

Surgical treatment of complex ventral hernia in a patient with colostomy status (colostomy takedown anastomosis and abdominal wall repair)

Tratamiento quirúrgico en hernia ventral compleja en un paciente con estatus de colostomía (restitución intestinal y reparación de pared abdominal)

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Abstract

Background: Simultaneous ventral hernia repair with another intestinal surgery have been described. **Case report:** A case of complex ventral hernia in a patient with colostomy status is described. Infiltration of botulinic toxin and progressive preoperative pneumoperitoneum was performed successfully prior to the surgical procedure during which mechanic restitution of gastrointestinal and ventral hernioplasty. **Conclusions:** In selected patients, complex ventral hernia repair, with prior progressive preoperative pneumoperitoneum, and restitution of gastrointestinal tract can be done in a single surgical procedure, considering the patient's clinical conditions and the surgeon's experience.

Keywords: Pneumoperitoneum. Ventral hernia. Hernioplasty. Colostomy.

Resumen

Antecedentes: Se ha descrito la reparación de hernias ventrales y alguna otra cirugía intestinal de manera simultánea. **Caso clínico:** Se describe el caso de una hernia ventral compleja con pérdida de dominio, en un paciente masculino en estatus de colostomía. Se realizó infiltración de toxina botulínica más neumoperitoneo progresivo preoperatorio previo al acto quirúrgico, durante el cual se realizó restitución mecánica del tránsito intestinal y hernioplastia ventral exitosamente. **Conclusiones:** En pacientes seleccionados, la reparación de la hernia ventral compleja, previo manejo con neumoperitoneo preoperatorio y restitución del tránsito intestinal, puede realizarse en un solo procedimiento quirúrgico, considerando las condiciones clínicas del paciente y la experiencia del cirujano.

Palabras clave: Neumoperitoneo. Hernia ventral. Hernioplastia. Colostomía.

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Introduction

Within the criteria to establish a complex hernia is whether the hernia is larger 10 cm with loss of control of more of 20% that can be accompanied by infection or any other condition, or a hernia where the primary closure is not possible without prior separation of the components¹. The reported prevalence of parastomal hernias varies between 0% and 48%²; however, the frequency of complex ventral hernias in patients with colostomy is not well established, as it is not a frequently reported condition, possibly because they are resolved in different surgical procedures.

Both the application of type A botulinum toxin and preoperative progressive pneumoperitoneum have proven to be effective for the treatment of giant ventral hernias with loss of control, as they facilitate closure of large defects³. On the other hand, cases of simultaneous closure of defects with anastomosis have been reported, and it must be considered that, if both procedures are to be performed with the adequate technique for each one, with the perioperative care necessary for any major surgery, there should be no issues when performing both in one single surgical act⁴.

Clinical case

77-year-old male with history of type 2 diabetes mellitus in the last 4 years taking metformin 850mg/12 h orally, systemic arterial hypertension for 4 years treated with losartan 50 mg/12h orally, and COPD for 2 years being treated with salmeterol/fluticasone 100/50 µg/12 h. He has a history of exploratory laparoscopic surgery and Hartmann procedure secondary to a complex diverticular disease a year ago.

He was referred from a family medicine practice due to an increase of the middle abdominal line. During the physical exploration a defect of approximately 20 x 20 cm was found with a large sac and loss of control, as well as a parastomal hernia with a prolapsed stoma, without peritoneal irritation data (Fig. 1).

A contrast tomography was performed (Fig. 2), where a continuity solution between the abdominal muscles of 24 x 17 x 15 mm with enhancement of 60 UH.

A 100 UI infiltration of type A botulinum toxin for each side of the abdominal wall and a trilumen catheter is placed at the Palmer point to administer a preoperative progressive pneumoperitoneum with tomography control where the retracted abdominal muscles are seen at a distance of 185 mm at rest and up



Figure 1. Complex ventral hernia.

