



Laparoscopic Retrieval of a 13-Year-Old Retained Iatrogenic Metallic Foreign Body from the Pelvis: An Uncommon Case Report

Deepak Rajput, MS¹ Amit Gupta, FRCS¹ Sruthi Shasheendran, MS² Rishit Mani, MS³
Amoli Tandon, MBBS¹ Shyam Karuppusamy Krishnasamy, MS¹ Rohik Anjum T. Siddeek, MS¹
Krishna Sai Bhukya, MBBS¹ Sanketh Edem, MBBS¹

¹Department of General Surgery, All India Institute of Medical Sciences Rishikesh, Dehradun, Uttarakhand, India

²Department of General Surgery, University College of Medical Sciences, Delhi, India

³Department of General Surgery, All India Institute of Medical Sciences Patna, Bihar, India

Address for correspondence Deepak Rajput, Department of General Surgery, All India Institute of Medical Sciences Rishikesh, Level 6, Medical College Block, Dehradun, Uttarakhand 249203, India (e-mail: deepakrajputsjh@gmail.com).

Surg J (NY) 2023;9:e62–e66.

Abstract

Retained surgical foreign bodies are unanticipated events culminating from inadvertent operating room errors and may cause severe medical and legal problems between the patient and the doctor. Here, we report detecting a surgical instrument fragment 13 years after an open abdominal hysterectomy in a quadragenarian during her evaluation of a month-old complaint of lower abdominal and right thigh pain. A computed tomography scan of the abdomen demonstrated a radio-opaque linear foreign body traversing the right obturator foramen with extension into the pelvis cranially and the adductor compartment of the right thigh caudally. The metallic foreign body, identified as a fragmented handle of a uterine tenaculum forceps with a slender sharp-tip hook, could be removed laparoscopically from the pelvis after a diagnostic laparoscopy, preventing significant complications. The minimally invasive approach enabled a smooth recovery, and the patient could go home on the second postoperative day.

Keywords

- ▶ hysterectomy
- ▶ laparoscopic removal
- ▶ retained surgical item
- ▶ case report

The Canadian Patient Safety Institute defines retained foreign body (RFB) as a patient safety incident wherein an object is inadvertently left in a body cavity or surgical wound following a procedure.¹ Commonly reported foreign bodies that are forgotten in the abdomen include mops, sponges, pieces of broken instruments or irrigating sets, rubber tubes, guide wires, sharp objects such as needles, and malleable retractors.² Usually brought to notice by media companies, the cases involving RFB are rarely published as they may cause legal issues and defame the institute or practitioner. It makes health care workers hesitate to report errors for fear of

losing their jobs or fear of some other form of reprisal. The symptoms are usually nonspecific, and some patients remain asymptomatic and are never discovered or documented. This report presents a rare case of a retained metallic foreign body showing after 13 years following an abdominal hysterectomy.

Case Report

A 42-year-old married female came to the general surgery outpatient department with pain in the right lower abdomen

received
September 26, 2021
accepted after revision
December 6, 2022

DOI <https://doi.org/10.1055/s-0043-1764124>.
ISSN 2378-5128.

© 2023. The Author(s).
This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited. (<https://creativecommons.org/licenses/by/4.0/>)
Thieme Medical Publishers, Inc., 333 Seventh Avenue, 18th Floor, New York, NY 10001, USA

and anterior aspect of the right thigh over 1 month. She described the pain as continuous, sharp, and nonradiating that exacerbated with the movements of the right lower limb. She, otherwise, denied any history of trauma, any chronic illness, or alteration in bowel and bladder habits. On further questioning, it was revealed that she had undergone an open abdominal hysterectomy 13 years back for menorrhagia with an uneventful postoperative period. Clinical examination revealed a suprapubic transverse scar healed by primary intention and tenderness on deep palpation in the right iliac fossa with no palpable abdominal lump. There was no neurovascular deficit in the right lower limb, and spine examination was unremarkable. Digital rectal examination, per vaginal examination, and systemic examination were unremarkable.

Laboratory values of complete hemogram, liver and renal function tests, urine, and blood sugar showed no deviation from the normal range. A pelvis roentgenogram revealed a linear radiopaque shadow with a tapering end lying obliquely over the right hemipelvis (►Fig. 1). Anticipating the foreign body as metallic, the patient underwent a contrast-enhanced computed tomography with angiography of the abdomen and pelvis, which demonstrated a metallic attenuation foreign body in the intermuscular plane of the adductor compartment of the right thigh, traversing the right obturator foramen with its tip lying at S1–2 vertebral level adjacent to the ileal loops (►Fig. 2). A three-dimensional reconstruction showed the upper half of the foreign body in proximity to external iliac vessels with no impingement.

