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# Single incision laparoscopic primary and incisional ventral hernia repair as the standard of care in the ambulatory setting; Does less equal better outcomes; Case series and literature review

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## ABSTRACT

**INTRODUCTION:** The consensus about whether the single port approach is advantageous remains controversial. As the ambulatory service becomes the standard of care, techniques are in evolution to augment the patient experience in this setting. This forms the basis for evaluating SILS (Single Incision Laparoscopic Surgery) prosthetic ventral hernia repair in the ambulatory setting. We report a SILS technique of ventral hernia repair using the Stryker Ideal-eyes articulating laparoscope and standard laparoscopic instruments in the day-case setting.

**PRESENTATION OF CASES:** We report three cases of ventral hernias (one primary and two incisional). All were completed using single port techniques. They were done in the ambulatory setting and require no admission. Single incision laparoscopic repair of primary and incisional ventral hernias was completed successfully in all cases without conversion to standard laparoscopy. Median (range) operative time was 66 min (39–95 min). No intra- or postoperative complications were recorded. No episodes of prolonged postoperative pain were reported. We examine the literature and subsequently discuss the feasibility of ambulatory single port ventral hernia repair.

**CONCLUSION:** SILS prosthetic repair of primary and incisional ventral hernia is easily feasible. In our series, SILS ventral hernia repair appears to be safe and effective. It may decrease parietal trauma augmenting its use in the ambulatory setting. Technology will continue to improve the wide applicability of this technique. Larger randomized trial studies are required to determine the rates of port-site incisional hernia compared with multiport laparoscopy.

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## 1. Introduction

Laparoscopic ventral hernia repair has long been proven to be superior to the open approach when compared in safety, efficiency, and recovery time [1–8,11]. There are no standardized approaches for this surgical technique [2,3]. The risk of port site incisional hernia remains a concern, with wide variation [8]. Franz in 2008, demonstrated that patients who are prone to develop hernia; have intrinsic extracellular matrix and wound healing deficiencies [9]. Using SILS techniques reduces the number of incisions in these patients. Using special single access devices like the Gelpoint and Triport further restrict the incision length to 2 cm–2.5 cm, which could directly impact port site hernia rates. Comparative studies have failed to show the intensity of early pain in traditional laparoscopic versus open ventral hernia repair [1,3,6]. It remains to be studied whether pain would be less in a SILS control group. Single-incision laparoscopy has become the normal clinical practice. It

is a versatile technique and many procedures are commonly performed via SILS [1–8]. However, only a few reports on ventral hernia surgery through single incision have been published. We report 3 cases of single port ventral hernia repair and review the literature for the feasibility and safety of single-port access laparoscopic primary and incisional ventral repair with prosthetic mesh using conventional laparoscopic instrumentation (Fig. 1).

## 2. Case series

### 2.1. Case 1

A 37-year-old woman with no chronic illness presented with recurrent episodes having sharp, crampy abdominal pain, non radiating, aggravated by palpation and sitting up and walking/standing. Lying down in the supine position alleviated it. It was associated with vomiting, intermittent abdominal distention and weakness. She is noted to have two Caesarian sections in the past. She had a bmi (body mass index) of 28.5. She sought medical attention and reviewed in the clinic. She was noted to a large ventral incisional

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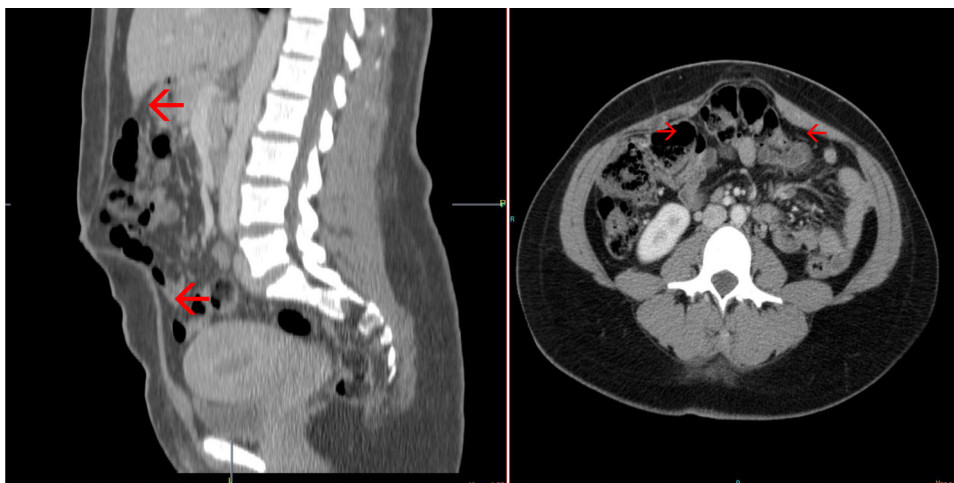


