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## Laparoscopic assisted foreign body extraction from the small bowel: A case report



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## ABSTRACT

**BACKGROUND AND AIM:** Foreign body ingestion is a commonly seen accident in emergencies, only 1% of them will finally need surgery. Historically, exploratory laparotomy has been the mainstay of treatment for patients requiring surgery. However surgeons are more and more tempted to use laparoscopy in emergency setting.

Through this case report we wanted to show in some selected cases the feasibility of laparoscopic assisted foreign body extraction from the small bowel leaving the patient with smaller scar, less morbidity and faster recovery.

**CASE PRESENTATION:** A 30 year old male Inmate, ingested 40 days prior to his visit a bottom part of plastic bottle.

Physical examination found an afebrile patient with a whole abdominal tenderness but no signs of peritonitis.

The Abdominal Computed Tomography found a small bowel obstruction caused by a foreign body. No Radiological sign of perforation or peritonitis was found.

First therapeutic strategy was to wait and see, for 24 h with no sign of improvement and the patient was taken to surgery. We opted for a laparoscopic approach. The patient had bowel and gas movement the day after surgery. In the third day, the patient had developed a parietal abscess Treated medically. In the 10th day, after surgery the patient was discharged.

Fourteenth month after the surgery, the patients is doing well with no late complication.

**CONCLUSION:** Laparoscopic assisted foreign body extraction from the small bowel is a good therapeutic option however Large scale randomized controlled trials are needed before this can be used as a standard of care.

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## 1. Introduction

Foreign body ingestion is a commonly seen accident in emergencies. It may occur intentionally in prisoners or psychiatric patients. In most cases (90%) ingested foreign bodies pass through the gastrointestinal tract without complications.

However, 10%–20% will need, endoscopic removal. ONE% of them will finally need surgical intervention [1]. With the development of modern medicine and especially laparoscopy, surgeons are more and more tempted to use laparoscopy in emergency setting instead of the classic laparotomy.

Throughout this case report, we will show the feasibility of laparoscopy in emergency settings hoping encourage other surgeons to use this method more frequently.

This work has been reported in line with the SCARE criteria [2].

## 2. Case presentation

The patient is a 30 year old inmate, with no relevant past medical history, who ingested the lower part of a plastic bottle 40 days prior to his emergency admission. The ingestion was carried in order to leave jail for medical reasons.

He presented with a severe abdominal pain, abdominal cramp and the absence of bowel movements or pass gas for at least two days.

After physical examination the patient was found afebrile with a whole abdominal tenderness but no signs of peritonitis.

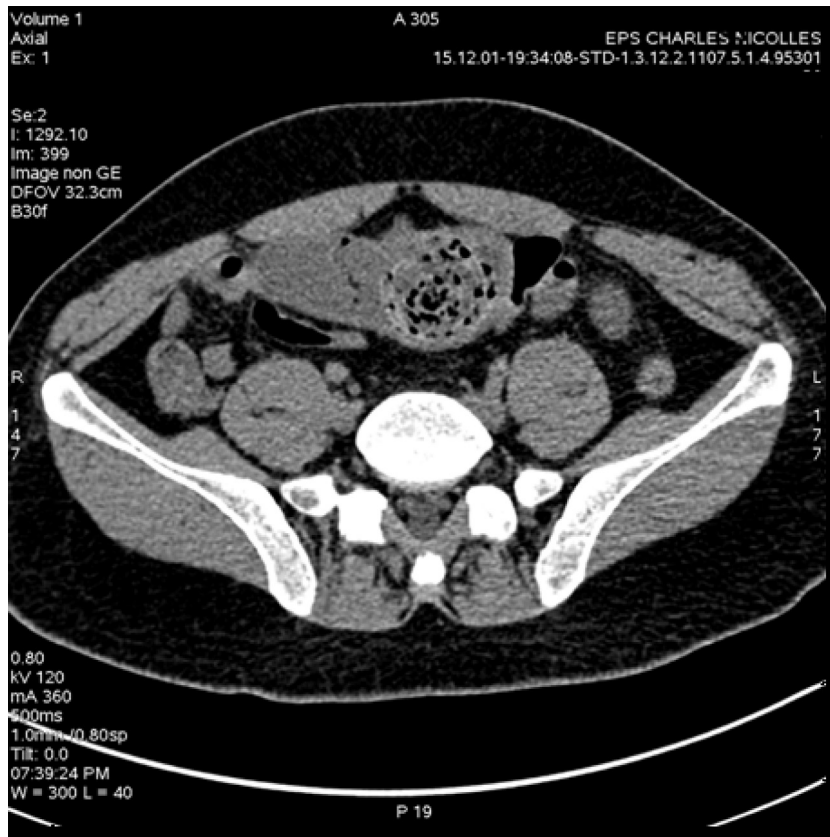
The abdominal X ray showed several centrally located dilated gas loops of filled bowel (Picture 1).

