

# Appendicular diverticulosis – a diagnostic surprise

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## Abstract

Diverticulosis of the appendix and its complications are infrequent. It most frequently corresponds to a pseudodiverticulum or false diverticulum. Diverticula may suffer either inflammatory complications with or without appendicitis or only be an incidental finding in an un-inflamed appendix. Here we present one such rare case of appendicular diverticulosis with appendicitis.

## CASE REPORT

A 50-year-old male patient presented with a history of abdominal pain, vomiting and loose stools for one day. The pain was sudden in onset, in the right iliac fossa, of constricting type, continuous in nature, with no radiation of pain and no aggravating or relieving factors. There was a history of vomiting for 1 day, with 2 episodes, non-bilious and not blood-tinged, and of loose stools for one day, watery, with no blood or mucus.

On examination, the patient was afebrile and had tachycardia. Abdominal examination revealed tenderness in the right iliac fossa, maximal at McBurney's point, rebound tenderness and guarding, with no free fluid and normal bowel sounds. The other systems were normal. A diagnosis of acute appendicitis was made and the patient was taken up for emergency appendectomy.

Intraoperative findings: Inflamed pelvic appendix with multiple diverticuli, five in number, arising from the appendix along the mesenteric border, ranging from 0.5x0.5cm to 1.5x1cm, decreasing in size from the base to the tip.

Post-operatively, the appendix was cut open: Cut section showed five pseudo-diverticuli arising from the appendicular lumen along the mesenteric border and filled with faecal material (fig. 1). The appendicular wall was thick and fibrotic.

## Figure 1

Figure 1: Photographs showing appendix (cut open) with multiple pseudo-diverticuli.



The post-operative period was uneventful.

Histopathological report: Sections studied showed features of acute appendicitis.

## DISCUSSION

Diverticulosis of the appendix and its complications are infrequent. The first case was described in 1893 by Kelynnack<sup>[1]</sup>. The incidence based on surgical series is between 0.2 and 2.6%<sup>[2],[3],[4]</sup>. It most frequently corresponds to a pseudodiverticulum or false diverticulum.

Diverticula may suffer either inflammatory complications with or without appendicitis or may only be an incidental finding in an uninflamed appendix. Inflammatory complications of appendiceal diverticula, although they may mimic acute appendicitis, are quite distinct clinical entities. The diverticulum is seldom identified preoperatively because it is hidden by the meso-appendix. It may even be overlooked at routine histological evaluation.

Two types of diverticulum can occur: congenital diverticulum and acquired diverticulum or pseudo-diverticulum. The congenital type, rare, is composed of all

bowel wall layers. The acquired variety, the more common type, lacks the muscularis layer. The lumen contains fecal material, mucus, or even pus when complicated by suppuration. The mucosa often is atrophied and may become ulcerated when complicated by diverticulitis or replaced by a fibrous shell when complicated by suppuration.

The pathogenesis of appendiceal diverticula is not completely elucidated. Several theories have been proposed, some contradictory. One, based on mechanical principles, seems more attractive. It suggests a mechanism of increased pressure against a focus of weakness. The widened vascular cleft in the muscular layer is the site of weakness. Herniation of mucosa through the cleft could be the result of increased intraluminal pressure secondary to obstruction or excessive contraction of a hypertrophied muscular layer. The appendix would be presented as a structure composed of two concentric tubes: inner tube (mucosal and submucosal layers) and outer (muscular and serosal layers). Contractions of the muscular layer would cause the inner tube, now relatively too long, to herniate through the abnormally widened vascular cleft. This theory shares similarities with the theory explaining colonic diverticulosis. Some authors suggest that the site of weakness in the muscular layer would be the result of a past episode of appendicitis<sup>[5]</sup>. Chronic appendicitis, cystic fibrosis, male gender, and age above 30 years are risks factors described in the literature<sup>[[6, [7]]]</sup>.

Diverticular pathology of the appendix has been classified by many into four morphological types<sup>[8]</sup>: Type 1 is characterized by diverticulitis and normal appendix, type 2

by diverticulitis and appendicitis, type 3 by simple uncomplicated diverticulum and acute appendicitis, and type 4 by a normal appendix and an incidental simple uncomplicated diverticulum. There is an increased risk of perforation, a complication well described in the literature. Lipton et al.<sup>[8]</sup> state that perforation, with an increased mortality rate, would be more frequent than in cases of acute appendicitis. These facts might favor elective appendectomy<sup>[10]</sup>.

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