

Inguinal Hernia

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Preoperative Progressive Pneumoperitoneum and Botulinum Toxin A in a High-Risk Patient With Loss of Domain Inguinoscrotal Hernia

Aim

We present a challenging case involving a giant inguinoscrotal hernia with loss of domain (LOD) in a 77-year-old high-risk patient, successfully managed with the complementary preoperative use of progressive pneumoperitoneum (PPP) and botulinum toxin A (BTA) without complications.

Material & Methods

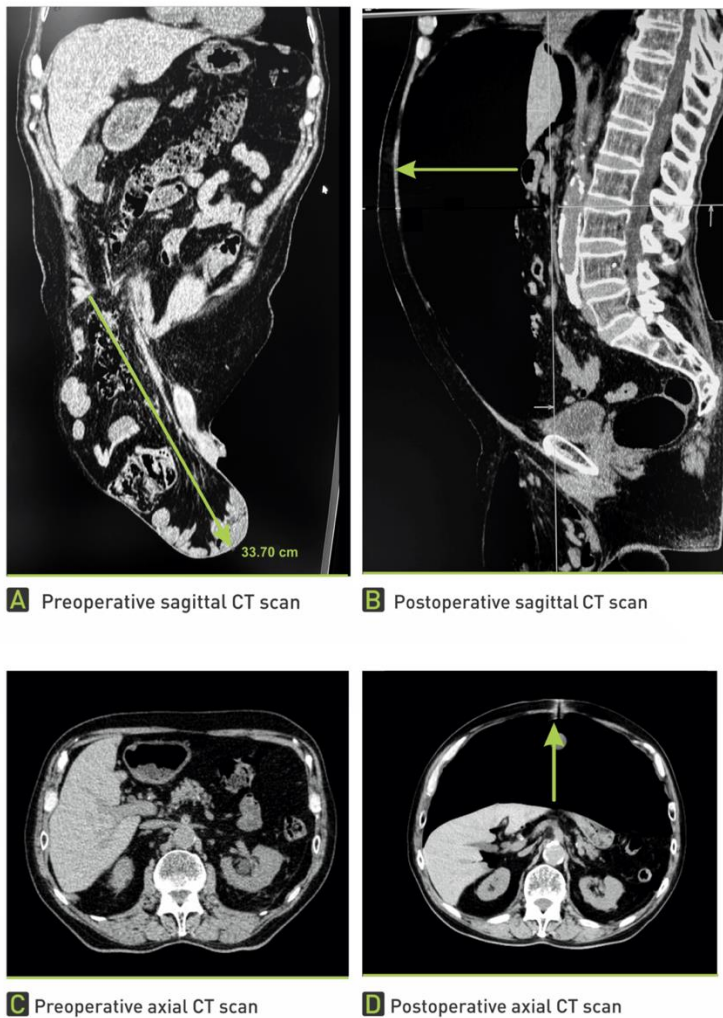
Under local anaesthesia, we placed a simple Foley catheter into the abdominal cavity through a 20-mm vertical subxiphoid incision. After 10 days and an insufflated volume of 6.7 L of room air, we injected 300 IU of BTA between the external and internal oblique muscles under ultrasound guidance. This approach facilitated a complication free increase in abdominal cavity volume and the repositioning of chronically eventrated abdominal contents.

References

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Figure 1: Initial examination showing a massive right inguinoscrotal hernia



A Preoperative sagittal CT scan

B Postoperative sagittal CT scan

C Preoperative axial CT scan

D Postoperative axial CT scan

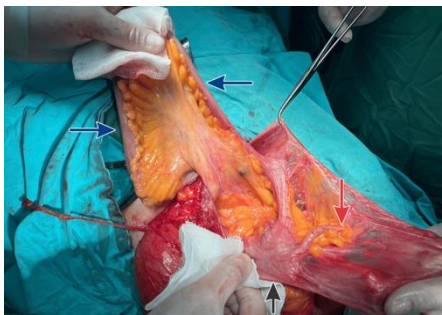


Figure 3: Hernial sac after partial reduction of herniated contents, showing the small bowel (blue arrows), cecum (black arrow), and appendix (red arrow), indicating an Amyand's hernia



Figure 4: Image of the surgical site six months postoperation

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Discussion

- LOD hernias either pose a significant risk of complications due to increased IAP or require additional reconstructive procedures beyond primary fascial closure and simple content reduction.
- Management of LOD hernias by experienced hernia specialists, especially in multimorbid patients, as multimorbidity significantly impacts functioning and survival, contributing to nearly 70% of postoperative deaths.
- PPP is a prehabilitation technique that can expand the abdominal cavity, creating space for chronically impacted contents and reducing the risk of compartment syndrome and related complications.
- The PPP catheter placement procedure is reproducible even in low-resource settings, using ambient air and local anesthesia.
- Our experience showed no complications from room air insufflation.
- Prolonged PPP can lead to effective pneumatic adhesiolysis, and IAP measurement is not obligatory.
- BTA allows for reversible separation of abdominal wall components,
 - BTA's maximum effect appears after 10-14 days and lasts approximately three months [16,17].
- In our case, the combined use of PPP and BTA achieved pneumatic adhesions, dissection of the hernial sac, and a significant reduction in operative time.

Conclusions

- Giant inguinoscrotal and LOD hernias, especially in multimorbid patients, require preoperative prehabilitation.
- Safe, feasible, and effective prehabilitation technique.
- Creates space for chronically impacted contents and reduces the risk of compartment syndrome and related complications.
- Facilitates pneumatic, nontraumatic adhesiolysis, reduces surgery time, and minimises the need for more invasive techniques.
- The catheter placement procedure is reproducible in low-resource settings and under local anaesthesia.
- Fascia closure with non-resorbable suture mandatory.
- BTA injection at three points on each side with a total dose of 300 IU was sufficient.
- Due to notable discomfort with injected volumes exceeding 1000 cc per day, we recommend a gradual volume increase.