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Single site laparoscopic simultaneous cholecystectomy, sleeve gastrectomy, and paraumbilical hernia – First case report

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ABSTRACT

INTRODUCTION: Single site surgery is rapidly gaining popularity for its cosmetic benefits. However it requires immense technical skill due to its challenging ergonomics. We have reported here a case where multiple surgeries have been performed through the same single site, without the usage of special devices. This article has been reported in line with the SCARE criteria [1].

PRESENTATION OF CASE: A 45-year-old obese lady presented with symptomatic cholelithiasis and a paraumbilical hernia. She underwent uneventful trans umbilical, single site laparoscopic cholecystectomy, sleeve gastrectomy and paraumbilical hernia repair.

DISCUSSION: This article is being published as it is the first reported from the Middle East. Recent development of laparoscopy was represented with introduction of the concept of scarless surgery using Natural Orifice Transluminal Endoscopic Surgery (NOTES), or its Transumbilical counterpart (NOTUS). Unfortunately, these two approaches have not been widely reported, probably due to the need for specialized instruments, learning curve, and prolonged surgery time [2].

CONCLUSION: This single case report is to indicate that it is technically possible and cosmetically appealing to perform such a complex surgery.

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1. Introduction

Since the late 1980s, conventional laparoscopic surgery has now become the standard of care for many abdomino-pelvic ailments. Single-site laparoscopic surgery was first attempted around the turn of the 21st century, but was perfected and formalised only in 2007. According to Ross et al., [3] LESS SCAR (Laparo-Endoscopic Single Site Surgery Consortium for Assessment and Research) became operational in 2008 to organize and direct application of single-site laparoscopy. This LESS SCAR soon transformed into the term “SCARLESS”, to highlight the possibility of performing a procedure through the umbilicus without leaving any “footprint”. Despite the availability of a multitude of devices which aid in single site surgery, the authors opted to proceed with this complex procedure without the assistance of any such device. This article has been reported in line with the SCARE criteria [1].

2. Case details

A 45-year-old lady presented at the surgical outpatients department with symptomatic cholelithiasis. She had multiple episodes of

epigastric and right upper quadrant pain, and ultrasound examination showed multiple gallstones and a thickened gallbladder wall. The diagnosis was one of acute on chronic cholecystitis. She was also obese, and had a BMI of 40.5. The ultrasound had also shown a small paraumbilical hernia which was asymptomatic.

3. Diagnosis

- Clinical examination – obesity (BMI- 40.5) and acute cholecystitis
- Ultrasonogram- confirmed calculous cholecystitis, and identified paraumbilical hernia.

She had sought dietary and lifestyle changes for the past two years, with no significant loss of body weight. She did not have any comorbid conditions, and had not been on any medication previously. She had not undergone any surgeries previously, Obstetric history L-3, P-3. There was no relevant family history.

During the clinical examination and discussion, the patient expressed a strong desire to simultaneously undergo a weight loss procedure. To this end, she underwent a general medical, dietary and psychological evaluation, and she was found to be well motivated to undergo the procedure. After a detailed discussion, she was offered a single site surgical solution for all the three diseases, namely cholecystitis, obesity, as well as her paraumbilical hernia.

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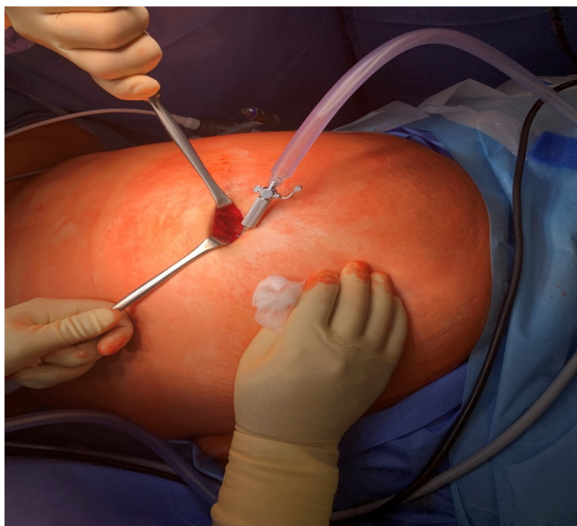


Fig. 1. Legend- Subcutaneous space dissection.

4. Technique

After adequate preoperative preparation, including five days of pure liquid diet to cause liver shrinkage, she underwent single site laparoscopy.

The inferior aspect of the umbilical cicatrix was incised in a curvilinear fashion, and the subcutaneous plane was dissected to create a plane (Fig. 1).

3 ports, of 5 mm, were inserted within the space created to achieve a Mercedes Benz configuration of ports, in the 12,4 and 8 o'clock positions. The gall bladder was visualised and a laparoscopic cholecystectomy was done with the Calot's triangle dissected out using the Veress needle percutaneously in the epigastrium. 5 mm clips were used for the cystic artery and the duct. Then the 8 o'clock port was converted from 5 mm into a 12 mm port, and the gall bladder was removed through this port.

Next the stomach was visualised after the liver was retracted by a long Veress needle passed through the same epigastric hole.

With a grasper through the 4 o'clock site, and the Ligasure through the 8 o'clock port, the greater omentum was dissected off the greater curve of the stomach, moving proximal until the left crus was reached. Then the distal part was dissected off until a point, 4 cm from the pylorus.

Serial stapler firings were done with the purple Tri-stapler of Medtronic, until the stomach sleeve was created.

The upper stapler line was inverted using 2/0 PDS sutures, and the specimen removed using the 12 mm port site, extended by 3 mm (Fig. 2).