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**Picture 1.** Preoperative abdominal X ray showing central located dilated gas loops of filled bowel.



**Picture 2.** Preoperative Abdominal CT showing a distended bowel due to mechanical obstruction.



**Picture 3.** Preoperative Abdominal CT showing a distended bowel due to mechanical obstruction.

The Abdominal Computed Tomography found a small bowel obstruction caused by a foreign body measured  $42 \times 30$  mm causing small bowel dilation with a maximum diameter of 46 mm. No Radiological sign of perforation or peritonitis was found. (Pictures 2 and 3).

Our first therapeutic strategy was to wait and see; for 24 h. The patient was then taken to surgery as no sign of improvement have been observed.

The laparoscopic approach was chosen. The surgery was carried by the first author. An experienced laparoscopic surgeon who spend at least an hour a day in basic to more complex laparoscopic procedure and who also been following the IRCAD program. The 10 mm umbilical Port was inserted using open laparoscopy (Hasson's technique) to avoid dilated bowel injury. Two 5 mm port were inserted in the right and left flank with visual control. In the exploration the bowel was moderately dilated upstream of a point of transition from dilated small bowel to normal-caliber bowel. No bowel adhesions were found (Pictures 4 and 5).

At the point of transition we did find an incompressible bowel and using the grasper on the non dilated part we extracted the bowel from the left flank port after enlarging the incision. An enterotomy was performed and a bottom half of a plastic bottle was extracted. The opened bowel was reinserted in the abdominal cavity. The peritoneal wash was made by laparoscopy after suturing the left flank incision. The whole procedure was well tolerated by the patient with no preoperative complications reported.

The follow up; was normal. The patient ambulating 6 h after the procedure. He had his first flatus the day after surgery. The major analgesic intake was not necessary and the patient have been only taking Paracetamol 1 g three times a day. In the third day, the patient had some fever related to a parietal abscess treated with antibiotics and daily bandage changing.

In the 10th day after surgery, the patient was discharged.

Fourteen month after surgery, the patient is doing well with no late complication.

The patient was happy to only have one visible little scar than the midline incision.



**Picture 4.** Intraoperative imaging showing a flat and a distended bowel.



**Picture 5.** Intraoperative imaging showing the transition zone.

### 3. Discussion

Ingested foreign bodies are commonly seen. Generally, they cause little morbidity if properly managed.

Surgical intervention is considered in case of; endoscopic removal failure, the patient developing symptoms, or if the object fails to progress over 72 h. [1]

In our case the patient (an inmate) did swallow the foreign body 40 days before admission. That's why, we chose to do a 24 h wait and see procedure instead of the usual 72 h.

Acute small bowel obstruction has previously been considered a relative contraindication for laparoscopic management. Historically, exploratory laparotomy has been the mainstay of treatment for patients requiring surgery.

The first reported case of small bowel obstruction treated by laparoscopy was in 1991 by Bastug et al. [3] where they performed a laparoscopic adhesiolysis.

Despite this early report, surgeons have been reluctant to use laparoscopy in the treatment of small bowel obstruction, independently of the etiology.

This reluctance is mainly due to three reasons; technical difficulty of re-operative surgery, the risk of injury to the distended and thin-walled bowel, given that most small bowel obstruction are due to adhesive disease and the difficulty in establishing a working space and visualizing the site of obstruction [4].



Some authors have criticized the laparoscopic approach, stating that a suboptimal intraoperative evaluation of the patient and incomplete lysis of adhesions are performed, resulting in higher reoperation rates [5,6].

However in experienced hands; laparoscopy is a viable alternative to laparotomy.

Ghosheh and Salameh [4]; pooled analysis of the literature shows that laparoscopic management of SBO is successful in 66% of cases.

The same analysis did also report that the four major causes for conversion were dense adhesions, the need for bowel resection, iatrogenic injury and the inability to find the etiology to the bowel obstruction.

Some authors, tried to find predictive factors for conversion trying to better select the patient for laparoscopy. It may be predicted by factors, such as bowel distension of over 4 cm, history of dense adhesions and the presence of complete distal obstruction [7].

Navez et al. [8], did not find a correlation between the number of previous surgery and conversion rates.

The minimally invasive surgery has results in less pain, decreased morbidity and shorter hospitalization after the surgical treatment of many diseases.

