

## Incidental Finding of “CONGENITAL DUPLICATION OF THE JEJUNUM” in 42 Years Female

Dr. T. Sai Sreeja<sup>1\*</sup>, L. Krishna<sup>2</sup>, P. Deepak<sup>3</sup>

<sup>1</sup>Junior Resident, Department of Pathology, Mallareddy Institute of Medical Sciences, Suraram, Hyderabad, Telangana, India

<sup>2</sup>Professor, Department of Pathology, Mallareddy Institute of Medical Sciences, Suraram, Hyderabad, Telangana, India

<sup>3</sup>Assistant Professor, Department of Pathology, Mallareddy Institute of Medical Sciences, Suraram, Hyderabad, Telangana, India

DOI: [10.36348/sjpm.2024.v09i02.005](https://doi.org/10.36348/sjpm.2024.v09i02.005)

| Received: 01.01.2024 | Accepted: 08.02.2024 | Published: 10.02.2024

\*Corresponding author: Dr. T. Sai Sreeja

Junior Resident, Department of Pathology, Mallareddy Institute of Medical Sciences, Suraram, Hyderabad, Telangana, India

### Abstract

Alimentary Tract Duplications (ATD) are congenital anomalies that can arise at any level from the mouth to the anus [3]. They are rare and often found early in life. A minority of cases may remain undiscovered until adulthood when they may give rise to different symptoms, depending on the location. Diagnosis is difficult due to the rarity of this entity. Surgical correction is the treatment of choice.

**Keywords:** Congenital anomalies, ATD, Abdominal pain.

**Copyright © 2024 The Author(s):** This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

### INTRODUCTION

Alimentary tract duplications are uncommon congenital anomalies that are usually present during the first decade of life. However, a smaller number of cases may remain unsuspected until adulthood. They are most common in the ileum but can occur anywhere along the alimentary tract.

Duplications may be cystic or tubular in appearance and characteristically arise from the mesenteric aspect of the intestine. Abdominal pain, nausea and/or vomiting, palpable mass, weight loss, and bleeding are the most common symptoms [3, 4].

### CASE REPORT

- 42 years female came with complaints of pain abdomen since 5 days.
- Pain was insidious in onset, gradually progressive in nature and was radiating to back.
- History of multiple episodes of vomiting & constipation since 5 days.
- Vague symptoms of pain abdomen since few years.
- No history of surgeries done in the past.
- Not known case of diabetes mellitus or hypertension.
- General physical examination:

**Vitals:** Temperature: 98 degree Fahrenheit,

- Pulse rate: 72 bpm,
- Blood pressure: 120/80mmhg
- Respiratory rate: 20/minute.
- Per abdomen: Distension & Diffuse tenderness is Present, with Girth of 68cms at umbilicus.
- Ultrasound Abdomen and Pelvis:
- Dilated fluid filled bowel loops with to and fro peristalsis.
- Computed Tomography (CT) Scan:

### Small Bowel Loops

- Multiple dilated small bowel loops (PREDOMINANTLY JEJUNAL LOOPS) noted in right hypochondrium, central abdomen, bilateral lumbar regions, right iliac fossa and in pelvis, many of them showing air fluid levels.
- Possibility of SMALL BOWEL INTESTINAL OBSTRUCTION.

### Clinical Diagnosis

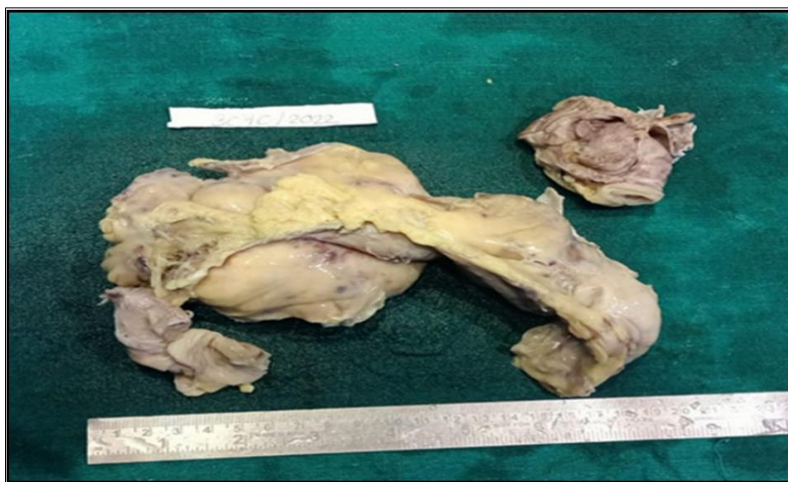
- Sub Acute Intestinal obstruction with
  1. Inter bowel adhesions
  2. Gastrointestinal stromal tumor.

