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Incisional hernia

CENTRO MÉDICO ABC

Use of botulinum toxin and progressive preoperative pneumoperitoneum in abdominal hernia with loss of domain.

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Primary inguinal hernia.

Incisional hernia

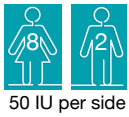


- Incisional hernias with loss of domain pose significant challenges due to the risk of postoperative intra-abdominal hypertension.
- Various preoperative and surgical techniques have been employed to increase abdominal cavity space, aiming to repair the defect and reduce intra-abdominal hypertension risk.
- Dr. Tomás Ibarra Hurtado's publication in 2009 on botulinum toxin use in abdominal wall reconstruction (AWR) prompted its adoption by our surgical group in 2010, initially in complex ventral hernias, with expanded indications over time.
- Patients undergo progressive preoperative pneumoperitoneum; however, consensus is lacking on the optimal air volume, insufflation frequency, and duration of maintenance due to subjective volume determination based on patient symptoms rather than objective measures.

- **Patient preparation** (30-60 days prior):
  - CT scan, internal medicine and nutrition assessment, vitamin and fish oils intake, lung exercises and or pulmonary therapy, and daily walk or exercise at least 30 minutes per day.
- **Abdominal wall preparation**:
  - **30 days prior** to surgery: all patients underwent infiltration with Allergan's **Botox,** performed in-office.
  - **15 days** pre-surgery: On an ambulatory setting an arrow catheter was placed using Seldinger technique at Palmer's point for **progressive pneumoperitoneum** in the OR, confirmed by chest x-ray.
  - Patients and family members received training on insufflation and catheter manipulation, with provided alarm data and daily air intake recording. Average volumen 600cc per day
  - **7 days** prior, an office appointment included catheter check and NSAID management for any catheter-related pain.
  - Preoperative CT scan confirmed lysis of adhesions, abdominal wall expansion, and significant pneumoperitoneum.
  - Indications for hospital admission are given in this consultation.

12 patients hernia + loss of domain

Ventral



50 IU per side

25 IU per lateral wall and 25 IU per rectus abdominis.



Inguinal

Results

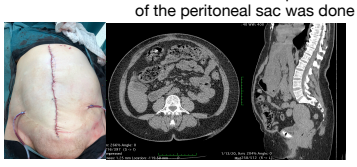
3h30min (range: 2h30min to 6h).



*The Mälmo technique patient required en bloc resection of 20cm of small intestine due to previous mesh; Rives plane with extension of the peritoneal sac was done instead of advancing to TAR.

Ventral (10px) Open surgery: 5 TAR, 4 Rives, and 1 Mälmo.

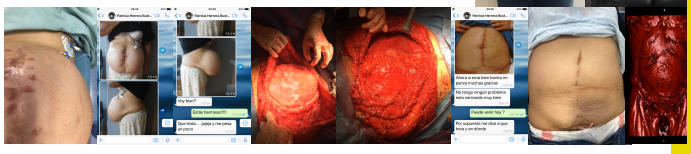
Inguinal (2px) TAPP content reduction and eTEP technique: hernia defect closure with v-lock and laparoscopic progrip was performed.



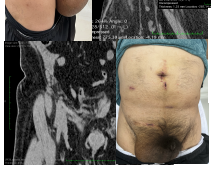


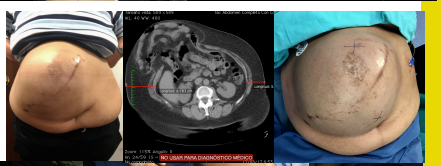
Average in-hospital stay: 24-48 hours.

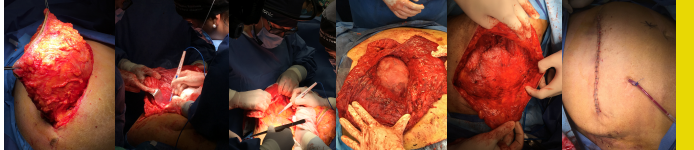
All patients received antibiotic therapy, NSAID analgesia, and prophylactic thromboprophylaxis with enoxaparin 40 mg/day.











Complications

- Giant seromas in both inguinal hernia patients despite drainage, requiring ultrasound-directed punctures draining approximately 400 ml each; ventral hernia patients had seromas managed conservatively.
- Malmo technique patient developed segmental pulmonary thrombosis on the 4th postoperative day, readmitted for anticoagulation and pulmonary therapy.
- One ventral hernia patient reconstructed with TAR developed community-acquired pneumonia, leading to death in the ICU due to endotracheal cannula obstruction.
- Recurrence documented in the Malmo technique patient at the lower edge near the pubis during 2-6 year follow-up, managed conservatively; other patients remain recurrence-free undergoing regular CT and valsalva every 2 years

Conclusions

The use of botulinum toxin and progressive preoperative pneumoperitoneum are excellent tools for cases with loss of domain. Tools that have allowed us to close the abdominal wall with retromuscular techniques, offering the best place for placement of prosthetic material in giant and complex hernias.

1.- Murr MM., Mason EE., Scott DH. The Use of Pneumoperitoneum in the Repair of Giant Hernias. Obesity Surgery 199
2.- Mayagoitia JC., Arenas J.C., Suárez D., Díaz de León V., Álvarez Quintero R. Neumoperitoneo progresivo preoperato
3.- Minossi JG., Oliveira WK., Llanos JC., Ielo SM., Hasimoto CN., Pereira RSC. O uso do pneumoperitônio progressivo
4.- Lipman J., Medalie D., Rosen MJ. Staged repair of massive incisional hernias with loss of abdominal domain: a novel
5.- Toniato A., Pagetta C., Bernante P., Piotto A., Pelizzo MR. Incisional hernia treatment with progressive pneumoperitone
6.- Mayagoitia JC., Suárez D., Arenas J.C., Díaz de León V. Preoperative progressive pneumoperitoneum in patients with
7.- Oprea V., Matei G., Gheorghescu D., Leuca D., Buia F., Rosianu M., Dinca M. Progressive Preoperative Pneumoperi
8.- Winfield Raynor S., Guercio LRM. The Place for Pneumoperitoneum in the Repair of Massive Hernia. World J. Surg.
9.- Martínez Munive A., Quijano F., Padilla R, Hesquio R, Álvarez CI, Medina O. Catéter de doble luz para neumoperitone
10.- Mason E. Pneumoperitoneum in giant hernia. Nyhus LM, Condon RE (Hernia), 4th ed. JB Lippincott, Philadelphia, 19
11.- Alyami M., Passot G., Voiglio E., Lundberg P. W., Valette P. J., Muller A., Caillot J. L. Feasibility of Catheter Placement
12.- López MC., Robres J., López Cano M., Barri J., Lozoya R., López S., Vasco MA., Buqueras MC., Subirana H., Jorba
13.- Kingsnorth AN. Open mesh repair of incisional hernias with significant loss of domain. Ann R Coll Surg Engl 2004; 8
14.- Sabbagh C. Peritoneal volume is predictive of tension-free fascia closure of large incisional hernias with loss of doma
15.- Tanaka EY, Yoo JH, Rodrigues AJ Jr., Utiyama EM, Birolini D, Rasslan SA. Computerized tomography scan method
16.- Rodríguez Ortega M., Garaulet P., Ríos R., Jiménez V., Limones M. Neumoperitoneo en el tratamiento de hernias c