Then the hernia site was dissected out, and the sheath was freed all around, and the area was thoroughly irrigated with saline.

A 10 × 10 cm mesh was used to cover the defect, and sutured all around using 2/0 prolene sutures, and the wound was closed after securing hemostasis.

Post operatively the patient had an uneventful recovery. Post operatively, the patient was asked to rate her pain on a scale of 1–10

- Six hours post procedure - 5/10
- First post-operative day - 3/10
- At discharge (2nd post-operative day) - 2/10

5. Follow up

The patient was reviewed in the surgical centre on the 5th post-operative day. The wound was healthy, and she was pain-free. A

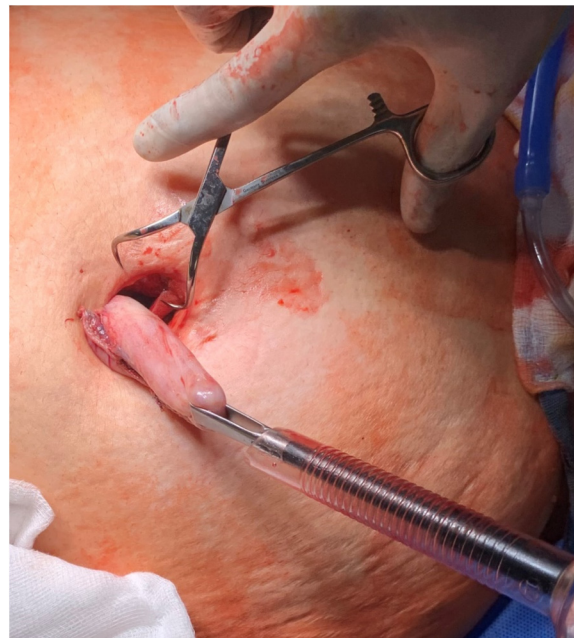


Fig. 2. Legend- Specimen extraction.

follow-up ultrasonogram was performed which showed no collection at the surgical site, and no intra-abdominal fluid collection.

She was put on a strict dietary regime, and by the second review (after one month), she had lost 10 kg and the wound was completely healed.

She was advised to report for further reviews at the 3rd, 6th, and 12th month post procedure.

6. Discussion

The need for cosmesis was the engine that drove the laparoscopic industry to Reduced Port Endoscopic Surgery (RPES) or Laparo-Endoscopic Single site Surgery (LESS). Covidien (Medtronic) produced the port device, the SILS port (single incision laparoscopic surgery port) [4,5]. Natural Orifice Transluminal Endoscopic Surgery (NOTES), or its Transumbilical counterpart (NOTUS). Unfortunately, these two approaches have not been widely reported, probably due to the need for specialized instruments, learning curve, and prolonged surgery time [2]. Several hundred papers have established that the single incision surgery, although ergonomically challenging, is feasible, viable and safe, provided it is done by experienced hands [6]. Gallbladder, hernia, hysterectomy, and bariatric surgery, as well as right and left colectomy and splenectomy, have had several proponents, and have been published extensively [6–8].

Few publications reported the technique in patients otherwise requiring two operations in patients who underwent double procedures with a single-port device were reviewed [9,10].

In the United Arab Emirates (UAE), where cosmesis is an important aspect of surgery, and where aesthetic surgeons are prolific, there is a definite need for a reduced number of ports. This prompted the senior author to perform all three surgeries for the first time in the UAE through the same site, making the end result more cosmetically appealing (Fig. 3).

Based on seven years' experience of the senior author, when this opportunity for single site surgery came up, it was offered to the patient, and subsequently proceeded with. Another series that is awaiting publication, is a series of simultaneous combined laparoscopic sleeve hysterectomy and hysterectomy; it would be a



Fig. 3. Legend- Wound after closure.



Fig. 4. Legend- Ports placement.

great cosmetic boon to females undergoing laparoscopic hysterectomy and sleeve gastrectomy, if both could be done simultaneously through a single port or a single incision single site. To the best of the authors' knowledge no such case has been reported till date.

Importantly, in this case, there was no special device like a Gelport, SILS port, R port, et cetera [4]. The standard ports used for laparoscopic surgery were utilised. There were no extra instruments specially designed for ergonomic surgery with triangulation [5] (Fig. 4). The standard stick instruments were utilised. Thus, one is able to get all the advantages of laparoscopic surgery, but all the cosmetic fillip of single port surgery, without the increase in cost which the port devices would automatically entail. The only increase in cost was the increased operating time, as due to ergonomic implications, single site surgery is performed much slower than multiport laparoscopic surgery. The time taken for this patient was 124 min.

7. Conclusion

This single case report is to indicate that it is technically possible and cosmetically appealing, with almost no cost increase, shorter length of hospital stay, and decreased incisional pain, to perform single site laparoscopic cholecystectomy, sleeve gastrectomy, and paraumbilical hernia repair. The article is also being presented as it is, to our knowledge, the first to be reported and performed in The Gulf.

Declaration of Competing Interest

No conflicts of interest.

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Nil.

Ethical approval

Ethical approval obtained.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the editor-in-chief of this journal on request.

Author contribution

DR. J.S. Rajkumar: primary surgeon, study concept and writing the paper.

DR. Jayakrishna Reddy: writing the paper, data collection and assistant surgeon.

DR. Anirudh Rajkumar: data analysis and assistant surgeon.

DR. Shreya Rajkumar: data analysis, data collection and editing.

Registration of research studies

Not applicable.

Guarantor

DR. J.S. Rajkumar.

Provenance and peer review

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