### Surgical Management:

- Exploratory Laparotomy: Resection and anastomosis was done.

- A long Bowel Segment of 30x10cms with adherent mass along with another small bowel

segment was sent for Histopathological examination.



**Figure 1: Gross image of specimen received**

### Gross Examination

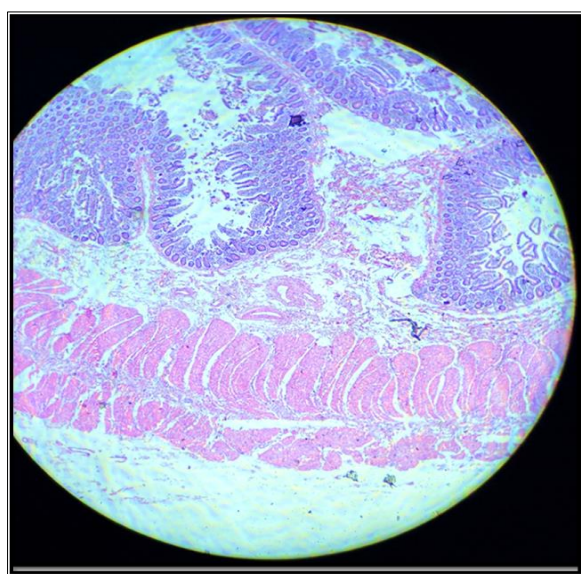
- Received 2 segments of small intestine and one is measuring 30x10 cms and the other is measuring 6.5 x 4 cms in length.
- Gross features of large segment of small intestine:
- Large segment has got two dilated tubular masses at the mesenteric border. Larger dilated tubular mass is measuring 10.5x8.5cms, smaller dilated tubular mass is measuring 4.5x3.5 cms.
- Between the larger and smaller dilated tubular masses there is non-dilated segment measuring about 2 cms. Proximal resected margin is 9 cms from the larger dilated tubular mass, distal resected margin is 10.5 cms from the smaller dilated tubular mass. Cut section of larger and smaller dilated tubular masses are

communicating with each other with central lumen lined by mucosa.

- There is grossly no communication between the large segment of small intestine and these dilated tubular segments.
- Gross features of small segment of small intestine: The small segment of small intestine is measuring 6.5x4cms and the cut section shows central lumen lined with mucosa.
- No lymph nodes were palpable in the specimen sent.

### Histopathological Examination

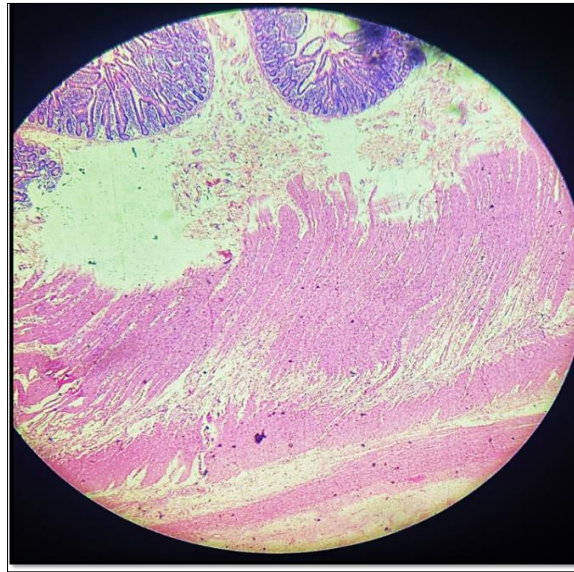
- Sections from proximal and distal resected margins of large segment of small intestine show normal Jejunal mucosa.



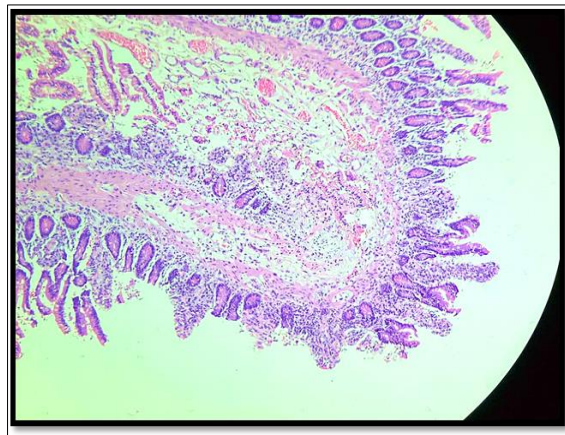
**Figure 2: H&E [10x]: Normal Jejunal mucosa**

