

Z-entry technique reduces the risk of trocar-site hernias in obese patients

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BACKGROUND

Open laparoscopy and techniques using a Veress needle permit entry into the peritoneal cavity, and are recommended.^{1,2} These approaches require fascial closure of 12mm trocar sites, thereby reducing the risk of trocar-site hernias in obese patients.^{3,4}

TECHNIQUE

We propose a novel 'Z-entry' technique to enter the abdominal cavity under direct vision of an optical trocar that (theoretically) can reduce the risk of trocar-site hernias in obese patients. After induction of a pneumoperitoneum through a Veress needle, a 12mm optical trocar system is inserted with a 30° laparoscope. Under direct laparoscopic vision, the trocar is inserted in subcutaneous fat in a perpendicular direction through the anterior rectus muscle sheath (Fig 1A) and then advanced at 45° through the muscular plane (rectus abdominis muscle or flat abdominal muscles; Fig 1B). A distance of 1.5–2cm from the skin incision is obtained, and the abdominal wall is entered at 90° (Fig 1C). The anatomical structures encountered are readily recognisable by the optical trocar system. At the skin incision, the towel clips holding the abdominal wall should be dragged upwards to achieve the correct distance between the two perpendicular openings.

DISCUSSION

The distance between two openings in the muscular fascia reduces the risk of trocar-site hernias because of the angled path through the abdominal wall. We also use this technique in patients who have undergone surgery previously (a shielded trocar should be used in such cases). This technique is advised for positioning of trocars in pararectal regions and the lateral abdominal wall. A sufficient muscular plane dividing anterior and posterior sheaths is needed.

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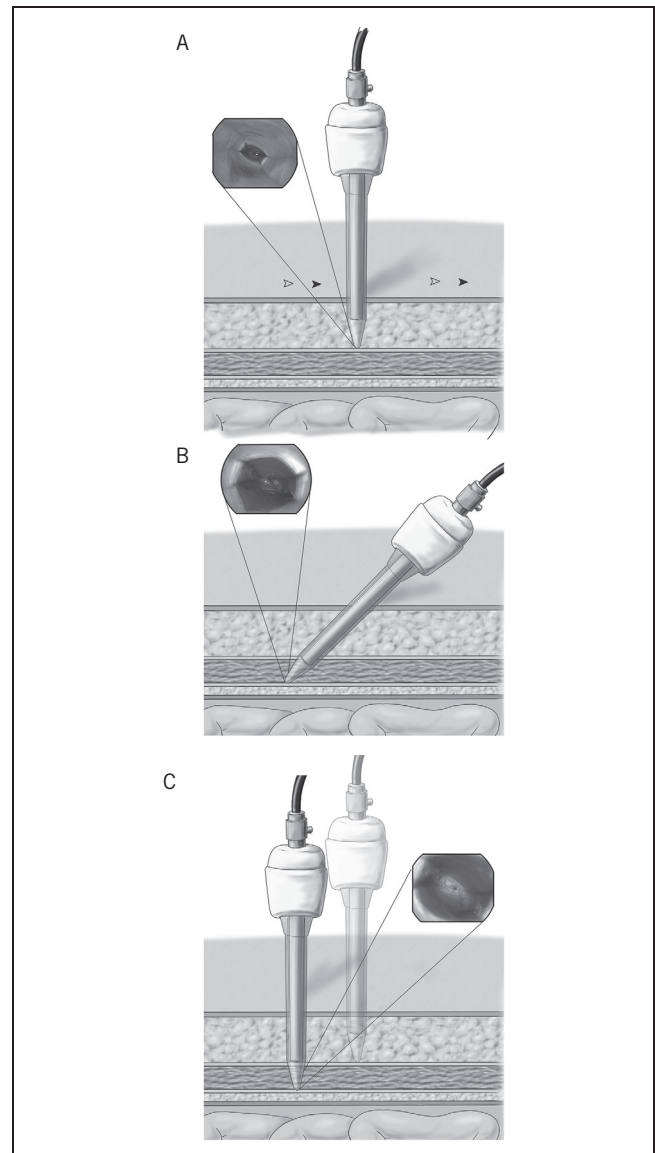


Figure 1 Trocar placement using the Z-entry technique. **A)** The trocar is inserted in a perpendicular direction through the anterior sheath plane by applying traction to the skin with towel clips. **B)** Movement at 45° is made through the muscular plane. **C)** Trocar in inserted through the posterior sheath plane, preperitoneal fat, and peritoneum at 90°. Inlays show the operative view.