

Single-Incision Laparoscopic Surgery: Case Report of SILS Heller's Cardiomyotomy

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Citation

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Abstract

We present a case of a SILS (single incision laparoscopic surgery) cardiomyotomy in a patient suffering with achalasia. A 64-year-old gentleman with achalasia was referred to the upper gastrointestinal surgeons for a cardiomyotomy. Medical treatment (nifedipine) and two previous endoscopic balloon dilatations had yielded good initial results but symptoms had since recurred. A SILS cardiomyotomy was planned. A SILS port, consisting of a 10mm and two 5mm ports, was inserted through a subumbilical incision and pneumoperitoneum was obtained. A 10mm laparoscope was inserted and the liver was retracted using a mini-lap retractor. The oesophagus and gastro-oesophageal junction were exposed using careful dissection with hook diathermy, Maryland graspers, and reticulating scissors. The muscularis externa was divided, exposing the underlying oesophageal and gastric mucosa. Haemostasis was attained and the mini-lap liver retractor and SILS port were removed. The patient made an uneventful recovery and was discharged home on the first post-operative day. At 6-week follow-up the patient reports a vast improvement in symptoms. SILS cardiomyotomy is feasible in selected patients with achalasia requiring surgical management.

INTRODUCTION

As laparoscopic skills improved, innovative and bold advances were made to further minimize the trauma to the abdominal wall. From natural orifice trans-luminal endoscopic surgery (NOTES) (1) to single-incision laparoscopic surgery (SILS), the face of general surgery is changing.

Our case documents the feasibility of the SILS for Heller's cardiomyotomy which has not been documented in the literature.

CASE REPORT

We present a case of a SILS (single incision laparoscopic surgery) cardiomyotomy in a patient suffering with achalasia.

A 64-year-old gentleman with achalasia was referred to the upper gastrointestinal surgeons for a cardiomyotomy. Medical treatment (nifedipine) and two previous endoscopic balloon dilatations had yielded good initial results but symptoms had since recurred. A SILS cardiomyotomy was planned.

A SILS port, consisting of a 10mm and two 5mm ports, was inserted through a subumbilical incision and pneumoperitoneum was obtained. A 10mm laparoscope was

inserted and the liver was retracted using a mini-lap retractor.

The oesophagus and gastro-oesophageal junction were exposed using careful dissection with hook diathermy, Maryland graspers, and reticulating scissors.

The muscularis externa was divided, exposing the underlying oesophageal and gastric mucosa.

Haemostasis was attained and the mini-lap liver retractor and SILS port were removed.

The patient made an uneventful recovery and was discharged home on the first post-operative day. At 6-week follow-up the patient reports a vast improvement in symptoms.

SILS cardiomyotomy is feasible in selected patients with achalasia requiring surgical management.

DISCUSSION

Heller first described cardiomyotomy for the treatment of achalasia in 1914 (2) using an abdominal approach with an anterior and posterior oesophageal myotomy. This approach was modified to a single myotomy by the Dutch surgeon Zaaier in 1923, which is still in use today (3). The thoracic approach was popularized by Ellis in 1958 (4) and was the

most commonly used surgical procedure in North America for achalasia for many years. This approach used a single cardiomyotomy performed through the left chest without an accompanying antireflux procedure.

NOTES has the potential benefits of no scars, decreased pain, and better cosmesis; however, it is difficult because of the instrumentation shortcomings and possible new risks of access complications. SILS, however, minimizes the abdominal wall incision while avoiding the potential difficulties associated with NOTES. First attempted in the late 1990s, SILS failed to gain widespread acceptance owing to the lack of specialized equipment (5, 6). Given technological improvements, SILS applications have been recently reported in urology and paediatric surgery (5, 7-12).

Although SILS is in its infancy, this approach holds promise to further minimize the invasiveness of surgery. It could translate into fewer wound infections and hernias, in addition to improved cosmesis and, possibly, less pain. The present case report documents the feasibility of the SILS approach for Heller's cardiomyotomy which has not been documented before. As we gain experience, we expect the operating times to be slightly longer than those with traditional laparoscopic cardiomyotomy.

The present case was our first attempt and using this approach, the instruments were quite parallel in orientation and the range of motion was limited. The alternative will be to use curved instruments as mentioned by Dapri (13).

CONCLUSION

At present, SILS Heller's cardiomyotomy seems feasible. Additional technological improvements will enhance the performance of this procedure. Additional studies are needed

to investigate the potential benefits in terms of less scarring and pain.

References

1. ASGE/SAGES Working Group on Natural Orifice Transluminal Endoscopic Surgery: White paper October 2005. *Gastrointest Endosc*; 2006; 63: 199-203.
2. Heller E: Extramuköse Kardioplastik beim chronischen Kardiospasmus mit Dilatation des Oesophagus. *Mitt Grenzgeb Med Chir*; 1914; 27: 141-149.
3. Zaaier JH: Cardiospasm in the aged. *Ann Surg*; 1923; 77: 615-617.
4. Ellis FH, Jr., Olsen AM, Holman CB, et al.: Surgical treatment of cardiospasm (achalasia of the esophagus): consideration of aspects of esophagomyotomy. *JAMA*; 1958; 166: 29.
5. Goel R, Kaouk J: Single port access renal cryoablation (SPARC): a new approach. *Eur Urol*; 2008; 53: 1204-9.
6. Piskun G, Rajpal S: Transumbilical laparoscopic cholecystectomy utilizes no incisions outside the umbilicus. *J Laparoendosc Adv Surg Tech A*; 1999; 9: 361-4.
7. Rane A, Rao P: Single-port access nephrectomy and other laparoscopic urologic procedures using a novel laparoscopic port (R-Port). *J Urol*; 2008; 72: 260-3.
8. Kaouk J, Palmer J: Single-port laparoscopic surgery: initial experience in children for varicocele. *BJU Int*; 2008; 102: 97-9.
9. Ponsky L, Cherullo E, Sawyer M, Hartke D: Single access site laparoscopic radical nephrectomy: initial clinical experience. *J Endourol*; 2008; 22: 663-6.
10. Desai M, Rao P, Aron M, et al.: Scarless single port transumbilical nephrectomy and pyeloplasty: first clinical report. *BJU Int*; 2008; 101: 83-8.
11. Ates O, Hakguder G, Olguner M, Akgur F: Single-port laparoscopic appendectomy conducted intracorporeally with the aid of a transabdominal sling suture. *J Pediatr Surg*; 2007; 42: 1071-4.
12. Ponsky T, Lukish J: Single site laparoscopic gastrostomy with a 4-mm bronchoscopic optical grasper. *J Pediatr Surg*; 2008; 43: 412-4.
13. Dapri G, Stockman AL, Cadiere GB, Himpens J: Laparoscopic gastric banding removal through a single access using new curved and reusable instruments. Presented in the 18th International Congress of the European Association of Endoscopic Surgery, Geneva, June 2010.

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