



Complex Midline Ventral Hernia

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Abstract

A ventral hernia occurs along the vertical center of the abdominal wall. Symptoms include pain in the abdomen, especially when lifting or straining. Treatment is with surgery, including open, laparoscopic and robotic hernia repair.

Keywords:

Complex; ventral; hernia

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Introduction:

Several million laparotomies are performed every year worldwide and up to one third of them develop ventral hernia, which is well known to be associated with occurrence of serious complications. It usually results due to loss of mechanical integrity of the abdominal wall leading to inability of the abdominal wall muscles and fascia to contain viscera and to support the torso (1, 2). Complex ventral hernia is a challenging problem with no unified accepted evidence-based approach for its repair (3). The major problems encountered in such cases include: loss of domain with subsequent increase of intra-abdominal pressure after repair, the huge musculo-fascial defect and skin scarring with possible skin viability problem resulting from the dissection of skin flaps (4).

Loss of abdominal domain is a therapeutic challenge due to the difficulty in replacing the hernia sac contents into the abdominal cavity and the subsequent development of abdominal compartment syndrome and respiratory distress, which may result in a serious morbidity and even mortality.

Preoperative progressive pneumo-peritoneum is a valuable option, which results in a gradual increase in intra-abdominal pressure and helps in reduction of the hernia sac contents back into the peritoneal cavity making the repair of complex ventral hernia less risky (5)

In order to facilitate closure of the hernia defect, component separation technique first reported by Albanese in 1951 (6) and later it was refined by Ramirez et al., in 1990 (7), which implies a complete bilateral division of the external oblique aponeurosis allowing mobilization of both recti muscles into proximity in the midline. Iatrogenic muscle injury in component separation technique results in weakness of lateral abdominal wall muscles predisposing patient to lateral abdominal wall herniation (8).

Pharmacological paralysis of the lateral abdominal muscles using Botulinum Toxin type A, which is an acetyl-choline release inhibitor causing flaccid muscle paralysis, appears promising as a modality of supplementary chemical component separation to achieve tension free fascial closure in repair of complex ventral hernia.



Group I (the study group A) in which Botulinum toxin A (Botox) will be injected into the lateral abdominal wall muscles as shown in figure (1). The Botulinum toxin A will be diluted with 0.9% normal saline into a concentration of 10 units / ml. Five ml (50 units Botox) will be injected into the lateral abdominal wall muscles under US guidance at 3 sites on each side. Site (1) will be in above the level of umbilicus will be for the transversus abdominus muscle infiltration and site below the level of the umbilicus is for the internal oblique muscle infiltration. The sit of

the mid-axillary line midway between the costal margin and iliac crest at the level of normally located umbilicus, for the external oblique muscle infiltration. Site (2) and (3) will be midway between the mid- clavicular line and anterior axillary line at equal distances from the level of normal umbilicus horizontal line. The site

infiltration may be modified according to the muscle thickness as determined by US. Accordingly, the total dose of Botox injection will be 300 units (150 units in each side).

[Figure 1] Botox injectionsites



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