

Primary Volvulus of the Vermiform Appendix; A Rare Cause of Acute Abdomen: A Case Report

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Abstract

Case Report

Appendiceal volvulus is a rare surgical condition that is often indistinguishable from acute appendicitis due to its nonspecific clinical presentation. Primary torsion without underlying appendiceal pathology is particularly uncommon. We report a 52-year-old woman with no significant medical history who presented with sudden-onset right iliac fossa pain and elevated inflammatory markers. Abdominal computed tomography suggested acute appendicitis. Laparoscopic exploration revealed a 360° clockwise torsion of the vermiform appendix with ischemic changes and no underlying pathology, consistent with primary appendiceal volvulus. Laparoscopic appendectomy was performed. Histopathology confirmed acute appendicitis with marked edema and vascular congestion. The postoperative course was uneventful. This case highlights that appendiceal volvulus is a rare intraoperative diagnosis that can closely mimic acute appendicitis, emphasizing the importance of considering this entity in patients with suspected appendicitis

Keywords: Appendix; Volvulus; Appendicitis; Laparoscopy; Ischemia; Case reports.

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INTRODUCTION

Volvulus of the ileocecal appendix is a rare condition whose clinical presentation closely mimics acute appendicitis [1]. This entity was first described by Payne in 1918 [2]. A distinction is made between a primary (idiopathic) form and a secondary form; the latter being associated with pre-existing appendiceal pathology such as a mucocele [3] or a tumor. Primary appendiceal volvulus is particularly uncommon and remains poorly characterized in the literature. In this context, we report a case of primary appendiceal volvulus diagnosed intraoperatively during laparoscopic exploration for suspected acute appendicitis.

CASE PRESENTATION

We report the case of a 52-year-old female patient with no significant past medical history, who was admitted for acute right iliac fossa pain of sudden onset.

Clinical examination revealed a patient who was hemodynamically stable, with localized tenderness in the right iliac fossa on abdominal examination.

Laboratory investigations revealed leukocytosis at 16,000/mm³ as well as a C-reactive protein level of 200 mg/L, consistent with an acute inflammatory

syndrome.

Abdominal computed tomography demonstrated findings suggestive of acute appendicitis, without radiological evidence of perforation or abscess collection.

Surgical exploration by laparoscopy was performed.

A torsion (volvulus) of the vermiform appendix around its longitudinal axis 360° Clockwise was identified (Figures 1, 2), with an ischemic appearance.

A laparoscopic appendectomy was performed.

The appendectomy specimen measures 8.5 cm in length and 1 cm in diameter at the tip. The mesoappendix measures 4 cm in its greatest dimension. It is slightly thickened and shows vascular congestion. The lumen is distended and contains hemorrhagic material.

Histopathological examination showed acute catarrhal appendicitis with marked edema and vascular congestion, without evidence of granulomas, specific infection, or malignancy.

The postoperative course was uneventful.



Figure 1: Intraoperative photograph showing a 360° clockwise torsion of the vermiform appendix with ischemic discoloration



Figure 2: Intraoperative photograph demonstrating torsion of the appendiceal pedicle with congestion and discoloration of the appendix

DISCUSSION

Appendiceal volvulus, also described in the literature as torsion of the vermiform appendix [1, 4], constitutes a rare entity. Since the first description reported by Payne in 1918, publications have been mainly in the form of sporadic case reports. This rarity explains the absence of well-established diagnostic criteria and the difficulty of preoperative diagnosis. Two forms are classically described: a primary form, occurring in the absence of underlying appendiceal pathology [5], suggesting a possible role of a long appendiceal mesentery or congenital hypermobility in pediatric forms; and a secondary form associated with a pre-existing abnormality [6] such as a mucocele [3], a mucinous cystadenoma [7], a lipoma [8], or a tumor [9]. In our observation, the occurrence in a 52-year-old patient with no significant medical history and in the absence of identifiable associated appendiceal lesions suggests a primary form.

From a pathophysiological standpoint, torsion leads to progressive vascular obstruction responsible for ischemia and subsequently appendiceal necrosis if management is delayed. The degree of rotation described in the literature ranges from 180° to more than 1080°, determining the severity of vascular compromise [1,4,10]. Clinically, the presentation most often mimics classic acute appendicitis [1,5], with right iliac fossa pain, nausea, and sometimes elevated inflammatory markers, as found in our patient.

Imaging, particularly abdominal computed tomography, may exceptionally suggest the diagnosis by showing a “whirl” appearance of the appendiceal pedicle [1], but these signs remain inconsistent and non-specific.

This case highlights the rarity of appendiceal volvulus as a cause of acute abdomen and its diagnostic difficulty, as preoperative identification is rarely achieved. The main strength of this report is the intraoperative diagnosis confirmed by laparoscopy and the absence of underlying pathology on histological examination. The main limitation is the lack of definitive preoperative radiological diagnosis, which is however consistent with most reported cases in the literature.

Treatment is based on surgical appendectomy, performed either by laparoscopy or laparotomy [1,3,11], and the prognosis is generally favorable when management is early.

This case reinforces that appendiceal volvulus should be considered as a rare differential diagnosis in any symptomatology suggestive of acute appendicitis, even in the absence of obvious predisposing factors, in order to ensure prompt and appropriate management.

Ethics statement

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Institutional Review Board approval was not required for this case report in accordance with local regulations.

Conflicts of interest: The authors have no conflicts of interest to declare.

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Data availability

Data sharing is not applicable as no new data were created or analyzed in this study.

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Additional information

No prior presentation or additional information to declare.

Supplementary materials

No supplementary materials are associated with this article.

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