TECHNICAL NOTE

Safe access to the peritoneal cavity in obese patients

Manjula Pathirana
Teaching Hospital Anuradhapura, Sri Lanka

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Introduction

Laparoscopic access to the peritoneal cavity is challenging, particularly entry of the first port can carry the risk of visceral injury of nearly 0.3%-0.5% [2]. Access always needs to be in balance between safety and benefit. Commonly used techniques are Hasson's open technique, Veress needle gas insufflation and the optical port entry. Based on available statistics, neither technique is superior in terms of safety [3]. Every technique carries the risk of visceral damage.

Obesity and multiple previous surgical scars compound the difficulty in access.

In bariatric operations, all ports are placed in the upper abdomen (well above the umbilicus), therefore open access in obese patients results in an unacceptably large scar which finally can be a cause for incisional hernia. Furthermore, open access results in CO2 leakage making the procedure technically difficult.

Technique

The new technique is a combination of the Veress needle and the optical port entry. An adequate sized incision (roughly 1cm -1.2 cm) is made over the proposed site of port entry. As the technique is used for obesity surgery and incisional hernias, the entry site is usually Palmer's point. Kocher's type of tissue forceps is used to lift the rectus sheath expecting to leave some space between the Abdominal wall and the viscera. However, the Society of Obstetricians and Gynecologists of Canada (SOGC) guidelines do not recommend lifting of the fascia as a safety measure simply due to paucity of evidence [1]. The Veress needle is then connected to the gas insufflation tube and piercing the rectus sheath is commenced while gas insufflation is turned on. (Sense of two clicks at the manoeuvre).

Indication of the CO2 insufflator pressure indicator of a value less than 10 mmHg is a sensitive indicator of successful peritoneal entry [1].

Usually, the intraperitoneal pressure value (IPPV) is less than 5 mmHg. Pressure value gives reassurance to the operator that a low value reflects the correct placement of the needle tip.

Once the desired pressure is reached (12 mmHg -15 mmHg), both Veress and Kocher's forceps are removed and the operator prepares for optical port entry using the zero degrees camera.

While manoeuvring the optical port, the surgeon can see the endo-view of the anterior abdominal wall (Fig 1-3). All bariatric procedures were performed using 12mm Xcel EndopathTM (Johnson and Johnson) or 12 mm VersaportTM (Covidien) ports.

Once the port is successfully deployed, proper entry into the peritoneum is confirmed before insufflation of the cavity. Hence further damage is prevented even if there is inadvertent visceral damage by the port.

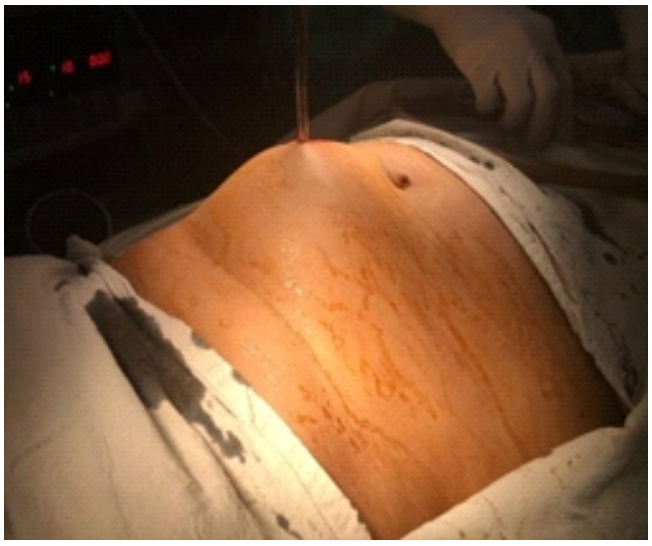

Figure 1. Lifting of the Rectus with Kocher's forceps.

