

MANAGEMENT OF FROZEN ABDOMEN AFTER HYSTERECTOMY - CASE REPORT

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Abstract

Introduction: Frozen abdomen is characterized by the persistent loss of natural free spaces between intra-abdominal organs and compartmental structures (such as the anterior abdominal wall, retroperitoneal space, and pelvic cavity, among others), as well as pathological changes that are out of normal anatomical proportion. These pathological changes are brought on by a severe adhesive syndrome, followed by fibrotic and scar tissue formation.

Case report: A 56-year-old patient was admitted to the Intensive Care Unit with clinical signs of ileus. The patient had undergone a hysterectomy 28 days ago. The patient presented with abdominal pain, vomiting, and nausea. Laboratory tests and CT scans were obtained. After the performed tests, an indication for surgical treatment was set.

Under general anesthesia, a median laparotomy was performed which revealed an extremely difficult entry into the abdominal cavity due to the presence of abundant adhesions from a previous operation. The wound was left open and a vacuum-assisted closure (VAC) device was applied for continuous wound drainage, while broad-spectrum antibiotics were empirically initiated. Following this intervention, during the patient's hospital stay, five additional interventions were performed to change the vacuum pack until complete closure of the abdominal cavity and establishment of full continuity of the surgical wound, followed by an improvement in the patient's general condition.

Conclusion: For a patient who has undergone surgery revealing a hostile abdomen, open abdominal management should be considered based on the origin of the illness. This allows for sufficient control of the abdominal cavity, as well as the identification and treatment of the disease.

Keywords: frozen abdomen, hysterectomy, vacuum pack, open abdomen

Introduction

Frozen abdomen is characterized by the persistent loss of natural free spaces between intra-abdominal organs and compartmental structures (such as the anterior abdominal wall, retroperitoneal space, and pelvic cavity, among others), as well as pathological changes that are out of normal anatomical proportion. These pathological changes are brought on by a severe adhesive syndrome, followed by fibrotic and scar tissue formation.

When several surgical interventions (more than two) are performed, subsequent peritonitis, severe acute pancreatitis, anastomotic leakage, ostomies, phased care of abdominal injuries, decompressive laparostomy, Crohn's disease, peritoneal carcinomatosis, or substantial radiation are administered, the abdomen becomes hostile. There are biological agents capable of generating this entity, such as *Mycobacterium tuberculosis*, which causes peritoneal TB,

which, in extreme instances, presents as an aggressive abdomen. External agents (talc, sutures, textiles, drains, prosthetic materials, etc.) and surgical techniques (tissue handling, excessive use of electrocoagulation, abundant bleeding, prolonged surgical time, use of bio-adhesives, etc.) are some of the factors that can contribute to the development of peritoneal adhesions, which ultimately result in a hostile abdomen. Furthermore, these adhesions can be caused by the initial surgical procedure^[1].

Case report

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Under general anesthesia, a median laparotomy was performed that revealed an extremely difficult entry into the abdominal cavity due to the presence of abundant adhesions from a previous operation. The wound was left open and a vacuum-assisted closure (VAC) device was applied for continuous wound drainage, while broad-spectrum antibiotics were empirically initiated. After performing this intervention, during the patient's hospital stay, additional five interventions were performed to change the vacuum pack until complete closure of the abdominal cavity and establishment of full continuity of the surgical wound, followed by an improvement in the patient's general condition.

Discussion

Wound dehiscence is a serious postoperative complication, with an incidence of 0.5–3% after primary closure of a laparotomy incision, and represents an acute mechanical failure of wound healing^[2]. In addition to abdominal discomfort, abdominal infection, anastomotic leakage, and impaired intestinal transit (intestinal obstruction), the patient commonly presents with these symptoms, and surgical intervention is often necessary. Although it is possible to have a preoperative clinical examination that may raise suspicion of a hostile abdomen, in the majority of cases, the diagnosis of a hostile abdomen is made during the operation. The surgeon's decision-making process at that precise time is heavily influenced by the progression of the situation being examined^[1].

The optimal strategy is still a matter of debate, as there are no data from randomized controlled studies. Important determinants of therapeutic decisions include: (a) the presence of wound contamination, (b) fixation of abdominal viscera to the anterolateral abdominal wall, and (c) presence of an enteroatmospheric fistula. Postoperative Open Abdominal Wall (POAW) can be accordingly categorized as follows: (1) POAW without fixation (1A: clean, 1B: contaminated, and 1C: with bowel leak), (2) POAW with developing fixation (2A: clean, 2B: contaminated, and 2C: with bowel leak), (3) POAW with developed fixation (frozen abdomen) (3A: clean frozen abdomen, 3B: contaminated frozen abdomen), and (4) POAW with established frozen abdomen and an enteroatmospheric fistula.