Section from larger dilated tubular mass of long segment of small intestine studied show small intestinal mucosa thrown into intraluminal folds supported by

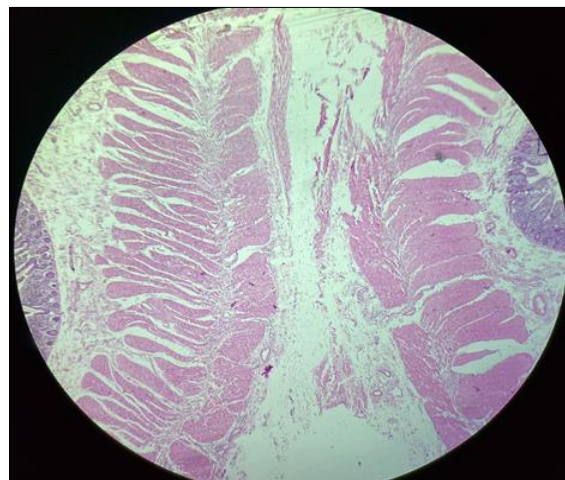
muscularis mucosa and submucosa. Lamina propria is infiltrated with lymphocytes, plasmacells, few histiocytes, muscularis and serosal layers are normal.



**Figure 3: H&E [10x]: Mucosa thrown into intraluminal folds supported by muscularis mucosa and submucosa**



**Figure 4: H&E [40x]: small Intestinal Mucosa**



**Figure 5: H&E [10x]: Duplication of jejunum**



Sections from the junctions between Short dilated segment of small intestine and normal intestine, and between the large dilated segment of small intestine and normal intestine show duplication of jejunum.

- **Impression: Features suggesting possibility of “CONGENITAL DUPLICATION OF THE JEJUNUM”.**

## DISCUSSION

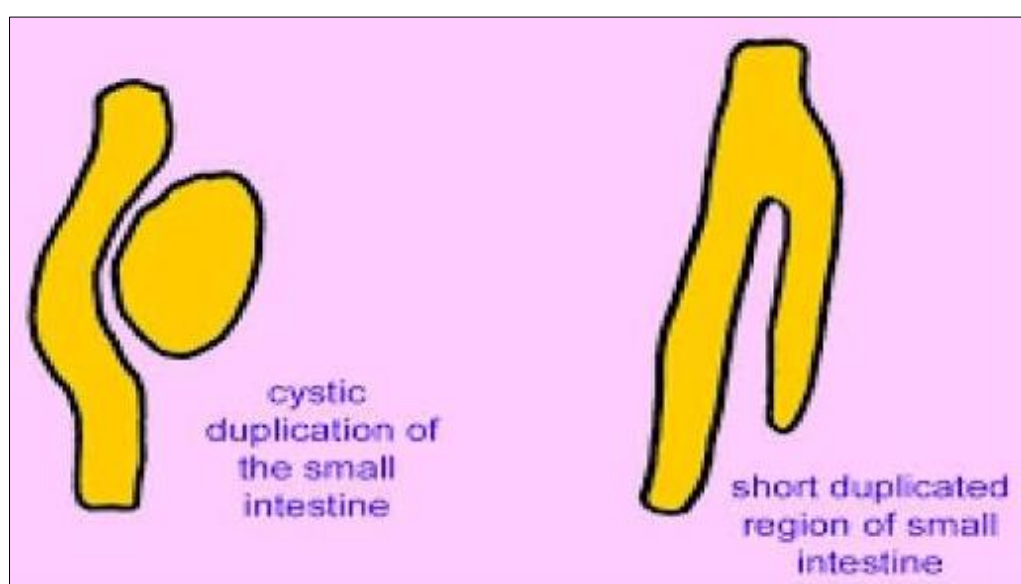
### Intestinal Duplication

- Gastrointestinal tract duplications are uncommon congenital anomalies with a reported Case Incidence of 1:4500 births.
- They can occur along the entire gastrointestinal tract, with most cases occurring in the small bowel.

- The ileum represents the majority of cases, followed by the Jejunum.

### Figure 6: Common sites of GIT Duplication

- Intestinal duplication is defined as “spherical or tubular structures that possess a well-developed smooth muscle layer and are lined with a mucous membrane; they are found at any level of gastrointestinal tract and usually are intimately attached to some portion of the alimentary tube”.
- Duplications may be cystic or tubular in appearance and characteristically arise from the mesenteric aspect of the intestine.



