

Case Report

Management of Needle Loss in Laparoscopic Operations

 Anil Ergin,  Mehmet Mahir Fersahoglu,  Birol Agca,  Nuriye Esen Bulut,  Kemal Memisoglu

Department of General Surgery, Health Sciences University, Istanbul Fatih Sultan Mehmet Training and Research Hospital, Istanbul Turkey

Abstract

The incidence of needles lost during abdominal surgery is considered to be 1 in 9000 abdominal operations. The most important problem is that the reluctance of clinicians and hospitals to disclose such errors and the disclosure of data is often underestimated and concealed because of the prevention of insurance and legal claims by confidentiality requirements. In this case report, we present an obesity patient in whom the needle was lost during gastrectomy. Laparoscopic Sleeve Gastrectomy procedure was decided to be performed to the 28-year-old female who presented to the clinic for bariatric surgery. At the end of the operation, while the needle used in suturing was taken from the trocar to out of the abdomen, it was separated at the point of junction, fell into the abdomen and could not be located laparoscopically. The operation was terminated due to the development of hypoxia in the patient because of the prolongation of the operation time during the needle search. The localization of the needle was determined on the abdominal computed tomography of the patient; the patient was re-operated and the needle was removed. In such cases, the needle should be localized with the help of imaging and the foreign body lost in the abdomen should be removed, considering the medicolegal problems.

Keywords: Laparoscopy, laparoscopic sleeve gastrectomy, needle

Cite This Article: Ergin A, Fersahoglu MM, Agca B, Bulut NE, Memisoglu K. Management of Needle Loss in Laparoscopic Operations. EJMI 2019;3(3):251-254.

The popularity of minimally invasive surgery is increasing day by day since it creates a reduction in blood loss, postoperative pain, faster recovery time and better aesthetic and functional outcomes.^[1,2] However; when a needle loss occurs during laparoscopy procedures, it may be difficult to identify and remove this needle due to the limited field of vision and manipulation difficulties.^[3] The incidence of needles lost during abdominal surgery is considered to be 1 in 9000 abdominal operations. The most important problem is that the reluctance of clinicians and hospitals to disclose such errors and the disclosure of data is often underestimated and concealed because of the prevention of insurance and legal claims by confidential-

ity requirements.^[1,2] Factors associated with increased likelihood of needle loss are considered as; high body mass index, number of laparoscopic instruments used, more than two surgical teams, equipment failure, unexpected changes during the procedure and inadequate communication between surgical team members and complex and long laparoscopic surgeries.^[4-6] Among the long-term complications reported; chronic pain, intestine perforations, fistula development, vascular injuries, increased radiation exposure, and recurrent surgeries have been described.^[4,7] In this case report, we present an obesity patient in whom the needle is lost in the abdomen during the laparoscopic sleeve gastrectomy.

Address for correspondence: Anil Ergin, MD. Istanbul Fatih Sultan Mehmet Egitim ve Arastirma Hastanesi, Saglik Bilimleri Universitesi, Genel Cerrahi Anabilim Dalı, Istanbul, Turkey

Phone: +90 534 224 53 66 **E-mail:** dranilergin@gmail.com

Submitted Date: March 06, 2019 **Accepted Date:** April 09, 2019 **Available Online Date:** May 10, 2019

©Copyright 2019 by Eurasian Journal of Medicine and Investigation - Available online at www.ejmi.org

OPEN ACCESS This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International License.



