How to improve treatment of complex incisional hernias in obese patients: a single-centre study, an evaluation of less-open and free-fixation technique.

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Aim: Treatment of an obese patient suffering from a complex incisional hernia is a challenging procedure for surgeons. The aim of our modified approach is to reduce complications such as pain and wound events, without increasing the number of recurrences.

Material and Methods: Adults with BMI more than 35 who underwent open, elective operation of a complex incisional hernia (with horizontal diameter more than 12cm) and met the criteria for posterior component separation technique with TAR (transversus abdominis muscle release) and retromuscular synthetic large-pore mesh placement, were identified. All patients underwent an intensive pre-conditioning including rehabilitation and weight-loss. The operation technique was standardised (Table I) and was performed by the same team. Posterior and anterior abdominal wall layer closure was obligatory. A large-pore, light/ or middle-weight non-absorbable mesh of a minimum size 30x30cm was used in all cases.
Patients were divided into 2 groups: The first group was treated with standard open technique with fixation using interrupted stitches cranially, caudally and laterally, and the second group was treated without (or with minimal) fixation (the cranial and caudal pole of the mesh only), in some cases with a less-open technique using a light hook. The manipulation and the contact of the mesh with other tissues and the skin was minimized to avoid its contamination. For post-operative complication evaluation, the Clavien-Dindo classification was used. We have also evaluated an average operation time, length of stay, duration of opioid need. The follow-up was 6 – 48 months.

Table I: 7 steps of complex abdominal wall defect repair
* scar excision, midline laparotomy (not mandatory), adhaesiolysis
* posterior rectus sheath mobilization
* preserving of neurovascular bundles
* incision 5mm far from the anterior-posterior rectus sheath junction cranially
* transversal fascia mobilization
* creating of a „bony frame“ and mesh placement behind
* linea alba restoration / fascial closure

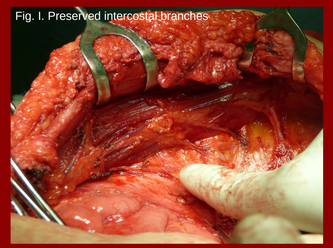
Fig. I. Preserved intercostal branches

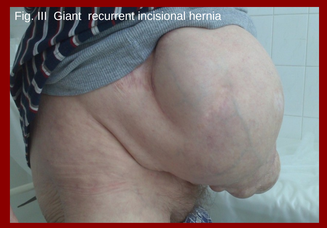
Fig. III Giant recurrent incisional hernia

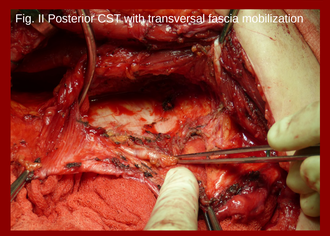
Fig. II Posterior CST with transversal fascia mobilization

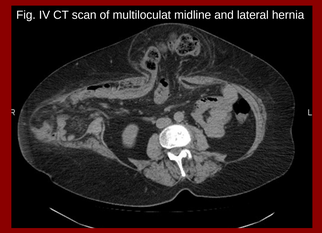
Fig. IV CT scan of multiloculat midline and lateral hernia

Table II: Type of hernia	Group I	Group II
Midline hernia	12	14
Hernia post-appendectomy	4	5
Hernia post-lumbotomy	2	0
Parastomal hernia	3	2
Hernia post-horizontal laparotomy	2	1

Results: There was no statistical significant difference in length of stay, the need of analgetic treatment, and hernia recurrence. No recurrence has been recorded yet. Shorter operation time, and lower occurrence of surgical-site infections, were reported in the second group.

Table III: Complications / No of patients	Group I	Group II
grade I (SSI, skin necrosis)	3	1
grade II (blood transfusion)	1	0
grade IIIB 4,3% (adhaesive ileus) (partial mesh explantation)	1	1
grade IVA 4,3% (fully reversible kidney graft failure)	1	0

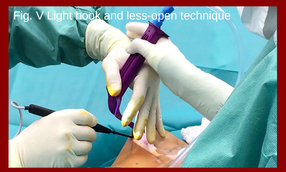
Fig. V Light hook and less-open technique

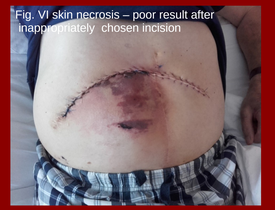
Fig. VI skin necrosis – poor result after inappropriately chosen incision


Fig. VII NPWT in the management of wound complication

Conclusions: Open posterior component separation technique with TAR using large-pore mesh and no/minimal fixation seems to be a safe and sufficient method of treatment for complex incisional hernias in obese patients. Alternative methods may reduce early complications and pain and do not increase number of recurrences. A larger group of patients and longer follow-up will be needed to improve these findings.