

Appendicular Duplication with Gangrenous Appendicitis in a 10-Year-Old Child: A Case Report

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ABSTRACT

The anatomical abnormalities of vermiform appendix are rarely observed. We report a case of appendicular duplication with gangrenous appendicitis in one of the

appendixes. The operating surgeon should be vigilant of these rare anomalies to avoid serious clinical complications.

Keywords: Appendicular duplication; Gangrenous appendicitis

INTRODUCTION

Acute appendicitis is the most common surgical emergency, and can sometimes be accompanied by congenital anomalies of the appendix. Vermiform appendix, thought to be vestigial in humans, would be expected to have many congenital variations, but this is not the case. The prevalence of appendicular duplication in appendectomy specimens is between 0.004% and 0.009% [1]. Ladd and Gross defined three characteristics of alimentary tract duplications: 1) contiguity with and strong adherence to some part of the alimentary tract, 2) a smooth muscle coat and 3) a mucosal lining consisting of one or more types of cells normally observed in the alimentary tract [2]. Thus, to be characterized as appendicular duplication, all these criteria need to be satisfied. In patients with appendicular duplication, acute appendicitis can occur in one or both of these appendixes [3]. The complications that may arise from an unidentified duplicate appendix can be disastrous for the patient. Herein, we report a case of appendicular duplication with gangrenous appendicitis in one of the moietyes.

CASE REPORT

A 10-year-old boy presented to the emergency department of Sri Maharaja Hari Singh Hospital, Srinagar with pain in the epigastrium migrating to the right lower abdomen for 1 day accompanied by nausea and anorexia. The patient's temperature was 101 °F and pulse rate was 110 beats per minute. On abdominal examination, he had guarding, tenderness, and rebound tenderness in the right iliac fossa. The

blood counts were unremarkable except for leukocytosis (14300 cells/μL) with predominance of neutrophils (82%). Urine examination was normal. A presumptive diagnosis of acute appendicitis was made. Ultrasonography of the abdomen confirmed the presence of an aperistaltic, non-compressible gut loop with minimal interloop fluid in the right iliac fossa. The patient underwent emergency appendectomy. During surgery, minimal serous fluid was seen in the right paracolic gutter. An appendicular duplication was noted with gangrene of one of the moietyes. Each of the two appendixes had its own mesentery but shared a common base with the caecum (Figure 1). The location of this duplication was subcaecal. Other neighboring viscera were grossly normal. The appendectomy was completed without any complications and both appendixes were removed. Patient had an uneventful recovery and was discharged on the second postoperative day. Histopathology confirmed the diagnosis of appendicular duplication with gangrenous appendicitis in one of the moietyes.

DISCUSSION

Congenital anomalies of vermiform appendix are rarely reported in medical literature. The spectrum of congenital anomalies of appendix range from complete absence to ectopic locations, with duplications and diverticula being rare [4]. A triple appendix has also been reported in literature [5]. Based on their anatomic location, appendicular duplications were first classified by Cave in 1936 [6].

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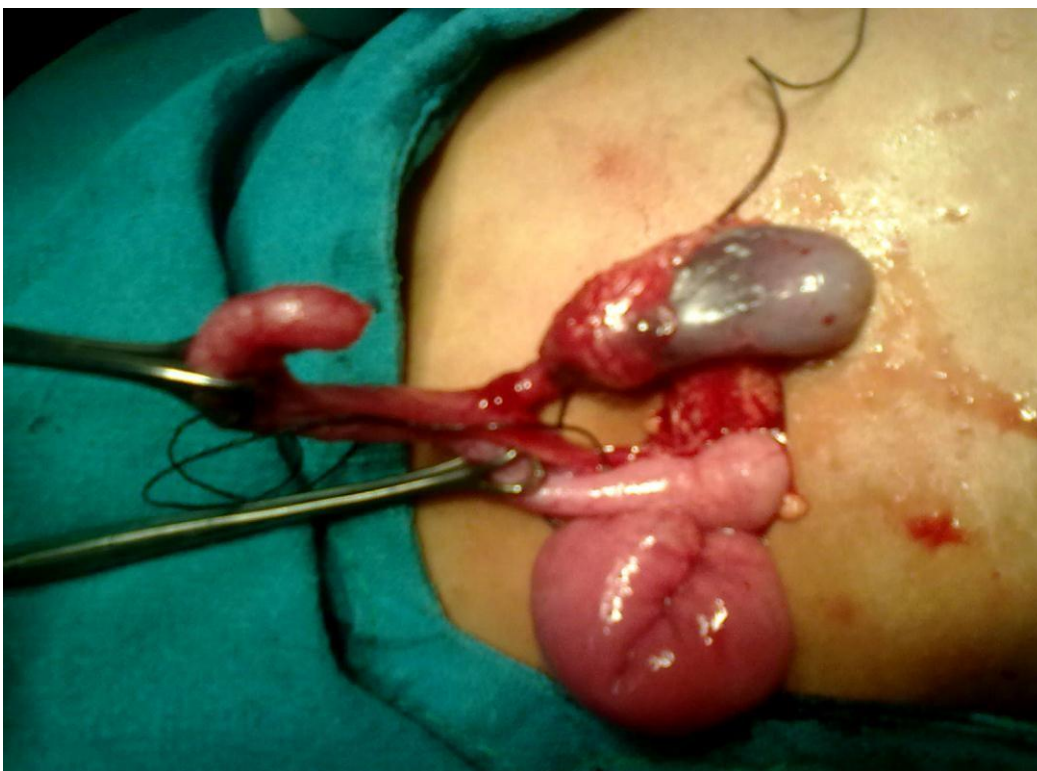


Figure 1: Appendicular duplication with gangrene in one of the moieties

CLASSIFICATION	FEATURE
A	Single cecum with various degrees of incomplete duplication
B1 (Bird Beak)	Two appendixes symmetrically placed on either side of the ileocecal valve
B2	One appendix arises from the cecum at the usual site, and the second appendix branches from the cecum along the lines of the tenia at various distances from the first
B3	One appendix arises from the usual site, and the second appendix arises from the hepatic flexure
B4	One appendix arises from the usual site, and the second appendix arises from the splenic flexure
C	Double cecum, each with an appendix

Table 1: Cave Wallbridge Classification

This classification system was subsequently modified in 1963 by Wallbridge (Table 1) [7]. According to this classification, type B and C are usually associated with other gastrointestinal and genitourinary anomalies [8].

Our case was a Type A Cave Wallbridge appendicular duplication. The diagnosis of appendicitis was suspected clinically and was supported by ultrasonography. However, duplication of appendix could not be detected on ultrasound and was evident only after exploration. Appendicular duplication has almost always been an incidental diagnosis on exploration [3]. A caecal diverticulum may be mistaken for appendiceal duplication but histopathology reveals absence of lymphoid follicles in the caecal diverticulum [9].

When only one of the double appendixes is inflamed, both appendixes should be removed so as to avoid diagnostic confusion later [10]. It is not clear whether appendicular duplication predisposes to acute appendicitis. Carcinoma in the appendix in association with duplication has been reported [11]. A rarely occurring duplication may be missed by an unwary surgeon operating for appendicitis which may prove disastrous for the patient.

CONCLUSION

Appendicular duplication is an infrequent anomaly seen by the operating surgeon and its awareness during routine appendectomies is important.

CONSENT

A written and informed consent was obtained

from the father of this patient for the publication of this case report as the patient was a minor.

AUTHOR CONTRIBUTION

UY and SMK operated the patient. AR and AHW drafted the manuscript and had a role in the postoperative management of the patient. All authors have read and approved the manuscript.

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