

# Volvulus of the Appendix with Mucinous Cystadenoma in Second Trimester: A Case Report

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**Abstract:** *An 18-year-old primigravid female at 17 weeks of gestation presented with gradually progressive diffuse abdominal pain. Clinical examination revealed right lower quadrant tenderness. Ultrasonography suggested ileocecal intussusception. Due to persistent symptoms, exploratory laparotomy was performed, revealing volvulus of the appendix with mucinous content. Appendectomy was successfully carried out. Histopathological examination indicated features consistent with mucinous cystadenoma. This case highlights a rare cause of acute abdomen in pregnancy and emphasizes the importance of timely surgical intervention.*

**Keywords:** Appendiceal volvulus; Mucinous cystadenoma; Pregnancy; Acute abdomen; Appendectomy; Intussusception mimic

## 1. Introduction

Volvulus of appendix is a rare condition where the appendix twists, leading to ischemia and symptoms that mimic acute appendicitis. It is a surgical emergency that requires immediate intervention. D'Souza GF et al. and Abdessalam S et al. reported a case in a 2-year-old child with acute right lower quadrant pain abdomen where they proceeded with diagnostic laparoscopy and performed laparoscopic appendectomy.[1] This report aims to describe a rare case of appendiceal volvulus with mucinous cystadenoma during pregnancy and discuss its clinical implication.

## 2. Case

An 18-year-old female patient who was primigravid and period of gestation of 17 weeks presented with diffuse abdominal pain which was gradually increasing in intensity. Pain was non-radiating to any site and without any significant aggravating and relieving factors. There was no significant recent alterations of bladder and bowel habits and no history suggestive of hematochezia or melena or jaundice. No known comorbidities as stated by patient. On clinical examination patient was oriented to time place and person. Vital signs were within normal limits. On per abdominal examination abdomen was distended, no venous prominence or visible peristalsis present. On palpation local temperature was normal, with severe tenderness in right lower quadrant was found without any guarding or rigidity. No lump or organomegaly was found. Ultrasonography was done and it showed 26×12 mm area of gut 'target sign appearance' at right iliac fossa likely ileocaecal intussusception of length 43mm. The patient was operated due to non-resolution of symptoms after medical management and found to have-

- 1) Gross ellipsoid distension of proximal 4/5<sup>th</sup> of appendix (approx. 2.5cm diameter) with narrowing of distal part(8mm)

- 2) Adherent omentum. On detachment of omentum appendix was found at the tip with volvulus around 3 turns at the base. Cecal wall healthy. No obvious lymph node seen.
- 3) No evidence of perforation or intra-abdominal contamination seen.

## 3. Procedure

During surgery appendix was untwisted after bluntly dissecting the lateral folds and delivering caecum with pathological appendix through midline. Mesoappendix was doubly ligated. The base of appendix was transfixed, crushed and appendectomy done. Specimen was sent for HPE. Incision of specimen revealed a large whitish coherent mucoid mass? Neoplastic.

## 4. Histopathological Examination

HPE report showed gross alteration of architecture. Section was composed of fibromuscular tissue with deep infiltration of mucin and areas of necrosis and hemorrhage. Considering the gross appearance of specimen and presence of dissecting mucin within muscular layer a possible diagnosis of Mucinous Cystadenoma can be thought of. Mishin I et al. and Gridhirim G et al. found a similar case of appendiceal volvulus with mucinous cystadenoma [2]. Wan Hassan WA et al. and Tay YK et al. also reported the exact same case [3]. Kitagawa M et al. and Kotani T et al. also highlighted the same case [4]. Foster RA et al. and Grady EM et al. faced a similar case but fecolith was found on HPE after appendectomy. [5] Kilincaslan H et al. and Gedik AH et al. also found fecolith in appendicular torsion.[6]

## 5. Follow Up

Patient was allowed for diet on post-operative day 2 and was discharged on day 4 in hemodynamically stable condition.



Gross ellipsoid distension of appendix.



Cut section of specimen shows mucinous material



## 6. Discussion

Acute appendicitis is thought to occur in association with obstruction of the appendiceal wall . While appendicitis is the

most common intra-abdominal surgical emergency, torsion of the vermiform appendix is rare. Payne in 1918 was the first to describe a case of a torted appendix. This condition affects both genders in similar proportions and the age at presentation

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ranges from 18 to 78 with a mean of 40.8 years. The condition in its presentation is indistinguishable from acute appendicitis and is invariably diagnosed intraoperatively.

**Primary torsion of the appendix:** This occurs without a known cause. Suggested predisposing factors include anatomic variations such as (1) long, fan-shaped meso-appendix with a narrow base; (2) the absence of azygotic folds that normally laterally fix the appendix and (3) caecal malposition. In addition, the use of laxatives and vigorous physical exercise or abnormal peristaltic bowel movements have been suggested to predispose to appendiceal torsion. Ghent WR et al. and Carnovale BV et al. described in their case how primary volvulus happens in long appendix.[7]

**Secondary torsion of the appendix:** It occurs in association with a mucocele, intussusception, lipoma, cystadenoma, adhesions and inflammation. Carcinoid tumour and infestation with parasites such as *Schistosoma haematobium* may also rarely lead to torsion of the appendix. Dos Santos S et al. and Mongin C et al. found a case of appendiceal Mucocele in a case of a twisted appendix.[8] Nyandoro MG et al. and Rudloff U et al. found the similar mucocele in twisted appendix and laparoscopic appendectomy was done [9] [10]. Lee CH et al. and Lee MR et al. presented a case of volvulus of appendix with mucocele as content where appendix was rotated in counterclockwise and drainage was done [11]. There were some other case findings also. Dimitriadis PA et al. found appendicular volvulus with an undescended caecum [12]. Saha AK et al. reported a case where Histopathology of excised appendix showed inspissated faecal matter in lumen, wall was Hemorrhagic and transmural infarction keeping the evidence of volvulus [13]. Chong SJ et al. and Chan MY et al. described a case of Mucinous Cystadenoma of appendix without torsion and ended up with right hemicolectomy.[14]

### Learning Points

Appendiceal volvulus with mucinous cystadenoma is a rare but important differential diagnosis in acute abdomen, particularly during pregnancy. Clinical presentation may mimic more common conditions, making intraoperative diagnosis crucial. Prompt surgical intervention with careful handling is essential to prevent complications such as rupture and peritoneal dissemination. Increased awareness of this entity may improve diagnostic accuracy and patient outcomes.

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