

A Review for Hostile and Frozen Abdomen

José Manuel Gómez Pérez¹, Gustavo Alberto García Fernández¹, Jesús Alberto Lizárraga Castro¹, Ana Paula Gómez Pérez², Genaro Alejandro Trujillo Franco¹, Roberto López Castillo¹, Carlos Rafael Hernández Álvarez³

¹Hospital de alta especialidad Gustavo A Rovirosa Pérez

²Hospital Puerta de Hierro

³Hospital Regional de Alta Especialidad Dr Juan Graham Casasús

ABSTRACT

Frozen abdomen is a condition characterized by the loss of natural free spaces between intra-abdominal organs and compartmental structures, leading to pathological changes out of normal anatomical proportion. This condition is often caused by surgical procedures, such as peritonitis, severe acute pancreatitis, anastomotic leakage, ostomies, phased care of abdominal injuries, decompressive laparotomy, Crohn's disease, peritoneal carcinomatosis, or radiation. Aggressive abdomens are often a nightmare for surgical procedures, presenting with symptoms such as abdominal discomfort, infection, anastomotic leakage, and impaired intestinal transit. Diagnosis of a hostile abdomen is often made during the operation itself, with surgeons' decision-making heavily influenced by the situation being examined. Post-diagnosis, it is crucial to delay any surgical intervention as much as possible, as the disease's nature makes operative management difficult and puts the patient at a high risk of inadvertent injuries, intestinal resections, trans-operative bleeding, and other complications. The ideal surgical management for a hostile abdomen is "no management." Surgeons are the leading cause of short bowel syndrome worldwide, characterized by needless intestine resections due to accidental damage or insufficient dissection during abdominal surgery in the context of an aggressive abdomen. In these cases, intestinal anastomosis is not indicated due to the patient's insufficient local circumstances for the repair of the intestinal wall and systemic factors that do not conducive to optimal tissue healing.

KEYWORDS: hostile abdomen, anastomotic leakage, ostomies.

ARTICLE DETAILS

Published On:
21 September 2024

Available on:
<https://ijmscr.org/>

INTRODUCTION

The 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 that is followed by fibrotic and scar tissue.

ANATOMY AND PHYSIOLOGY

When several surgical operations (more than two) are performed, subsequent peritonitis, severe acute pancreatitis, anastomotic leakage, ostomies, phased care of abdominal injuries, decompressive laparotomy, Crohn's disease, peritoneal carcinomatosis, or substantial radiation are

administered, the abdomen becomes hostile. There are biological agents that are 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 technique (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.

Based on the information obtained from the anamnesis, the primary characteristics that contribute to the prognosis of a hostile abdomen are taken into consideration. When seen

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from a clinical perspective, an aggressive abdomen is a nightmare for surgical procedures. 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 frequently determined to be necessary.⁶ Although it is possible to have a preoperative clinical examination that leads to a suspicion of a hostile abdomen, the majority of the time, the diagnosis of a hostile abdomen is made during the operation itself. The surgeon's decision-making process at that precise time is heavily influenced by the progression of the situation being examined. Within the context of cabinet investigations, abdominal X-rays have the capability of revealing information about intestinal blockage, including hydro-aerial levels and loop dilatation. The use of oral contrast in abdominal tomography has the potential to show thickening of the wall of the intestinal loops and mesentery, intervening or disseminated loops with regions of partial stenosis in different segments of the intestine, retractile mesenteritis, and even calcifications in the peritoneum in more severe instances. It has been noted that there are indices that may be used for the preoperative identification of hostile abdomen, and these indices can thus forecast the occurrence of trans-operative problems taking into account the intrinsic difficulties of the surgical procedure. Despite the fact that these indices have not been used in a systematic manner in surgical practice all over the globe, the criteria that are utilized are based on preoperative findings (anamnesis) and transoperative findings (adhesions).

Grade Description

1A	Clean OA without adherence between bowel and abdominal wall or fixity (lateralization of the abdominal wall)
1B	Contaminated OA without adherence/fixity
2A	Clean OA developing adherence/fixity
2B	Contaminated OA developing adherence/fixity
3	OA complicated by fistula formation
4	Frozen OA with adherent/fixed bowel; unable to close surgically; with or without fistula

OA Open abdomen

Figure 1. Björk classification

Risk factor	Score
Age > 50 years	5
Female sex	5
Organ failure	7
Malignancy	4
Preoperative duration of peritonitis > 24h	4
Origin of sepsis not colonic	4
Diffuse generalised peritonitis	6
Exsudate	
Clear	0
Cloudy, purulent	6
Faecal	12

Figure 2. Mannheim index

Care that is more general: After the diagnosis has been made, it is essential to keep in mind that we are dealing with a complex pathology that encompasses a variety of scenarios. This pathology typically reacts to or is a consequence of multiple pathological alterations, and it necessitates optimal decision making on the part of the surgeon, avoiding biases and reasoning that is short-sighted. This means that in a patient who is suspected of having a hostile abdomen, it is important to delay any surgical intervention as much as possible. This is because the very nature of the disease makes operative management difficult and puts the patient at a high risk of inadvertent injuries, intestinal resections, trans-operative bleeding, and other complications. The ideal surgical management for a patient with a hostile abdomen is "no management."

The suspicion of a focal infection in the abdomen that cannot be managed by percutaneous measures and that causes significant contamination of the cavity is the sole reason that calls for emergency re-intervention in a hostile abdomen. This is a condition that happens rather often. Surgeons are the leading cause of short bowel syndrome across the globe. This condition is characterized by the occurrence of needless intestine resections that are carried out as a result of accidental damage and/or insufficient dissection during abdominal surgery that is carried out in the context of an aggressive abdomen. The intestinal failure that often accompanies these patients draws attention to the substantial nutritional risk that they come with and the essential need for parenteral nutritional therapy in the first stages of treatment. In this particular scenario, intestinal anastomosis is not indicated since the patients in question do not possess enough local circumstances for the repair of the intestinal wall, nor do they possess any systemic factors (nutritional status, inflammatory response) that are conducive to optimal tissue healing.



Figure 3. Hostile abdomen

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CONCLUSION

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

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