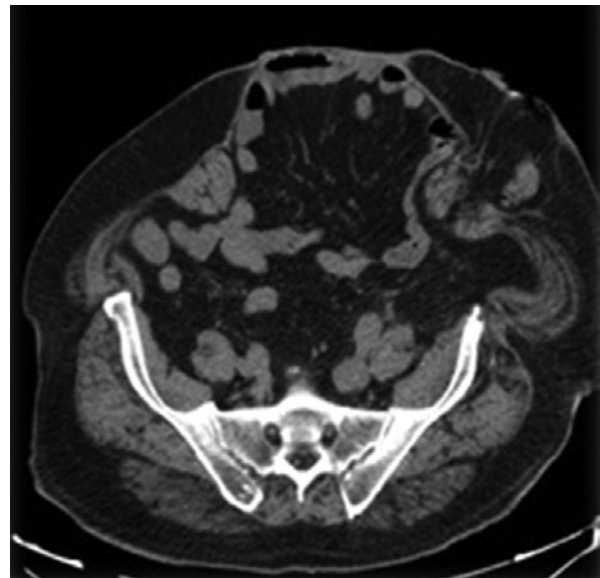


Figure 2. Abdominal tomography image showing a complex ventral hernia.

to 203 mm in Valsalva. The left wall of the abdomen has a wall defect with a ring of 31 mm and a sac of 63 and 79 mm (Fig. 3).

Twenty-one days after the preoperative approach with pneumoperitoneum the surgical procedure is performed. An incision is made on the supraumbilical and infraumbilical middle line, the hernia sac is identified and then it is dissected and opened, an intestinal loop-loop and sac-loop adhesiolysis is performed (Fig. 4),

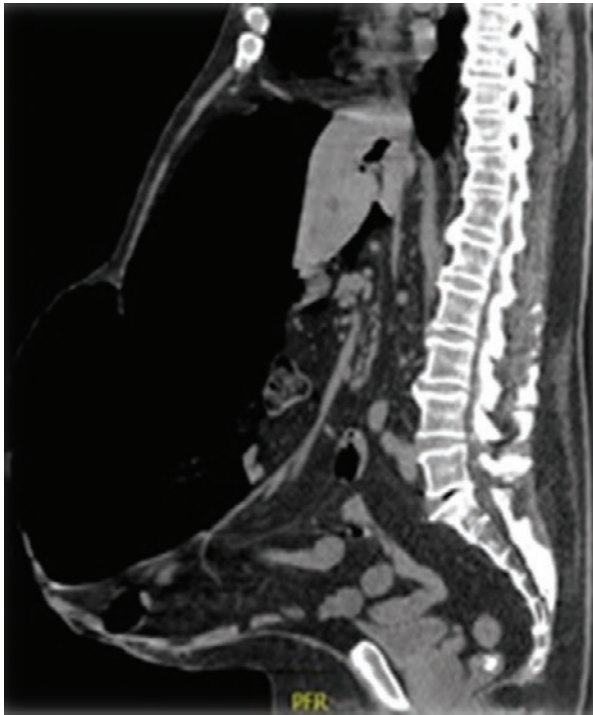


Figure 3. Abdominal tomography image showing the pneumoperitoneum.

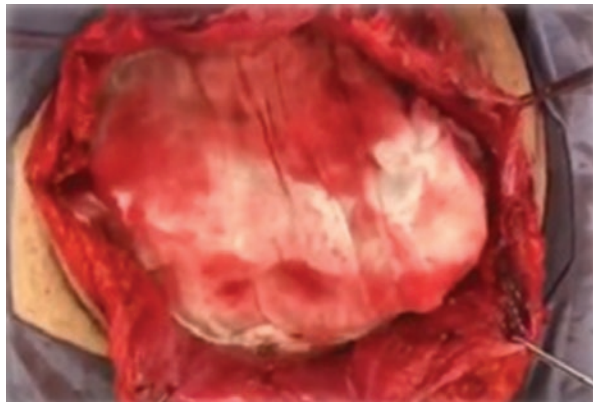


Figure 4. Dissection, opening, and location of aponeurotic edges.

the aponeurotic edges and the superior oblique aponeurosis are located and dissected, obtaining a great aponeurotic advance for the reconstruction of the abdominal wall (Fig. 5). Afterwards, the colostomy was dismantled in order to perform a mechanical intestinal restoration. Then, the sac resection was performed and the aponeurosis was closed with placement of a polypropylene screen polysupre-aponeurotic of 30 x 30 cm with simple stitches towards the aponeurosis. The skin excess was dried with a fleur-de-lys incision, two closed drains were placed (Biovac™) and the skin was stitched with Ashiff stitches.

