

An Anomaly to Remember: Duplication of Appendix with Perforated Appendix

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2. Keywords

Appendix; Duplication; Peritonitis.

1. Abstract

Appendiceal anomalies are extremely rare malformations that are usually found in the adult population as an incidental finding during laparotomy performed for other reasons. Presented herein is a case of perforated double appendix, which caused peritonitis in a female of child bearing age, without any co-existing pathology. Post operatively she developed pelvic collection. She was operated again, and found another appendix. Appendectomy was done, and she had smooth recovery after the second surgery.

3. Introduction

Appendiceal duplications are extremely rare with reported incidence of 0.004 %. Less than 100 appendiceal duplications have been reported in literature [1,2]. Abnormal development of the appendix usually takes the form of a double appendix. Accompanying intestinal, genito-urinary or vertebral malformations may present when appendiceal duplications are detected in childhood [3]. Most anomalies of appendix have been observed in adults and most were noticed incidentally during surgery not primarily involving appendix. These anomalies include, duplication of vermiform appendix causing small bowel obstruction [4], mimicking adenocarcinoma of colon [5], hypotrophic and duplicated appendix, and unusual duplication of appendix and cecum, have also been reported. Appendiceal duplication associated with colonic duplication and genitourinary abnormalities, or with gastroschisis, can exhibit life-threatening conditions [6].

4. Case Report

We are presenting an interesting case of appendiceal duplication in a 19 years old female. Patient presented to accident and emergency, with complaints of generalized abdominal pain associated

with vomiting for 04 days. On examination her BP was 90/64 mmHg, Pulse 140/min, temp 36.0c. Her abdomen was tender and having board like rigidity with absent bowel sounds. X-Ray abdomen showed dilated bowel loops. Ultrasound abdomen showed free fluid in the peritoneal cavity with dilated bowel loops. Patient was taken to operating room and a diagnostic laparoscopy showed peritoneal cavity was full of pus, dilated bowel loops and fibrinous adhesions with perforated appendix. Appendectomy and abdominal washout was done. Post operatively patient developed fever and revealed pelvic collection on ultrasound of abdomen on 8th post operative day. She was taken for laparoscopy but it was difficult to reach the pelvis due to adhesions, therefore converted to exploratory laparotomy which showed another appendix with mesoappendix. This was retroileal and base was near to ileocecal valve. Appendectomy was done. Her post operative recovery was uneventful.

Histological analysis confirmed the 1st appendix as acute suppurative appendicitis with periappendicitis and 2nd appendix as periappendicitis with serosal hemorrhage. Thus, our macroscopic diagnosis of appendiceal duplication was confirmed by histological examination.

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4. Discussion

Appendiceal duplications were classified by Waugh and Wallbridge [8] in 1962. This classification divides these duplications into four groups.

Type A, consists of various degrees of partial duplication on a normally localized appendix with a single caecum.

Type B; includes a single caecum with two completely separated appendices. This type has two subgroups. In the B1 group, there are two appendices localized symmetrically on either side of the ileo-cecal valve; this resembles the normal phylogenetical arrangement in birds, so this group was called the 'bird-like or avian' type. B2 (taenia-coli type) has a normally localized appendix arising from the caecum at the usual site and a second, separate, rudimentary appendix localized along the taenia line.

In type C, there is a double cecum, each having its own appendix. In Wallbridge's original paper, this classification was based on the reported cases of which there were less than 50 at that time. Because of the difficulty of categorizing some cases into a suitable type, the authors started to add additional types. Type D, is a horse-shoe appendix with two openings at the common cecum. The case presented in this paper could be classified as type B1.

Collins reported only two cases of duplication in 50,000 autopsies. Accompanying duplications that affect the large intestine and genito-urinary tract may be explained by the close anatomic association of the distal hindgut and the urogenital septum in the embryologic origin, but the precise mechanism is still unknown [7]. These anomalies are mostly associated with types B1 and C duplications. There is not yet enough knowledge about the reason for this relationship, the cases reported as type-A was never accompanied by associated anomalies. Duplication of the appendix must be distinguished from solitary diverticulum of the cecum, and from appendiceal diverticulosis. This distinction can be best made histopathologically, besides duplication and diverticulosis, the horse-shoe and triple appendix anomalies should be considered in the differential diagnosis [9]. Appendix perforation in appendix duplication associated with peritonitis in a man was reported by Emel Canbay [10,12], while acute appendicitis in a duplicated appendix has been reported in another case report [11]. All these anomalies are of great practical importance and a surgeon must be aware of these during an operation. If he overlooks them, the operated patient may experience serious consequences, which may be of legal importance. We also believe that junior surgical staff must be aware of these conditions due to the medico legal aspects.

5. Conclusion

Appendiceal anomalies are of great practical importance and a surgeon must be aware of these during an operation. If he overlooks them, the patient undergoing surgery may experience grave consequences.

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