Fig. 1. CT scan abdomen showing hernia with divarication. Arrows shows approximate dimensions.



Fig. 2. CT scan abdomen showing hernia.

hernia with divarication of the rectus muscles. This was later confirmed on CT scan, with dimensions of 14 cm × 10 cm. She was offered a single port laparoscopic hernia repair at our ambulatory center. It was completed uneventfully using the technique described below. She was discharged from the recovery with the rest of her course was uneventful. The patient was reviewed on day 3 postoperatively and follow up was 3 months with no complications and good cosmetic outcome (Fig. 2).

2.2. Case 2

A 45-year-old man with no chronic illness presented with asymptomatic abdominal swelling. He is noted to have this swelling from childhood with increasing in size over the past year. He had a bmi of 32.1. He sought medical attention and diagnosed with a primary ventral hernia. On examination, he a large ventral primary hernia with and associated umbilical hernia. On CT scan, the hernias were confirmed and spanned an area of 11 cm × 6 cm. He was offered a single port laparoscopic hernia repair in the outpatient setting. It was completed uneventfully (see method below). He was discharged from the recovery bay. He review spanned 4 months an uneventful course. He had no complications (Fig. 3).

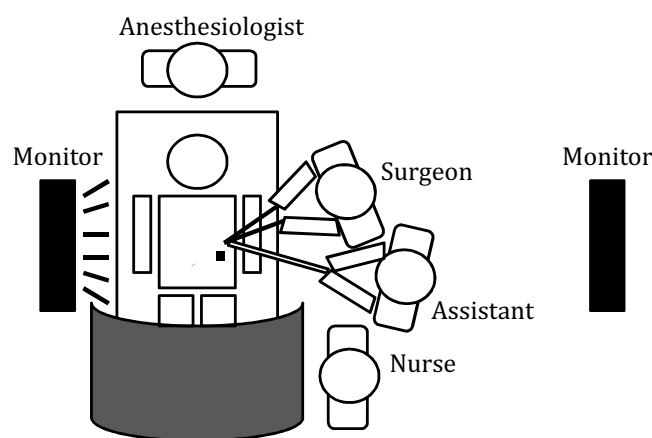


Fig. 3. Operating room set up.

2.3. Case 3

A 43-year-old man with no chronic illness presented with sharp, crampy abdominal pain. He is noted to be a drummer by profession. He reports having recurrent episodes of non-radiating pain, aggravated by playing the drums, sitting up and walking/standing. It was associated with intermittent abdominal distention. He is noted to have had a laparoscopic appendectomy 7 years previously. He had a bmi of 31. He sought medical attention, which brought him to the emergency room and subsequently referred to clinic. He was noted to a chronically incarcerated incisional hernia at the previous umbilical incision. He had no pre-operative imaging but hernia clinically noted to be 6 cm × 8 cm. He had single port laparoscopic hernia repair at our ambulatory center. He complained of mild post-operative pain, which required additional analgesia. He however was discharged from the recovery with an uneventful course. The patient was reviewed in clinic for 3 months with no complications and good cosmetic outcome.

3. Method of repair

Patients were placed in a supine position with arms placed to the sides and the legs straight. The surgeon was on the patient's left and the assistant to the left of the surgeon. A television monitor and the insufflator system Stryker Ideal-eyes were placed to the right hip of the patient. The size of the hernia was marked with a 5 cm margin marked on the deflated abdomen. A 2.0–2.5 cm vertical

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