



Incarcerated/Strangulated Hernia: Open or Laparoscopic?

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Key points

- Incarceration and strangulation represent significant challenges in the management of adult and pediatric patients with inguinal hernia.
- Surgeons who care for adult and pediatric patients must be well versed in the literature to ensure evidence-based decision-making and management strategies that will yield the best possible outcomes.
- Ultimately, despite advances in minimally invasive approaches and published practice guidelines, surgeons most often seem to assess patient risk factors, choose the appropriate timing for intervention, and perform the operation that they are most comfortable with and that matches the acute need of the patient with incarcerated or strangulated inguinal hernia.

INTRODUCTION

In general, hernia repair remains one of the most common operations performed in the United States, in particular inguinal hernia repair, with more than 800,000 procedures performed annually [1]. When hernias present as incarcerated or strangulated, decision-making and management strategies may vary. Unlike elective repair of a reducible hernia wherein the primary goal is long-lasting closure and prevention of hernia recurrence, the goals of emergent repair of a strangulated hernia may be to alleviate bowel obstruction, debride devitalized tissue, and/or mitigate the risk of abdominal catastrophe. As such, thoughtful, evidence-based decision-making and sound surgical technique

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play crucial roles in the successful management of incarcerated and strangulated inguinal hernia. The purpose of this article is to review the diagnosis of incarcerated and strangulated hernias, discuss the available evidence that supports clinical decision-making, and examine the various surgical approaches—open and laparoscopic—for repair of these complex hernias.

DIAGNOSIS

The diagnosis of incarcerated or strangulated inguinal hernia begins with a thorough history and physical examination, with particular attention paid to the duration and severity of symptoms, the presence of comorbid conditions, and the surgical history. One important goal of history-taking is to identify modifiable risk factors (Table 1), and through patient engagement, counseling, and medical treatment, lower the risk of recurrence and morbidity following hernia repair. Lowering the risk of recurrence and morbidity is particularly significant for patients who present with incarcerated hernia but initially may be amenable to nonoperative management. Other components of the history that warrant attention with regard to incarcerated and strangulated hernia are the location, duration, severity of pain, the presence of gastrointestinal signs and symptoms, and the noted period since the herniated contents were no longer reducible.

The diagnosis of incarcerated and strangulated hernia is based on physical examination. It is important to detail clinical examination findings specific to incarcerated and strangulated hernia. Pertinent findings on examination in both standing and supine positions include a palpable bulge and/or nonreducible mass of the abdominal wall, inguinal region, scrotum, or medial thigh caudad to the inguinal ligament, depending on the location of the hernia defect and amount of contents within the hernia sac. Patients with acutely incarcerated and strangulated hernia frequently report localized tenderness or pain on examination as well. Patients with strangulated hernia in particular may present with pain out of proportion to examination, erythema of skin overlying herniated contents, hyperesthesia, and/or wound drainage prompting immediate investigation. Additional clinical and laboratory findings can include signs of dehydration, alkalosis, leukocytosis, lactic acidosis, and/or other evidence of systemic inflammatory response syndrome.

Radiologic imaging may be used in some cases to identify precisely the location, size, and shape of the defect as well as the type and viability of contents within the hernia sac. Various options are available, including ultrasonography, MRI, and herniogram, but the most commonly used imaging study for evaluating incarcerated and strangulated hernia is computed tomography (CT). Given the rapidity with which CT can be obtained in the United States, and the valuable information it may provide before surgical intervention, this author is of the opinion that CT of the abdomen and pelvis should usually precede elective and urgent repair of incarcerated and strangulated hernia.

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