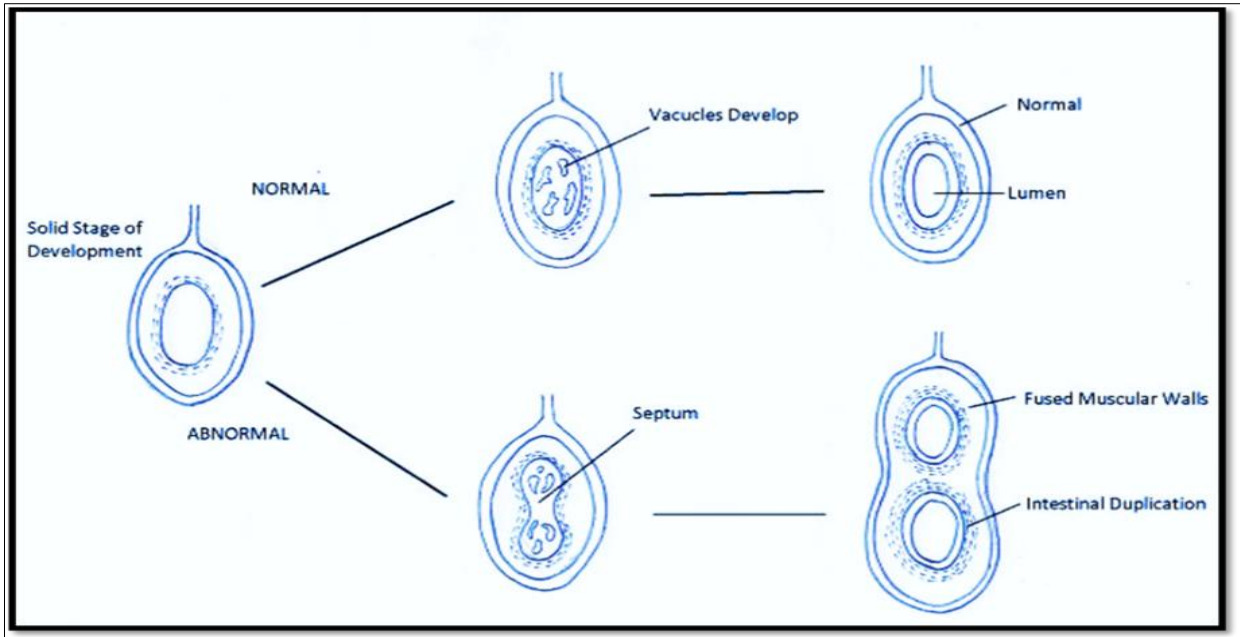
**Figure 7: Types of duplication: Cystic, tubular**

### Embryology

Embryogenesis of gastrointestinal tract is believed to occur between the fourth and eighth weeks of gestation.

- Several hypotheses have been postulated to explain intestinal duplication but no single hypothesis can provide adequate explanation about their formation.
- Hypothesis made to explain intestinal duplication are:
  - Persistence of outpouchings
  - Intrauterine vascular accident
  - Aberrant luminal recanalization theory
  - Split notochord theory

1. Persistence of outpouching of the developing intestines which occur between 4 to 8 weeks of intrauterine life.
2. Intrauterine vascular accident: During the early stages of fetal development.
3. Aberrant luminal recanalization theory:
  - Rapid proliferation of cells leads to the “solid stage” of development.
  - Shortly thereafter, spaces or “vacuoles” appear within the solid lumen and it normally returns to patency.
  - Persistence of a vacuole can result in the development of a cystic or tubular duplication.



**Figure 8: Aberrant luminal recanalization theory**

**4. Split Notochord Theory**

- During the third week of development the endoderm grows dorsally and part of it is pinched off as the notochord, which induces the development of the vertebral column from mesoderm.
- If this separation is incomplete, remnants of endoderm may be left behind as tubules, cysts, or cords that eventually develop into duplications.
- Types of Duplication Li *et al.*, have classified small intestinal duplications depending upon the vascular pattern.

TYPE 1	TYPE 2
<b>Duplication is on one of the leaves of the mesentery.</b>	<b>Duplication is located between the two leaves of the mesentery.</b>
<b>Straight artery of the duplication is separate from the straight artery of the bowel</b>	<b>Straight arteries pass over both the surfaces of the duplication to reach the bowel</b>

