NEW ZEALAND ASSOCIATION OF GENERAL SURGEONS

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How to repair a small umbilical hernia laparoscopically

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Background

Umbilical hernia repair is a frequently performed elective general surgical procedure. The laparoscopic umbilical hernia repair (LUHR) has evolved since its introduction and its popularity has increased due to reduced recurrence, surgical site infection, and hospital stay (1). However, LUHR may have unfavourable cosmetic result, transfascial sutures may cause pain and the development of post operative seroma or haematoma remains significant (2,3). We describe an LUHR technique for elective repair in the presence of a small fascial defect (<3 cm) which has been designed to minimize these issues.

Operative Technique

1. Port placement (Figure 1)

Access is obtained by an 11mm optical entry in the left upper quadrant. Two left-sided ports are subsequently placed as laterally as possible to optimise working space.

2. Sac excision (Figure 2)

After reducing the hernia, the sac is excised 1cm from its neck. The falciform ligament is mobilised above and pre-peritoneal fascia is cleared below the umbilicus.

3. Closure of fascial defect (Figure 3)

A barbed 1 non-absorbable suture is used to close the fascial defect, incorporating the umbilical dermis in two individual bites. The umbilicus is inverted into the closure as the stitch is tensioned.

4. Mesh placement (Figure 4)

Mesh size is determined by the size of the fascial defect as per international guidelines (4). We use a composite bioabsorbable mesh (9cm for a 1cm defect, 12cm for a 2cm defect, 15cm for a 3cm defect). To position the mesh underneath the closed fascial defect, we secure a 2/0 non-absorbable suture to the centre of the mesh, place it into the peritoneal cavity and then pass the needle through the repaired defect and abdominal wall.

5. Mesh fixation (Figure 5)

A barbed 2/0 absorbable suture is locked in the 6 o'clock position of the mesh to serve as the starting point for a continuous stitch within 1cm from the mesh edge in a clockwise direction to the 12 o'clock position. This is repeated with a second suture in an anticlockwise direction.

6. Local anaesthetic (Figure 6)

Extraperitoneal local anaesthetic is injected around the circumference of the mesh and at the site of repair with a laparoscopic ovarian cyst aspiration needle. Woven gauze is compressed into a sphere and held in place over umbilicus by occlusive dressing.

For demonstration of this technique, see Reference 5.

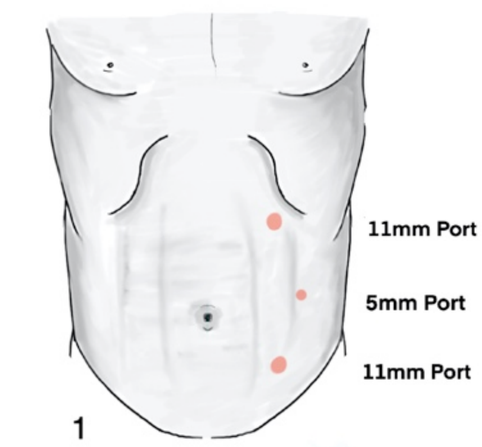
Discussion

A single surgeon has performed this technique in 46 patients over a four-year period. The mean age and BMI were 48 years and 33.4 kg/m^2 respectively. Of these patients, 80% were male, 13% were diabetic and 11% were current smokers. Mean operative time 51 minutes. There were no documented early clinical recurrences, but one patient had an infected seroma requiring intervention and two patients presented with non-specific pain.

Of 46 patients, 29 responded to a telephone questionnaire with a mean follow-up time of 24 months. Using the Carolinas Comfort Scale, 85% of respondents were pain free, 87% could not feel the mesh and 93% had no limitations of movement (6).

Almost all patients (27/29) obtained the highest score for body image, cosmesis, and self-confidence using the Body Image Questionnaire (7). An example of the cosmetic result is presented in the figure.

This technique aims to provide an excellent technical and cosmetic result. Fascial closure with umbilical dermis incorporation increases mesh overlap and returns the umbilicus to its normal anatomical state. Our mesh fixation technique improves accuracy of mesh placement and replaces transfacial sutures and the use of stapling devices which may help in reducing postoperative pain and procedural costs. This technique is achievable for surgeons with a solid laparoscopic skill set without a significant increase in operative time or cost. Patients appear to be satisfied with the cosmetic result.



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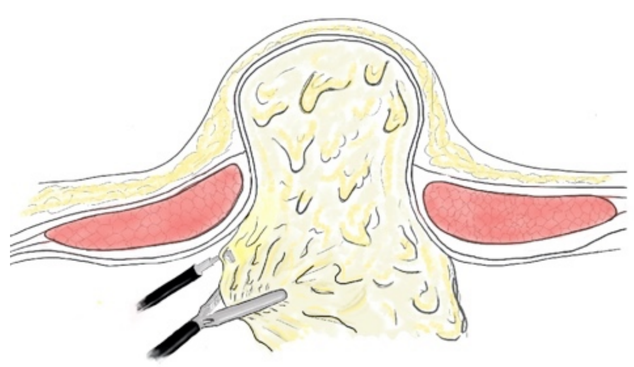

