

Traumatic Appendicitis

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ABSTRACT

Acute appendicitis usually occurs by intraluminal obstruction of the appendiceal lumen or because of non-obstructive processes that favor the migration of intestinal flora to the wall of the appendix, a fact that triggers an inflammatory condition resulting in suppuration and necrosis of the organ. Posttraumatic appendicitis is attributed to a wide variety of causes. A possible etiology for this, is appendicular ischemia, which allows bacterial invasion and drainage. We present the following case in point.

Keywords: Trauma, Appendicitis.

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RESUMEN

La apendicitis aguda ocurre generalmente por la obstrucción intraluminal de la luz apendicular o debido a procesos no obstructivos que favorecen la migración de la flora intestinal hacia la pared del apéndice, hecho que desencadena un cuadro inflamatorio que resulta en supuración y necrosis del órgano. La apendicitis pos traumática es atribuida a una amplia variedad de causas. Una posible etiología para esto, es la isquemia apendicular, que permite la invasión y supuración bacteriana. Presentamos el siguiente caso ilustrativo.

Palabras clave: Trauma, Appendicitis.

INTRODUCTION

Acute appendicitis usually occurs following intraluminal obstruction or a nonobstructive process which favors the migration of intestinal flora into the wall of the appendix, thereby setting up an inflammatory process which leads to suppuration and perforation or appendiceal necrosis. Appendicitis following trauma has been attributed to a wide range of possible causes.^{1,2} One possible etiology is appendiceal ischemia, which allows bacterial invasion and suppuration. The following case is illustrative.

CASE REPORT

A 29-year-old Indian male front seat passenger, without antecedent symptoms, was injured in a lateral impact collision on the passenger side. He complained of right flank pain and was tender in the right lower lateral abdomen. There were no other injuries and sonogram was normal. Computed tomography disclosed a small amount of fluid in the lower abdomen with no solid organ injury and a modest overlying muscle wall hematoma. After observation for 18 hours, he developed worsening tenderness with guarding and referred

rebound tenderness from the left to the right side. Perforated intestine was suspected and an exploratory celiotomy was performed. At operation, there was odorless serosanguinous fluid in the pelvis. The appendix was gangrenous and suspended by a contused and thrombosed mesoappendix (Fig. 1). A 4 cm partial thickness adjacent cecal tear was closed with sutures and the appendix removed. Histologic examination confirmed acute suppurative appendicitis with hemorrhagic mesoappendix, confirming the diagnosis of traumatic appendicitis (Fig. 2). He had an uneventful recovery and was discharged 4 days later.

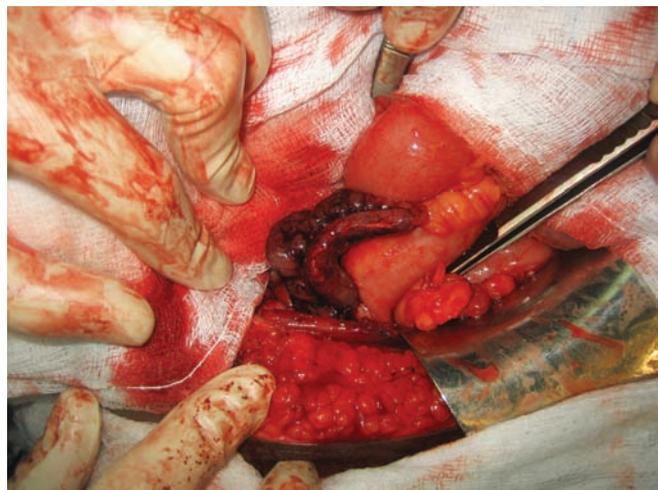


Fig. 1: Operative photograph showing gangrenous appendix suspended by thrombosed mesentery

DISCUSSION

The cause and effect relationship between blunt abdominal trauma and acute appendicitis remains a subject of debate.² Because of the frequency of both events and the propensity for both conditions to occur in children and young adults, some authors have attributed acute appendicitis in the injured to coincidence.³ Others have proposed various theories to explain their co-existence (Table 1). Perhaps the conclusion by Sumer et al is most pertinent: 'Appendicitis may occur consequent to blunt abdominal trauma in rare cases ... our assumption of a causative relationship was based on strong circumstantial evidence, although we had no definitive proof.'⁴ In 2005, Etensel et al cited 45 cases from the literature which met the criteria for posttraumatic appendicitis and added five additional cases, several of which appeared coincidental.² The most famous case was that of Harry Houdini who died in 1966 from complications of acute appendicitis following a blow to the abdomen.⁵

Table 1: Suggested mechanisms for the development of appendicitis following blunt abdominal trauma

- Direct appendiceal injury
- Intramural hematoma causing obstruction
- Compression causing bursting
- Volume resuscitation leading to appendiceal edema and obstruction
- Shock leading to poor perfusion
- Ischemia from injury to mesoappendix
- Modified from Stephenson et al¹

The present case is convincing of a cause and effect relationship. There was direct trauma to the right flank and lower quadrant. Symptoms and signs evolved during an 18 hours period of observation. Initial computed tomography demonstrated a small amount of free intraperitoneal fluid in the right lower abdomen, suggesting intraperitoneal bleeding which, at operation, appeared to emanate from the injured mesoappendix and contiguous cecal serosal tear. Both of these intraoperative findings confirmed local trauma to the periappendiceal area. It is not certain whether the etiology of acute appendicitis in this patient was due to direct appendiceal injury, loss of organ perfusion or a combination. However, the timing and findings appear conclusive for a traumatic cause and an inflammatory effect.

While the debate regarding etiology of appendicitis in the injured is intellectually stimulating, the message should not be lost on the clinician. Symptoms and signs consistent with right lower quadrant inflammation make acute appendicitis likely regardless of the setting in which they occur. When symptoms occur following blunt trauma, unlike other in-hospital settings, operation usually promptly follows to exclude hollow visceral injury.⁶

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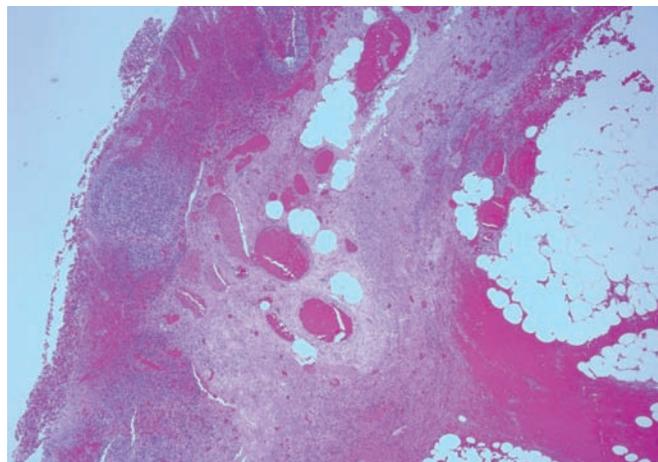


Fig. 2: Photomicrograph showing acute suppurative appendicitis

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