Case Report

In the postoperative evaluation of the 28-year-old female patient with obesity and a body mass index of 42 kg/m^2 , who presented to the clinic for bariatric surgery, no abnormal feature was detected in the history and the laboratory parameters of the patient. As a result of the examinations, it was decided to perform the Laparoscopic Sleeve Gastrectomy procedure. The patient was taken to our hospital after the patient's consent was obtained and after the serosal opening in the peroperative stapler line was detected, reinforcement suturations to the stapler line were performed. After suturing the line with the help of 2/0 vicryl suture (21mm 5/8 c), a leak test was performed and the absence of a leak was confirmed. After the drainage of the space, while the needle was taken out of the abdomen from the trocar, it was removed from the rope that it was attached to and fell into the abdomen. Because the needle could not be found laparoscopically, multiple multi-angled direct graphies were taken with C arm X-ray machines and the needle could not be located with these radiographs. Because of the hypoxia development due to the prolongation of the operation time under anesthesia and the increase in lactate levels, the operation was decided to be terminated. The operation of the patient was terminated by leaving the needle in the abdomen. The patient was awakened in the intensive care unit and extubated without any problems. The patient underwent contrast-enhanced Abdomen Computed Tomography on the first postoperative day and the needle was seen adjacent to the diaphragm at the posterior of the liver (Figs. 1–3). The needle was found to migrate to the subdiaphragmatic area posterior to the liver in a very short time. The patient was reoperated with ASA 4 e score after informed consents were taken again. In the

computed tomography, the needle was detected in the localized position and taken out of the abdomen (Fig. 4). The operation was terminated and the patient was transferred to the intensive care unit; there was no problem in the follow-up period and the patient was transferred to the gen-



Figure 2. CT image of lost needle at back of liver/coronal.



Figure 3. CT image of lost needle at back of liver/lateral.

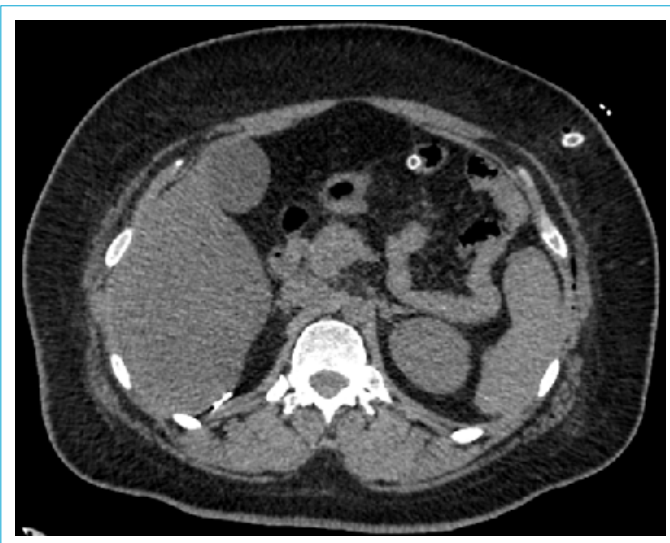


Figure 1. CT image of lost needle at back of liver/sagittal.

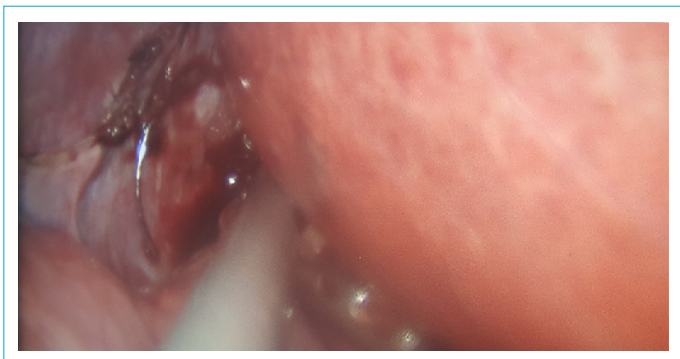


Figure 4. Laparoscopic image of lost needle back of liver.

eral surgery bed service on the first postoperative day. The patient, who did not have any problems during the service follow-ups, was discharged in the postoperative fourth day with recovery.