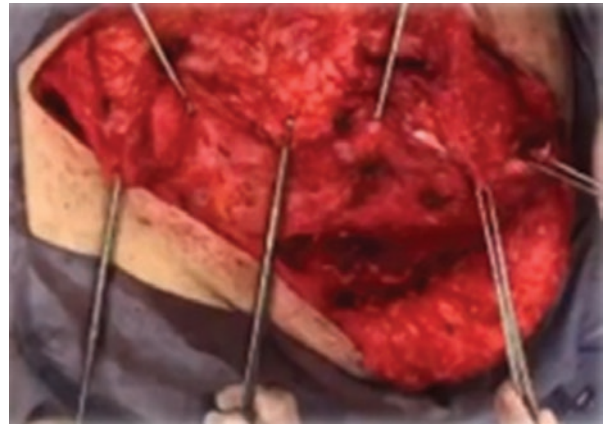


Figure 5. Level 1 Carbonell anatomical component separation technique. Section aponeurosis of the superior oblique, obtaining a great advance for aponeurotic closure.



Figure 6. Patient follow up 3 months after the surgical event.

We followed up with the patient every 7 days for the first 2 months. After 21 days the drains were removed considering a waste of < 50 ml in 24 hours. Later on, a follow up was conducted after 3, 6, and 12 months, without complications or relapse (Fig. 6).

Discussion

Previously, the repair of complex hernias with a simultaneous restoration of the intestinal tract with

and without use of neumoperitoneum has been described with the purpose of elongating the muscles of the abdominal wall and the lysis of adhesions⁵. In this case we also used a botulinic toxin 21 days before the procedure, reaching the proper relaxation of the wall, which allowed to perform a plastia of the abdominal wall without tension during surgery, which we considered an important factor for the evolution of the patient in relation to the plastia, and in second place, the intestinal anastomosis⁶. A retrospective study, in which 18 patients that underwent incisional hernia repair plus a restoration of the intestinal tract were studied, observed that anastomosis leak in four patients (18%)⁷, which is consistent with the series in which a complex hernia repair was performed with reconstruction and handling of enterocutaneous fistula⁸. It is worth explaining that this cannot be compared with the case presented, as in none of the studies the preoperative pneumoperitoneum or the botulinic toxin is mentioned, which can be a factor in surgical success, which has not been studied in this type of situations. In the case presented factors to determine the creation of the intestinal anastomosis were the fact that the patient had adequate hemoglobin values (> 11 mg/dl), good nutritional status, a BMI of < 30 and no tobacco use history. Since there are no precise recommendations regarding handling complex hernias with colostomy, dominion exists currently, the selection of the previously mentioned preoperative techniques was based on the experience of the surgical team for the resolution of complex hernias.

In our case, adequate results were obtained in the patient, and so they were able to be discharged without complications, and, although larger studies are required in order to issue any recommendations in this type of cases, it is known that 32.2% that undergoes any additional surgery present recurrence when performed an additional abdominal surgery⁹, and therefore, it is necessary to have an adequate patient selection protocol with adequate control of any type of comorbidity, as in the case presented, and the correction of any modifiable factor that may increase surgical risk *per se*.

Conclusions

The possible simultaneous handling of the complex ventral hernia (previous progressive pneumoperitoneum plus application of botulinic toxin) and the

restoration of the intestinal tract in selected patients, with an adequate presurgical protocol, and performed by a team with experience in handling both isolated conditions, considering the risk factors of the patient, which in the case presented were the presence of good nutritional state, hemoglobin > 11 mg/dl, a BMI < 30 and no tobacco use history, will allow for the lack of complications related to the intestinal anastomosis. It is worth noting that there are no studies that evaluate this type of scenarios, and therefore, based on current evidence and the experience of the surgical team, a reconstruction of the abdominal wall without tension must be considered with the use of botulinic toxin and preoperative pneumoperitoneum. In this way, the risk of the main complications of these procedures combined, such as intestinal anastomosis leak and infection of the prosthetic material, can be decreased.

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Ethical disclosures

Protection of People and Animals. The authors state that no experiments have been conducted in humans or animals for this research.

Data Confidentiality. The authors declare that they have followed the protocols of their work center regarding the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects mentioned in the article. This document is owned by the corresponding author.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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