There is scarce evidence supporting any specific repair technique in this setting. The initial therapeutic approach in these situations aims at stabilizing the patient in intensive care, correcting imbalances, and preoperative preparation to resolve the evisceration. Assessment of the eviscerated structures is very important in creating the decision scheme. Abdominal contents must be handled carefully, respecting asepsis principles. The wound must be completely opened and cleaned quickly, followed by collecting samples for cultures. The eviscerated structures must be isolated with sterile dressings moistened with warm saline. After entering the peritoneal cavity, all pathological processes, such as abscesses, fistulas, or adhesions, must be addressed. The next step is to thoroughly wash the peritoneal cavity with saline. Areas of necrosis must be excised to healthy tissue. Wall restoration occurs in the

anatomical layers. The tissues are very friable and infiltrated after the excision of the necrotic edges. Some wound edges may be in tension when threads are placed in a “U” or “S” formation. Postoperative treatment with vitamins, human plasma, and crystalloids is instituted. Antibiotic prophylaxis is practiced, and gastric aspiration is recommended until transit resumes. The diet must be high-protein, high-calorie, and vitamin-rich^[3].

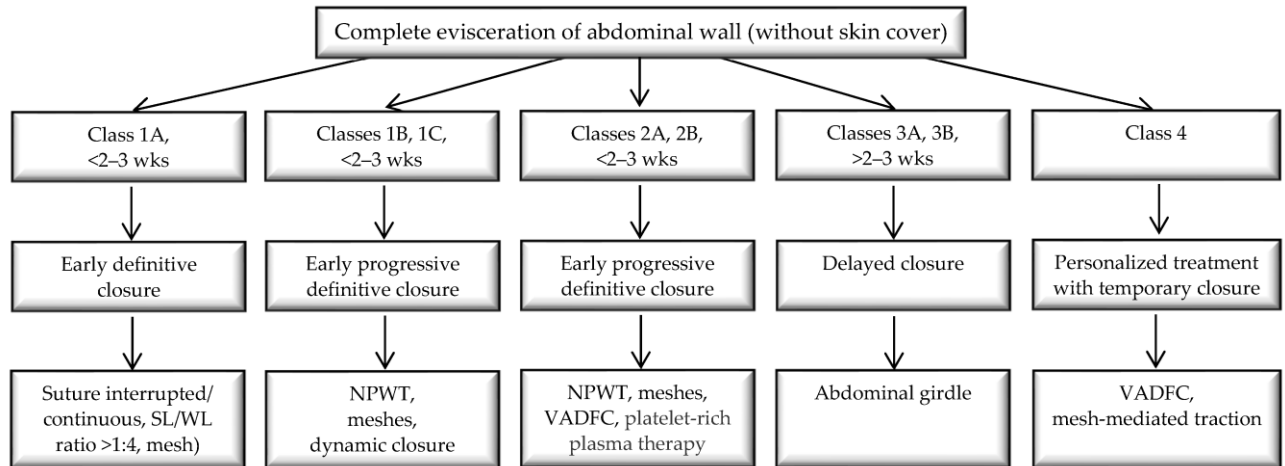


Fig. 4. Flow diagram of management of complete abdominal evisceration according to Björck classification. (NPWT - negative pressure wound therapy; VADFC - vacuum-assisted dynamic fascial closure; wks - weeks)

Several temporary abdominal closure techniques have been utilized in the management of open abdomen, including vacuum packs, VAC, artificial burrs (Wittmann patch), dynamic retention sutures, plastic silos (Bogotá bag), mesh/sheets, and skin approximation. Negative pressure wound therapy including vacuum pack closure and vacuum-assisted closure (VAC) are currently being used as temporary abdominal closure techniques. These can decrease the frequency of dressing changes and facilitate delayed primary fascia closure or enhance secondary fascia closure with a combination of other temporary abdominal closure methods^[4,5].

Conclusion

For a patient who had undergone a surgery in which a hostile abdomen was discovered, an open abdominal management should be considered based on the origin of the illness. This allows for sufficient control of the abdominal cavity, as well as the identification and treatment of the disease.

Conflict of interest statement. None declared.

References

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