Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: www.saspublishers.com

OPEN ACCESS

Anatomy

Intestinal Malrotation with Absent Appendix in an Adult Human Cadaver- A Case Report

Sharma M[1], Kaur J[2], Gulati H[3], Wadhwa A[4], Mahi SS[5]

[1]Prof Deptt of Anatomy, PIMS, Jalandhar, Punjab, India
[2]Assistant Prof Deptt of Anatomy, PIMS, Jalandhar, Punjab, India
[3]Assistant Prof Deptt of Anatomy, PIMS, Jalandhar, Punjab, India
[4]Prof and Head Deptt of Anatomy, PIMS, Jalandhar, Punjab, India
[5]Assistant Prof. Deptt of Surgery, PIMS, Jalandhar, Punjab, India

DOI: 10.36347/sjams.2019.v07i06.040 | **Received:** 15.06.2019 | **Accepted:** 25.06.2019 | **Published:** 30.06.2019

***Corresponding author:** Dr. Mamta Sharma

Abstract **Case Report**

Malrotation of the midgut is seen as an abnormality in embryological development of gastrointestinal tract. Intestinal malrotation is a rare condition but is considered an important cause of bowel obstruction in adults. During routine dissection for teaching undergraduate students, in the department of anatomy PIMS Jalandhar, we encountered a case of intestinal malrotation with absence of appendix. In this particular cadaver the whole of small gut was lying in right paracolic gutter and large intestine was on the left side of small intestine. This malrotation was accompanied by abnormal mesenteric bands. It is important to diagnose such a malrotation because it may cause abdominal symptoms. The absence of vermiform appendix is very rare.The knowledge of associated vascular anomalies with malrotation is important when abdominal surgery is to be planned.

Keywords: Malrotation, Vermiform Appendix, Bowel obstruction, Mesenteric Bands.

INTRODUCTION

The embryological development and anatomical variations was described by Dott (1923) [1]. Various anatomic anomalies ranging from complete non-rotation to normal positioning are known as intestinal malrotations [2,3]. These intestinal malrorations can also be defined as any deviation from the normal 270° counterclockwise rotation of the midgut during embryologic development [4,5]. According to anatomical variations intestinal malrorations are given various names such as incomplete rotation, mixed rotation, and variants of malrotation.

The intermediate forms are known as atypical malrotations [6]. From practical perspective, simple categorization into nonrotation and incomplete rotation is useful [7].

Incomplete rotation refers to the spectrum of partial rotational anomalies seen either with the duodenum or to the right colon Reversed rotations occur rarely [4]. Malrotation is mostly identified in older population [5]. Although malrotation is a disease in which small intestines located in the right abdominal quadrant and the colon and caecum located in the left quadrant are generally unrotated owing to the bands and adherences.

Malrotation of the gut is a common paediatric condition that usually presents in the first month of life. Congenital malrotation of the midgut often presents within the first month of life [8]. However, presentation in adults is rare, and as a diagnostic dilemma quite often surprises the surgeon intraoperatively. If this condition is not timely recognized, it may result in disastrous consequences, such as gangrene of the small gut.

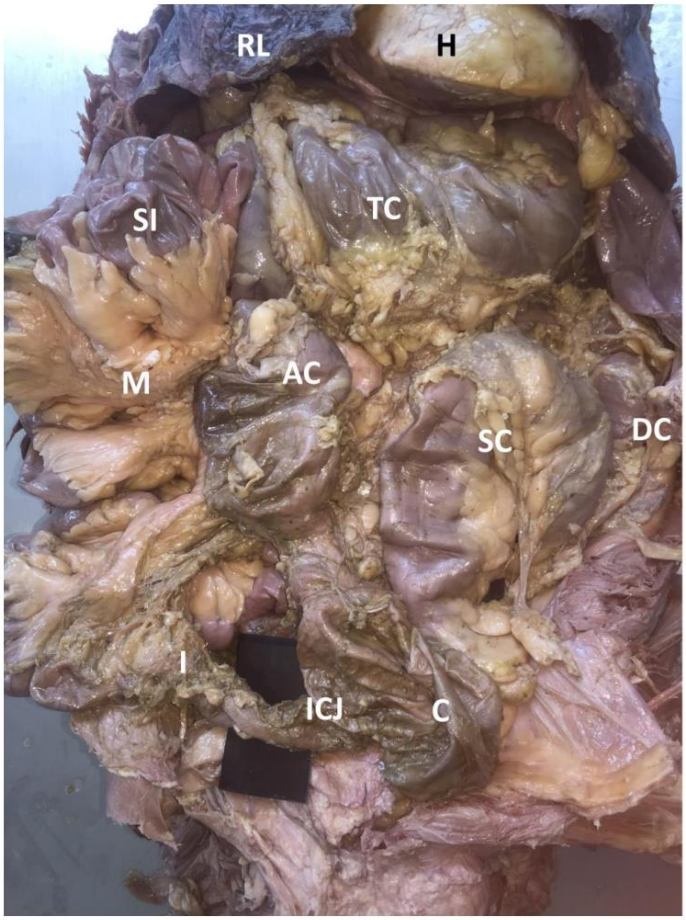
The vermiform appendix is the most commonly cited and the most disputed vestigial organ in our body. Congenital absence of the vermiform appendix is very rare in human beings with a reported incidence of 1 in 100,000 cases [9].