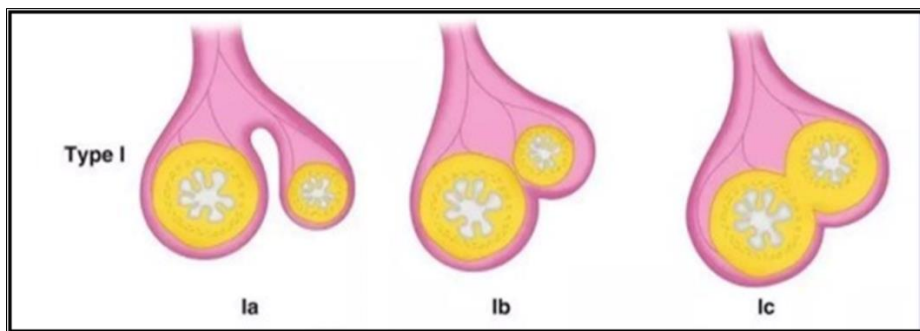
**Table 1: Li *et al.*, classification**

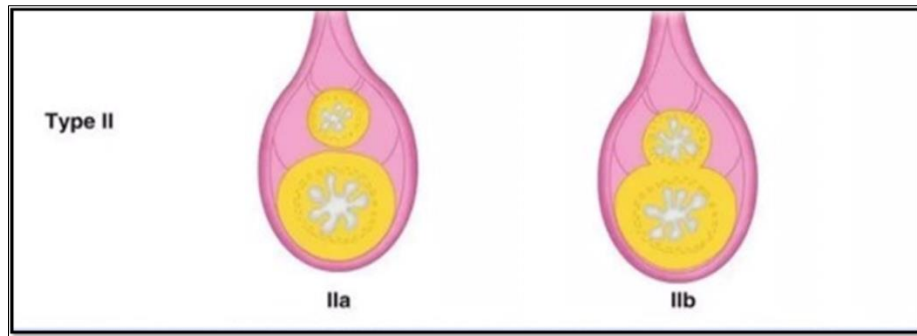
Type 1 or Parallel type (74.6%):

Type 1a: Duplication has a separate mesentery.

Type 1b: Duplication shares common mesentery with the bowel.

Type 1c: Duplication shares common muscular coat with the bowel.





**Figure 9: Li *et al.*, have classification types of small intestinal duplications depending upon the vascular pattern**

Type 2 or Intra mesenteric type (24.4%):

Type 2a: Duplication separate from the bowel.

Type 2b: Duplication shares common muscular coat with the bowel

### Clinical Presentation

- Usually present during the first decade of life.
- However, a smaller number of cases may remain unsuspected until adulthood.
- Duplications can remain asymptomatic for a long period but they usually present with vague symptoms or acute abdominal pain.
- In Jejunal duplications most common symptoms are bilious vomiting at birth, palpable mass, abdominal bloating, constipation and abdominal pain, weight loss, and bleeding.
- They may be associated with other congenital anomalies like vertebral defects (spina bifida, missing vertebra), congenital heart diseases.

### Complications

1. Perforation
2. Intussusception
3. Bowel obstruction
4. Volvulus
5. Jejunal duplication may induce the growth of lipoma hence causing symptoms of intestinal obstruction

### Management

The universally accepted management of this condition is surgical intervention, and the outcome is good in patients in whom it is an isolated congenital abnormality.

### REFERENCES

1. Congenital Duplications of the Jejunum: An Appraisal of Anatomical, Clinical and Therapeutic Aspects, Zoi Lamprinou, Elisavet Kanna, Jonida Mene, Ioannis Skondras, Poulcheria Rousou and Alexander Passalides, Open access journal of surgery. Doi.10.19080/OAJS.2022.13.555874.
2. Fiorani, C., Scaramuzzo, R., Lazzaro, A., Biancone, L., Palmieri, G., Gaspari, A. L., & Sica, G. (2011). Intestinal duplication in adulthood: a rare entity, difficult to diagnose. *World journal of gastrointestinal surgery*, 3(8), 128. doi: 10.4240/wjgs.v3.i8.128PMCID: PMC3192219, PMID: 22007281.
3. Gross, R. E., HOLCOMB, G. W., & Farber, S. (1952). Duplications of the alimentary tract. *Pediatrics*, 9(4), 449-468.
4. Basu, R., Forshall, I., & Rickham, P. P. (1960). Duplications of the alimentary tract. *Journal of British Surgery*, 47(205), 477-484.
5. Iyer, C. P., & Manhour, G. H. (1995). Duplications of the alimentary tract in infants and children. *J Pediatr Surg*, 30, 1267-70.
6. Balén, E. M., Hernández-Lizoáin, J., Pardo, F., Longo, J. M., Cienfuegos, J. A., & Alzina, V. (1993). Giant jejunoileal duplication: prenatal diagnosis and complete excision without intestinal resection. *Journal of pediatric surgery*, 28(12), 1586-1588.