

Transumbilical single-incision laparoscopic-assisted technique for removal of ileocecal foreign body

Renzhong Zhu¹, Zhiyuan Jian¹, Hong Yu²

¹Department of Gastrointestinal Surgery, Affiliated Hospital of Guilin Medical University, Guilin, China

²Department of General Surgery, Shengjing Hospital of China Medical University, Shenyang, China

Videosurgery Miniinv 2018; 13 (2): 266–269
DOI: <https://doi.org/10.5114/wiitm.2018.73350>

Abstract

The aim of this paper is to present the case of a 40-year-old man who accidentally ingested a piece of metal. The patient complained of having intermittent right lower quadrant abdominal pain for 2 days. An abdominal X-ray was performed, and a piece of metal was found in the right lower quadrant of the abdomen. There was no gas in the abdominal cavity. Surgical treatment was therefore needed. Single-incision laparoscopic surgery (SILS) was attempted with conventional laparoscopic instruments. The foreign body was identified around the ileocecal region, an enterostomy was made and the foreign body was successfully removed. Subsequently, the incised ileocecal wall sutured. The time for this surgery was 1 h with little bleeding. The patient made a quick recovery with a good cosmetic outcome. Based on this case, the use of SILS-assisted technique in the removal of an ileocecal foreign body proves to be safe and feasible.

Key words: single-incision laparoscopic surgery, foreign body, cosmetics.

Introduction

Cases of intestinal foreign bodies are ubiquitous in the emergency room. They pose difficult management dilemmas for surgeons when deciding what method is appropriate for treatment. There are several possible surgical operations than can be performed depending on the size, shape, and location of the foreign body. These include endoscopy, laparotomy, and laparoscopic surgery. Among these, laparotomy still remains the main procedure in tackling cases of foreign bodies in the digestive tract. However, with the fast development of minimally invasive surgery, the single-incision laparoscopic technique has been widely adopted. Additionally, the ability to reproduce similar surgical procedures with a less invasive approach has resulted in multiple surgeries

being performed laparoscopically [1–3]. The advantages of removal of foreign bodies by laparoscopic surgery have been reported in some studies [4–6]. To our knowledge, this is the first report of removal of a foreign body near the ileocecal region using the single-incision laparoscopic-assisted technique.

Case report

A case of a 40-year-old man who accidentally ingested a piece of metal which was about 10 cm in length is reported. Intermittent right lower quadrant abdominal pain was experienced for 2 days by the patient as recorded in the emergency department. On conducting an abdominal X-ray, the piece of metal was found in the right lower quadrant of the abdomen (Photo 1). Obvious gas or effusion was not

Address for correspondence

Renzhong Zhu MD, Department of Gastrointestinal Surgery, Affiliated Hospital of Guilin Medical University, 541000 Guilin, China, phone: +86 13995591071, e-mail: zhurz1990@163.com

found in the abdominal cavity. Taking into account the disease process and imaging report, surgical treatment was needed immediately.

Under general anesthesia, the patient was placed in the supine position on the surgical table. The surgeon stood on the left side of the patient with the assistant standing on the same side. A 1.5 cm long incision was made within the umbilicus. The Veress needle technique was used to establish pneumoperitoneum and to keep the intra-abdominal pressure at around 13 mm Hg. A 10 mm trocar was placed in the umbilical for camera access. The piece of metal was identified about 10 cm away from the ileocecal region under visualization. The incision within the umbilicus was thereafter enlarged to about 3 cm, cutting the anterior sheath of the rectus abdominis. Two other 5-mm trocars were implanted in the same incision (Photo 2). Thereafter, under the guidance of the laparoscopic camera, an approximately 2 cm longitudinal incision was made on the ileocecal wall. The piece of metal was successfully removed through the 2 cm incision (Photo 3). The part of the incised ileocecal was then pulled out of the abdomen and anastomosis was completed with absorbable sutures. There was a little bleeding but no injury recorded to other organs under inspection. Thereafter, the incision was closed by meticulously using the running suture technique to avoid future complications and obtain good cosmetic results (Photo 4).