CASE REPORT

During routine dissection for teaching undergraduates, in the Department of Anatomy, Punjab Institute of Medical Sciences, Jalandhar, abdomen of 55 years old embalmed male cadaver was dissected. When the abdominal cavity was opened, it was observed that the whole of small intestine was on the right side occupying the right paracolic gutter and large intestine (ascending colon with caecum and transverse colon) was on left side in relation to small intestine. The direction of the ileum was from right to left to open on the medial side of caecum. The Sigmoid colon was also distended

A rare finding of absence of vermiform appendix was also found. The teniae are a good landmark to follow and to identify the appendix, especially the anterior tenia. The retrocecal space and ileocecal area were thoroughly explored to confirm the absence of appendix. The appendix could not be visualized even after mobilization of the ileocecal junction. No scar mark was found on the supposed site of appendix too. Wall of ascending colon was also searched considering that it might be embedded in the wall. But it was found absent. A careful search for Meckel's diverticulum was also unproductive.

Along with these variations an anomalous mesenteric band extending from caecum to posterior abdominal wall was also seen.



DISCUSSION

Intestinal malrotations occur in approximately 0.2% of all births. More than 40% of intestinal malrotations are diagnosed within 1 week after birth and 75–85% within 1 year after birth [6]. In adults, it is estimated that it occurs between the rates of 0.0001% and 0.19% [10].

Malrotation can lead to volvulus which is a dangerous complication. Disarrangement of intestines may be associated with peritoneal bands. Anomalous position of appendix and caecum may be due to non-rotation of intestine [11].

Surgeons may encounter malrotations which can lead to obstruction, in rare cases, in adults. Treating the obstruction and placing the intestines as close as possible to their normal anatomical position may be a suitable surgical approach in such cases [12].

Appendix is fully developed in 10 weeks of gestational age and is attached to the distal end of the caecal pouch. The lateral wall of caecum grows much

more rapidly than medial wall. So the point of attachment of the appendix comes to lie on the medial side [13].The substantial morphological variations can occur in caecoappendiceal outgrowth [14]. Agenesis of appendix is a rare anatomic finding. The first case of Appendix agenesis was reported by Morgagni in 1719[15]. 1 case in 104,066 appendectomies or an incidence of 0.0009%.was observed by collins[16].

The agenesis of the appendix cannot be concluded without exploring the ileocecal areaand retrocaecal space. Absence of appendix is reported mostly in adult patients or adult cadavers but rarely in children [17]. It is a dilemma for the surgeons to detect such a rare finding during appendicectomy [12].

REFERENCES

1. Dott NM. Anomalies of intestinal rotation: their embryology and surgical aspects: with report of five cases. *British Journal of Surgery*. 1923; 11(42):251–86.
2. Mehall JR, Chandler JC, Mehall RL, Jackson RJ, Wagner CW, Smith SD. Management of typical and atypical intestinal malrotation. *Journal of Pediatric Surgery*. 2002;37(8):1169–72.
3. Vaos G, Misiakos EP. Congenital anomalies of the gastrointestinal tract diagnosed in adulthood-diagnosis and management. *Journal of Gastrointestinal Surgery*. 2010; 14(5):916–25.
4. Torres AM, Ziegler MM. Malrotation of the intestine. World J Surg 1993; 17:326-331
5. Zissin R, Rathaus V, Oscadchy A, Kots E, Gayer G, Shapiro-Feinberg M. Intestinal malrotation as an incidental finding on CT in adults. Abdominal imaging. 1999 Nov 1;24(6):550-5.
6. McVay MR, Kokoska ER, Jackson RJ, Smith SD. The changing spectrum of intestinal malrotation: diagnosis and management. The American Journal of Surgery. 2007 Dec 1;194(6):712-9.
7. Maxson RT, Franklin PA, Wagner CW. Malrotation in the older child: surgical management, treatment, and outcome. Am Surg. 1995; 61:135-38.
8. Pickhardt PJ, Bhalla S. Intestinal malrotation in adolescents and adults: spectrum of clinical and imaging features. *The American Journal of Roentgenology*. 2002;179(6):1429-35.
9. Tripathy BB. Congenital absence of appendix: A Surgeon's dilemma during surgery for acute appendicitis. J Indian Assoc Pediatr Surg. 2016 Oct-Dec; 21(4):199-01.
10. Emanuwa OF, Ayantunde AA, Davies TW. Midgut malrotation first presenting as acute bowel obstruction in adulthood: a case report and literature review. World Journal of Emergency Surgery. 2011 Dec;6(1):22.
11. Vosburgh A S. Nonrotation of Intestine. Annals of Surgery. 1913;58(6):822–27.
12. Sipahi M, Caglayan K, Arslan E, Erkoc M F, and Aytekin FO.Intestinal Malrotation: A Rare Cause of Small Intestinal Obstruction.Case Rep Surg.2014; 2014 :453128.
13. Devi VS. Alimentary System-II Gastrointestinal Tract. In Inderbir Singh's Human Embryology, 11th Edition. 2018:179.
14. Elias EG, Hults R. Congenital absence of vermiform appendix. Arch Surg. 1967; 95:257–8.
15. Tripathy BB. Congenital absence of appendix: A Surgeon's dilemma during surgery for acute appendicitis. Journal of Indian Association of Pediatric Surgeons. 2016 Oct;21(4):199.
16. Collins DC. Agenesis of the vermiform appendix. Am J Surg. 1951; 82:689–96.
17. Vincent MV, Doyle A, Bernstein S, Jackman S. Absence of the appendix discovered during childhood. Springerplus. 2014;3:522.