidental foreign body in the gastrointestinal tract. Report of three cases and literature review. *Revista Colombiana de Gastroenterologia*. 2011;26(4):308 – 318.
- van Ophoven A, deKernion JB. Clinical management of foreign bodies of the genitourinary tract. *J Urol*. 2000;164(2):274 – 287.
- John Osmond D (Jr). Foreign Bodies in the Kidney: A Review of the Literature and Reports of Four Additional Cases. *Radiology*. 1953;60(3):375 – 382.
- Eisberg ML, Lee KL, Stoller ML. Endoscopic management of retained renal foreign bodies. *Urology*. 2009;73:1189 – 1194.
- Matsouka K, Nakagawa K, Eto K. A case history of foreign body stone in the urinary bladder. *Kurume Med J*. 1988;35:123 – 125.
- Rahman NU, Elliot SP, McAninch JW. Self-inflicted male urethral foreign body insertion: endoscopic management and complications. *BJU Int*. 2004;94:1051 – 1053.
- Baird JM, Spence HM. Ingested foreign bodies migrating to the kidney from the gastrointestinal tract. *J Urol*. 1968;99:675.
- Davis BE, Lierz MF, Noble MJ. Percutaneous Removal of Metal Foreign Body from Renal Hilar Soft Tissue: Case Report. *Journal of Endourology*. 1990;4(4):379 – 38.
- Naeem I, Masood J, Bucholz N. Percutaneous nephrolithotomy for removal of a calcified intra-renal artillery shell fragment. *JR Army Med Corps*. 2009;155(1):30 – 31.