The total operation time was about an hour, and intestinal function gradually recovered. The follow-



Photo 1. The piece of metal was located in the right lower quadrant of the abdomen

ing morning after the operation, the patient showed no symptoms of abdominal distention or abdominal pain after having an all-liquid diet and was therefore later discharged 2 days into the post-operative period without any complications. After 6-month follow-up, no complications occurred and the patient was considerably satisfied with the cosmetic result (Photo 5).

Discussion

Foreign bodies within the human intestines are a common occurrence in emergency rooms and especially among prisoners [7]. Emergency surgery is



Photo 2. The position of the trocars



Photo 3. The piece of metal was removed



Photo 4. The incision after careful suturing



Photo 5. The umbilical incision 6 months after surgery

absolutely essential to remove such foreign bodies, whether with laparotomy or endoscopy. But for most foreign bodies in the intestines, laparotomy still remains the main treatment procedure for their removal, which always needs roughly a 10 cm abdominal wall incision, and thus it increases the injury to the body. With the fast development of minimally invasive surgical techniques, more procedures have been performed by single-incision laparoscopic surgery due to its advantages, which include it being less invasive, offering better cosmetic results, and having faster recovery. In this case, we attempted to remove the foreign body using a single-incision laparoscopic-assisted technique, which was eventually successful. We acknowledge that this method mainly has two advantages. Firstly, the single-incision laparoscopic surgery technique can quickly locate the foreign body in the digestive tract. Therefore, this helps avoid complications that would otherwise occur from blindly performing the conventional laparotomy, which certainly increases injury to the body, probably delays the patient's recovery process, and consequently imposes a financial burden on the patient. Secondly, since the intestine is mobile, it makes it more convenient to be operated on outside the abdominal cavity.

We describe this case in order to prove the safety and feasibility of the single-incision laparoscopic-as-

sisted technique in the removal of foreign bodies in the intestinal tract.

The foreign body was identified through a pre-operative X-ray, and was located under the inspection of a laparoscopic camera during the operation. It was finally removed through an umbilical incision through the abdominal cavity. Therefore, we can confirm that the transumbilical single-incision laparoscopic-assisted technique is safe and feasible for the removal of ileocecal foreign bodies.

Conclusions

Single-incision laparoscopic-assisted technique can be very useful and perfectly suitable for the removal of large and sharp foreign bodies in the small intestine with quick recovery and better cosmetic results. More studies are needed to verify the advantages of this technique.

Conflict of interest

The authors declare no conflict of interest.

References

1. Ong E, Abrams AI, Lee E, Jones C. Single-incision sleeve gastrectomy for successful treatment of a gastrointestinal stromal tumor. *JLS* 2013; 17: 471-5.
2. Chuang SH, Lin CS. Single-incision laparoscopic surgery for biliary tract disease. *World J Gastroenterol* 2016; 22: 736-47.

3. Donmez T, Uzman S, Ferahman S, et al. New advantageous tool in single incision laparoscopic cholecystectomy: the needle grasper. *Videosurgery Miniinv* 2016; 11: 38-43.
4. Yu H, Wu S, Yu X, et al. Single-incision laparoscopic surgery for ingested foreign body removal. *Am J Emerg Med* 2014; 32: 290. e1-3.
5. Elias B, Debs T, Hage S, et al. Single incision laparoscopic surgery technique for transanal removal of rectal foreign body. *J Surg Case Rep* 2014; 2014: pii: rju022.
6. Belgrano V, Bagge RO, Scordamaglia C, et al. Extraction of a foreign body in the liver using single incision laparoscopic surgery: a new application for minimally invasive surgical procedures. *Videosurgery Miniinv* 2015; 10: 129-32.
7. Dalal PP, Otey AJ, McGonagle EA, et al. Intentional foreign object ingestions: need for endoscopy and surgery. *J Surg Res* 2013; 184: 145-9.

Received: 21.10.2017, **accepted:** 7.01.2018.