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# APPENDICEAL DUPLICATION: A RARE CLINICAL ENTITY

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**ABSTRACT**

Appendiceal duplication is often a surprise finding in patients undergoing appendicectomy which is one of the most common surgeries being performed worldwide. Even though this clinical entity is rare, misdiagnosis may have serious consequences both for the patient as well as attending surgeonand hence this clinical entity should never be missed. Here we present a similar case of appendiceal duplication in a patient presenting with signs and symptoms of acute appendicitis along with review of literature.

**Keywords**: appendicitis, duplication, appendicectomy,

## Introduction

Congenital anomalies of appendix are very rare and only 125 cases have been reported in literature so far . Appendix duplication is even rarer with a reported incidence of 0.004% to 0.009% in appendectomy specimens [1,2]. In children, it is often associated with genitourinary and musculoskeletal anomalies which should always be kept in mind.. This condition is almost always discovered intraoperatively and preoperative diagnosis is rarely made.

## Case report

A 35 yr old male was admitted to the emergency department with complaints of right lower abdominal pain, anorexia, and recurrent vomiting for last 2 days.

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On physical examination, the patient was found to have tachycardia and tenderness, rigidity and rebound tenderness were present in the right iliac fossa. His white blood cell count was 12300/mm$^3$. Other biochemical investigations were normal. The urine analysis test and the plain abdominal X-ray were also within normal limits. An abdominal and pelvic ultrasound was performed, and a non-compressible tubular structure with a diameter of 8 mm was found with surrounding inflamed mesentery and seropurulent collection. A provisional diagnosis of acute appendicitis was made on basis of clinical examination and ultrasonographic findings. After complete pre-anaesthetic checkup, an open appendectomy using McBurney's incision was performed. Intraoperatively, two appendices each one having its own mesoappendix and opening separately in caecum with mild quantity of free inflammatory fluid were found with One of them being pre-ileal around 5 cm long with a small perforation at tip and the other inflammed appendix being pelvic around 7 cm in length lying inferomedial to caecum, just below the terminal end of ileum . Each appendix had its own blood supply, derived from appendicular arteries, both of which were

given off by the ileocolic artery. Appendicectomy was performed in the usual manner with both the removed appendices sent for histopathological examination. The postoperative period was uneventful and the patient was discharged on 7th postoperative day

## Discussion

Gastrointestinal duplications are one of the rare congenital anomalies and appendicular duplication is even rarer with an incidence of 0.004-0.009%, described in literature. The first case of appendicular duplication was reported by Picoliin 1892 in a female patient operated for peritonitis who had duplication of appendix alongwith uterus and large bowel. The various congenital anomalies of appendix involve agenesis, duplication, anomalous location of single appendix and horse-shoe anomaly of appendix, out of which congenital absence and duplication are most common. It may be associated with other systemic anomalies especially of genito-urinary and musculo-skeletal system. Pseudo duplication of appendix has also been described where recurrent inflammatory process leads to the auto-amputation and implantation of tip of inflamed appendix in the nearby caecum. The various classification systems proposed for morphological anomalies of appendix include modified Cave-Wallbridge classification and Baugh classification[3].Modified Cave Wallbridge classification has described following types of appendices:

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| Type A | Bifid appendix |
| Type B1 | Also known as Bird type, where the two appendices lie on either side of ileo-caecal wall |
| Type B2 | Taenia coli type, in which one appendix is normally placed and the second one arises from caecum at variable distance from first |
| Type B3 | Where accessory appendix arise from hepatic flexure of colon |
| Type B4 | The second appendix originates from splenic flexure of colon |
| Type C | Duplication of caecum along with appendix |

Out of the above, type B1 is the most common. Type A appendices usually have incomplete duplication and a common base while most of type B and C appendices have complete duplication and separate bases. The three types of appendix described in Baugh classification include Double barrelled appendix, Bird type paired appendix and Taenia coli type of appendix Exact pathogenesis of these supernumery appendices is not known and various hypothesis regarding the origin include absence of involution of appendicular process, persistence of normal transient second embryological appendix, phylogenic reversion, as part of pathology involving the entire primitive mid-gut, Split notochord theory and formation of median septum[4]. Appendicular duplications are mostly asymptomatic and almost always incidental finding. Symptoms usually arise due to inflammation and obstruction and vary according to the location of appendix. Differential diagnoses include caecal diverticulum, appendicular diverticulosis, stump appendicitis, epiploic appendegitis and malignancy especially of ascending colon[5] . These conditions can be easily ruled out due to the presence of distinct inner and outer longitudinal muscle layer and the arrangement of lymphoid tissue in appendix [6]. Most of the anomalies come to the clinical attention before two years of age. In most of the cases the diagnosis is made incidentally at the time of surgery or post-mortem examination and confirmed by histopathological analysis[7]. Treatment modality remains the same and Conventional laparotomy is performed in most of the cases with both the appendices excised to avoid future clinical and medicolegal implications[8]. Nowadays, Diagnostic laparoscopy is widely used and preferred technique for diagnosis and management of this clinical entity with vatiable success.

## Conclusion

It is concluded that congenital anomalies and malpositions of appendix should always be kept in mind while performing appendicectomy as misdiagnosis may have grave consequences both for the patient as well as the attending surgeon.

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