Discussion

There is not enough published data on missing needles. It should be well known how to manage this rare but challenging complication to ensure the optimal management of laparoscopic surgery. Once the needle is lost, due to the limited area of laparoscopic view, it becomes increasingly difficult to find the needle and the risk of visceral injury and bleeding increases due to laparoscopic manipulations. Needles lost during the laparoscopy tend to migrate to intraabdominal spaces such as paracolic sulci, hepatorenal space and pelvic cavity; however, the imaging of these areas is very difficult even with a laparoscopic angle camera. This often results in reversion from laparoscopy to open surgery in such cases. Here are some methods that can be used to find missing needles;

Intraoperative direct graphy, intraoperative computerized tomography, postoperative imaging assisted reoperation. Since intraoperative radiographs require a peroperative x-ray device and in some cases the patient's position is not appropriate; this is a method with limitations. Poor shooting technique, low exposure, lack of field of view, and similarity of bone's density to the needle are also the disadvantages of this method.^[8] The most common method used other than the methods used in the operating room is the direct postoperative radiograph. However, the disadvantages such as the lack of 3D images on the direct graph, low resolution and exposure problems are also present in this method. Computed tomography is very useful and superior to other methods in terms of showing the 3-dimensional localization of the needle. Computed tomography has disadvantages such as high cost and high radiation intake. In some cases, if the needle penetrates into any of the intraabdominal organs, there

may be conditions where the needle should be removed by extensive resection. In addition, cases using laparoscopic magnet have been described for easy finding and removal of the needle.^[9] In this case, because the exact location of the needle can be exhibited with the help of computed tomography, a laparoscopic magnet was not needed and the needle could be found and taken out of the abdomen without any problem.

Conclusion

In such cases, which are seen quite rarely in laparoscopic abdominal surgeries, step-by-step exploration should be performed in a concentrated manner in the direction of the patient's clinical status. The needle should be localized with the help of imaging and the foreign body lost in the abdomen should be removed, considering the medicolegal problems. The most important step that should be considered to eliminate the medicolegal problems is to inform the patient at every stage of the process.

Disclosures

Peer-review: Externally peer-reviewed.

Conflict of Interest: None declared.

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

Authorship Contributions: Concept – A.E.; Design – A.E.; Supervision – A.E.; Materials – M.M.F.; Data collection &/or processing – K.M.; Analysis and/or interpretation – N.E.B.; Literature search – B.A.; Writing – A.E.; Critical review – A.E.

References

1. Greenberg CC, Gawande AA. Beyond Counting: current evidence on the problem of retaining foreign bodies in surgery. *Ann Surg* 2008;247:19–20. [\[CrossRef\]](#)
2. Lincourt AE, Harrell A, Cristiano J, Sechrist C, Kercher K, Heniford BT. Retained foreign bodies after surgery. *J Surg Res* 2007;138:170–4. [\[CrossRef\]](#)
3. Small AC, Gainsburg DM, Mercado MA, Link RE, Hedican SP, Palese MA. Laparoscopic needle-retrieval device for improving quality of care in minimally invasive surgery. *J Am Coll Surg* 2013;217:400–5. [\[CrossRef\]](#)
4. Gawande AA, Studdert DM, Orav EJ, Brennan TA, Zinner MJ. Risk factors for retained instruments and sponges after surgery. *N Engl J Med Mass Med Soc* 2013;348:229–35. [\[CrossRef\]](#)
5. Zaman S, Clarke R, Schofield A. Intraoperative loss of a surgical needle: a laparoscopic dilemma. *JSL Soc Laparoendosc Surg* 2015;19:e2013.00401. [\[CrossRef\]](#)
6. Sotelo RJ, Haese A, Machuca V, Medina L, Nuñez L, Santinelli F, et al. Safer surgery by learning from complications: a focus on robotic prostate surgery. *Eur Urol* 2016;69:334–44. [\[CrossRef\]](#)

7. Jayadevan R, Stensland K, Small A, Hall S, Palese M. A protocol to recover needles lost during minimally invasive surgery. *JLS Soc Laparoendosc Surg* 2014;18:e2014.00165. [\[CrossRef\]](#)
8. Ariz C, Horton K, Fishman E. 3D CT evaluation of retained foreign bodies. *Emerg Radiol* 2004;11:95–9. [\[CrossRef\]](#)
9. Finding a Lost Needle in Laparoscopic Surgery Walid Barto, MBBS, FRACS, Carl Yazbek, MBBS, and Stephen Bell, FRACS *Surg Laparosc Endosc Percutan Tech* 2011;21:e163–e165.