We proceeded with a diagnostic laparoscopy using a three-port position employed in transabdominal preperito-

neal inguinal hernia repair. The ileal loops have adhered in the pelvis below the right medial umbilical ligament. A careful adhesiolysis revealed a metallic foreign body in the region of the right obturator foramen (►Fig. 3), which was extracted through the right-sided 10 mm port. The RFB was identified as a 5-inch long fragment of the uterine tenaculum hook used in gynecological surgeries to manipulate the cervix (►Fig. 4). The right thigh pain subsided on the same day following retrieval of the instrument. At the same time, the abdominal pain persisted for another 24 hours. The patient was sent home on the second postoperative day following an uneventful postoperative course. On long-term follow-up after 1.5 years, patient was doing her routine activities without any discomfort.

Discussion

Retained sponges and instruments (RSIs) following surgical procedures present a unique problem for the surgeon. In most cases, the surgeon is held responsible for the errors of other members of the surgical team. This is the responsibility not only of the surgeon, but of the assistant(s) and operating theater nurses as well.³ The nature of retained object varies from sponges to sharp and blunt instruments, needles, and threads. The clinical presentation ranges from an incidental finding on routine radiological evaluation to catastrophic complications depending on the type of foreign body reaction. The first type of bodily reaction is an aseptic fibrous response, which results in the formation of a granuloma, which can later be calcified and decomposed. The second is an inflammatory response that causes an abscess.⁴



Fig. 1 X-ray pelvis showing a linear radio-opaque shadow in the right hemipelvis.

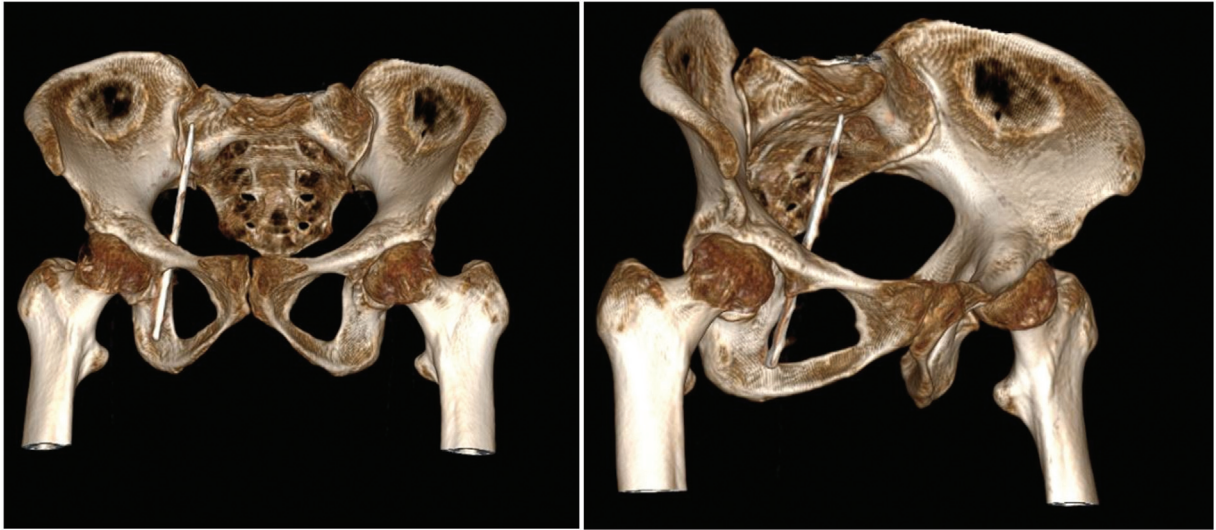


Fig. 2 Reconstructed image from a tomography scan of the pelvis demonstrating an obliquely placed foreign body, with metallic attenuation, traversing through the right obturator foramen and tip at S1-2 vertebral level.



Fig. 3 Laparoscopic view of the superior part of the foreign body that was hidden behind the adhered ileal loops.



Fig. 4 Retrieved linear metallic foreign body that had a slender sharp-tip hook, and was identified as one of the handles of uterine tenaculum forceps.

It has been estimated that one case of a retained item postsurgery occurs at least once a year in any hospital where 8,000 to 18,000 major procedures are performed annually. Studies evaluating RSI rates showed sponges accounted for the bulk of retained objects (69%) compared with instruments (31%). The abdomen, pelvis, vagina, and thorax accounted for common sites of RSI in decreasing order of incidence.⁴ The time interval for detection varied from the operating room, the immediate postoperative period to several years following the procedure. In this case report the retained object remained undetected for a period of 13 years following the surgery. In the body's attempt to expel the RSI from the abdominal cavity, a myriad of presentations including bowel perforation, formation of fistulas, and intestinal obstruction (10–22%) can occur that may be fatal (0–2%).^{5,6} Documents of primary surgery were unavailable and the surgeon could not be contacted. Patient was operated 13 years back when Surgical Safety Checklist published by the World Health Organization (WHO) had just been released and was coming into action in most centers but not all (**→Supplementary Material S1**, online only). The possibility of this object being retained is that it was a part of another instrument and there is a possibility that the instrument broke during an unexpected torrential bleed and in an emergency setting went unnoticed by the surgeon. Patient had no postoperative complication hence the foreign body went unrecognized for 13 years.