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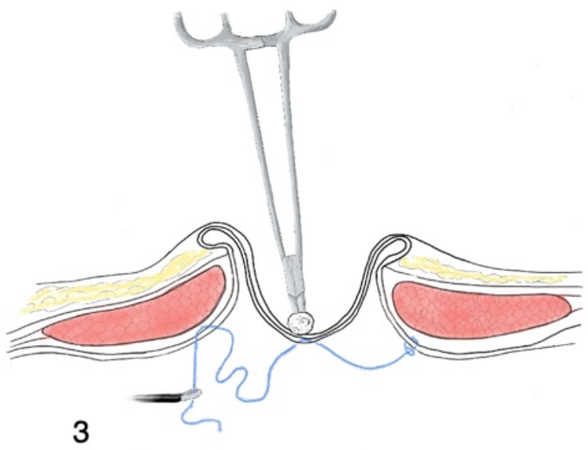

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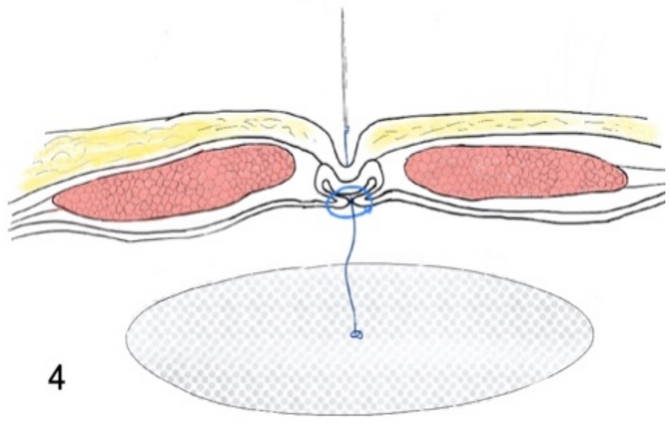

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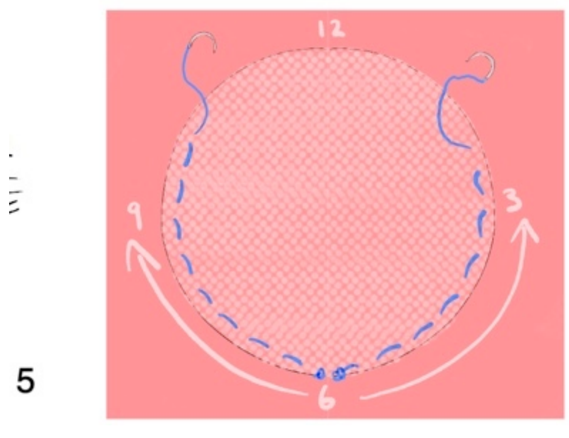

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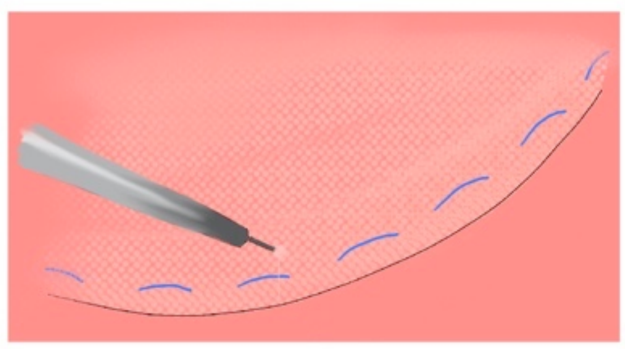

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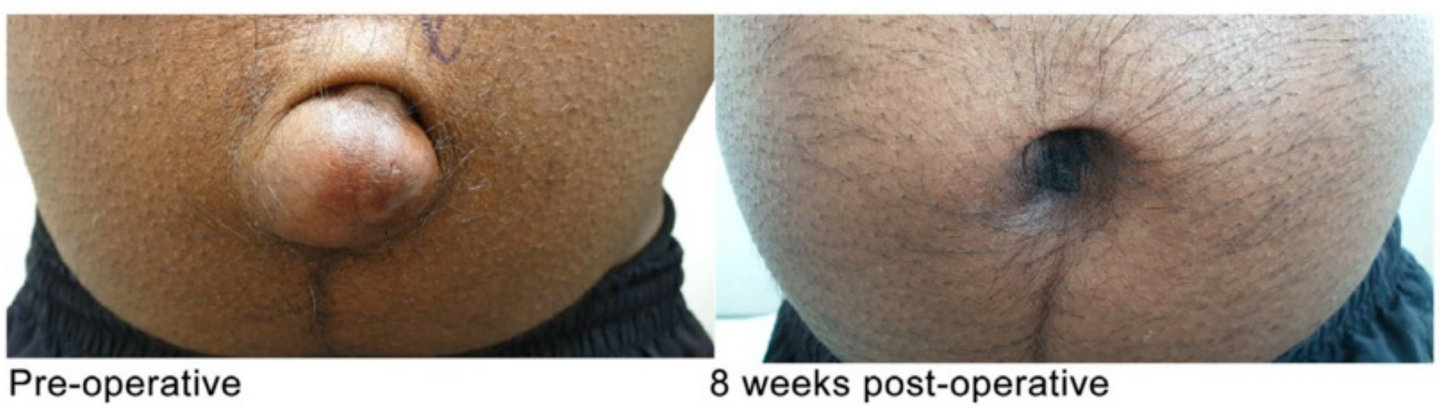

Pre-operative

8 weeks post-operative

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