Correspondence: Manjula Pathirana
E-mail: smpmanjula@gmail.com
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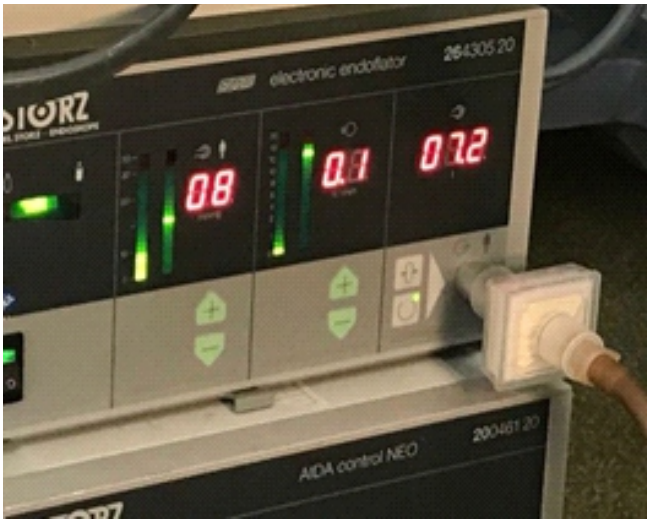

Figure 2. Gas insufflator value gives a reassurance of the position of Veress

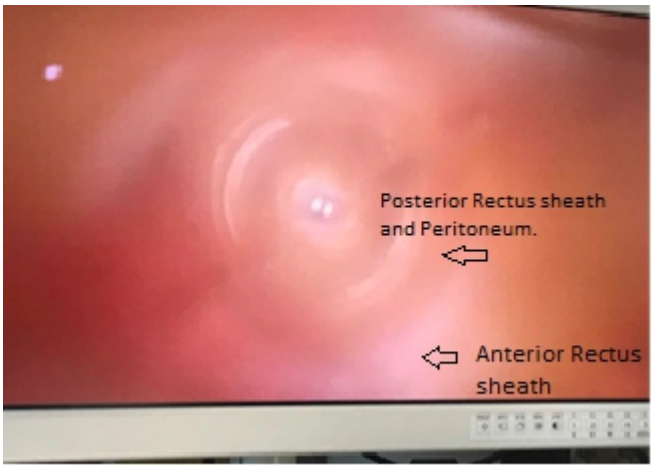

Figure 3. Endoview of the Anterior Abdominal wall

Results

This novel modification had been used for over 120 laparoscopic procedures since October 2016 to date with no adverse events.

Out of the 120 cases over 60 were for Bariatric operations. The majority of the balance cases were incisional hernia, however, the technique was used in other procedures like Cholecystectomy, Fundoplication, Splenectomy and few Gynecological procedures. Table 1 details the breakdown.

Out of the patient cohort who underwent bariatric procedures, two patients (both were male) had a BMI above 50 (super obese), 24 patients (21 female) had a BMI between 41-50. Thirty-one patients (30/31 female) had a BMI between 35-39 and the balance 3 patients (all female) had a BMI above 30.

Table 1. Breakdown of the procedures

Bariatric procedures	Incisional hernia	Splenectomy	Other operations
60	48	01	12

All the attempts were time-efficient and most of the entry attempts were successful in the first pass of the Veress needle. However, the exact duration was not recorded.

Discussion and Conclusion

Although access to the abdominal cavity seems to be a small part of a laparoscopic operation, most inadvertent visceral injury occurs at the time of first port placement. (83% vascular and 75% bowel) [6]. These figures were Veress needle-related injuries. Wu shun Felix Wong reported his series with zero complications with optical port entry with using the surgeon's hand to lift the anterior abdominal wall to counteract the pressure exerted with the port and the telescope. However, many published data report even optical port entry associated with life-threatening injuries, particularly during first port placement [5]. We used the Kocher's tissue forceps to lift the fascia while inserting the Veress. This manoeuvre probably mitigates the risk of visceral injury. Since insufflation keeps the viscera away from the anterior abdominal wall, it does not require lifting the abdominal wall manually. However, this is not possible in patients with previous abdominal operations. Nevertheless, we did not encounter such difficulty in our series, most likely due to Palmer's point used as the site of the entry.

This novel technique is a combination and modification of the Veress and optical port entry techniques. Our results suggest that this technique is effective and safe.

All authors disclose no conflict of interest. The study was conducted in accordance with the ethical standards of the relevant institutional or national ethics committee and the Helsinki Declaration of 1975, as revised in 2000.

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