Ghosheh and Salameh [4] literature review of 1061 patients reported an overall mortality and morbidity rate respectively of 1,5% and 15,%. Compared to the published results of mortality and morbidity rates of open surgery (respectively 3,8% and 32%) they are deemed favorable [9,10].

In 2015, Wiggins and al [11], identified eleven case-matched control or comparative studies and in total, there were 13,728 patients included with 1712 cases included in the laparoscopic group and 11,329 in the open surgery group. They reported that Laparoscopic surgery was associated with a significant reduction in mortality, overall morbidity, pneumonia, wound infection and length of hospital stay. The rates of bowel injury and reoperation were not significantly different between the two groups.

In our case, our patient suffered from a small parietal abscess which did not affect the overall stay.

To the best of our knowledge, no similar cases were reported.

#### 4. Conclusion

The increased use of minimally invasive surgery resulted in less morbidity and faster recovery after the surgical treatment of many diseases. However some surgeons are still reluctant to use it.

Through this case report we wanted to show that, in some selected cases and in trained hands, the laparoscopic assisted foreign body extraction from the small bowel is feasible.

Especially know, that laparoscopy have proven to be, in trained hand and in selected patient, a viable option in the treatment of other etiologies of bowel obstruction offering less morbidity and a good cosmetic result.

Large scale randomized controlled trials are needed before this can be used as a standard of care.

#### Conflicts of interests

NO financial and personal relationships with other people or organisations that could inappropriately influence (bias) their work.

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Charles nicolle hospital ethic comitee.

#### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

#### Author contribution

Bourguiba M.A.; concept or design, data collection, data analysis or interpretation, writing the paper.

Gharbi M.; concept or design, data collection, data analysis or interpretation, writing the paper.

Ghalleb M.; data collection, data analysis or interpretation.

Khemir alaeddine; data collection.

Souai F.; data collection.

Bensafta Y.; data collection, data analysis or interpretation, writing the paper.

SAYari S.; writing the paper.

BEN Moussa M. writing the paper.

#### Guarantor

Bourguiba Mohamed Aboulkacem.

#### References

- [1] T.E. Pavlidis, G.N. Marakis, A. Triantafyllou, K. Psarras, T.M. Kontoulis, A.K. Sakantamis, Management of ingested foreign bodies. How justifiable is a waiting policy? *Surg. Laparosc. Endosc. Percutan. Tech.* 18 (3) (2008) 286–287.
- [2] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, for the SCARE Group, The SCARE statement: consensus-based surgical case report guidelines, *Int. J. Surg.* 34 (2016) 180–186.
- [3] D.F. Bastug, S.W. Trammell, J.P. Boland, E.P. Mantz, E.H. Tiley 3rd, Laparoscopic adhesiolysis for small bowel obstruction, *Surg. Laparosc. Endosc.* 1 (1991) 259–262.
- [4] B. Ghosheh, J.R. Salameh, Laparoscopic approach to acute small bowel obstruction: review of 1061 cases, *Surg. Endosc.* 21 (October (11)) (2007) 1945–1949.
- [5] M.E. Franklin Jr., J.P. Dorman, D. Pharand, Laparoscopic surgery in acute small bowel obstruction, *Surg. Laparosc. Endosc. Percutan. Tech.* 4 (4) (1994) 289–296.
- [6] Y. Francois, P. Mouret, J. Vignal, Obstruction of the small intestine and celioscopic viscerolysis, *Ann. Chir.* 48 (December (2)) (1993) 165–168.
- [7] A. Nagle, M. Ujiki, W. Denham, K. Murayama, Laparoscopic adhesiolysis for small bowel obstruction, *Am. J. Surg.* 187 (April (4)) (2004) 464–470.
- [8] B. Navez, J.M. Arimont, P. Guiot, Laparoscopic approach in acute small bowel obstruction. A review of 68 patients, *Hepatogastroenterology* 45 (24) (1997) 2146–2150.
- [9] S.B. Williams, J. Greenspon, H.A. Young, B.A. Orkin, Small bowel obstruction: conservative vs. surgical management, *Dis. Colon Rectum* 48 (6) (2005) 1140–1146.
- [10] H.J. Asbun, C. Pempinello, N.A. Halasz, Small bowel obstruction and its management, *Int. Surg.* 74 (1) (1988) 23–27.
- [11] T. Wiggins, S.R. Markar, A. Harris, Laparoscopic adhesiolysis for acute small bowel obstruction: systematic review and pooled analysis, *Surg. Endosc.* 29 (December (12)) (2015) 3432–3442.