Several etiological factors which could increase the operating room errors have been explored. These include open emergency surgery, long duration procedures, higher estimated blood loss, “after hours” surgery, change of surgical and nursing team during the procedure, and unanticipated or unplanned changes during the surgery.^{7,8} Owing to the iatrogenic nature of the adverse event, several interventions to reduce this operating room error have been explored. The Surgical Safety Checklist published by the WHO in 2008 had provided the most promising results in preventing and reducing such errors. A 36% decrease in postoperative complications and mortality rates were observed on strict adherence to the checklist.⁹ A meticulous manual mop and instrument count comprising single and dual count before and after the surgery respectively greatly reduced the chance of discrepancy in the counts. Novel methods combining technological advances with conventional counting systems like bar coding surgical sponges and radiofrequency detection system have showed promising results upon primary evaluation.¹⁰

Conclusion

Iatrogenic foreign bodies are avoidable adverse events following any procedure. A watchful eye for patients presenting with persistent or new symptoms postoperatively can aid in early detection. In asymptomatic RFBs cases, the patient should be informed and motivated for a reoperation. Strict adherence to the surgical safety checklist, meticulously performed and cross-verified manual mop counts, and

adjuncts for verification of retained foreign objects can help reduce the incidence of RSI. A reduced RSI can help decrease patient morbidity and mortality, the excess financial burden on the health care system in terms of the additional expenses, litigations, and can reduce unforeseen complications.

Informed Consent

Written informed consent was obtained from the patient for her anonymized information and images to be published in this article.

Ethical Approval

We wrote this case report in accordance with the Declaration of Helsinki and the Institutional Ethical Committee of All India Institute of Medical Sciences Rishikesh.

Authors' Contributions

D.R. and S.S. drafted the case report. All authors were involved in the management of the patient and in the conception of the manuscript. All authors have seen and approved the final version of the manuscript being submitted and that all authors fulfill the COPE (Committee on Publication Ethics) requirements for authorship.

Prior Presentation

None.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Conflict of Interest

The author(s) declare no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

Acknowledgments

We are grateful to the patient for sharing the X-ray and CT films that were done outside.

References

- 1 Canadian Patient Safety Institute (CPSI). Retained Foreign Body. Published 2020. Accessed December 28, 2022, at: <https://www.patientsafetyinstitute.ca/en/toolsResources/Hospital-Harm-Measure/Improvement-Resources/Retained%20Foreign%20Body-Introduction/Pages/default.aspx>
- 2 Greenberg CC, Regenbogen SE, Lipsitz SR, Diaz-Flores R, Gawande AA. The frequency and significance of discrepancies in the surgical count. *Ann Surg* 2008;248(02):337–341
- 3 Tumer AR, Yasti AC. Medical and legal evaluations of the retained foreign bodies in Turkey. *Leg Med (Tokyo)* 2005;7(05):311–313
- 4 Berguer R, Heller PJ. Preventing sharps injuries in the operating room. *J Am Coll Surg* 2004;199(03):462–467
- 5 Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ. Risk factors for retained instruments and sponges after surgery. *N Engl J Med* 2003;348(03):229–235
- 6 Lincourt AE, Harrell A, Cristiano J, Sechrist C, Kercher K, Heniford BT. Retained foreign bodies after surgery. *J Surg Res* 2007;138(02):170–174

- 7 Rupp CC, Kagarise MJ, Nelson SM, et al. Effectiveness of a radio-frequency detection system as an adjunct to manual counting protocols for tracking surgical sponges: a prospective trial of 2,285 patients. *J Am Coll Surg* 2012;215(04):524–533
- 8 Birolini DV, Rasslan S, Utiyama EM. Unintentionally retained foreign bodies after surgical procedures. Analysis of 4547 cases. *Rev Col Bras Cir* 2016;43(01):12–17
- 9 Haynes AB, Weiser TG, Berry WR, et al; Safe Surgery Saves Lives Study Group. A surgical safety checklist to reduce morbidity and mortality in a global population. *N Engl J Med* 2009;360(05):491–499
- 10 Greenberg CC, Diaz-Flores R, Lipsitz SR, et al. Bar-coding surgical sponges to improve safety: a randomized controlled trial. *Ann Surg* 2008;247(04):612–616