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Case Study: Complicated Crohn's Disease with Ileo-Sigmoid Fistula, Colonic Stricture & Recurrent Subacute Intestinal Obstruction in an Adolescent Female

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KEYWORDS

Crohn's Disease, Ileo-Sigmoid Fistula, Colonic Stricture, Subacute intestinal Obstruction, Adolescent, Ileostomy

ABSTRACT:

Crohn's disease is a chronic inflammatory bowel disease characterized by transmural inflammation and can lead to serious complications such as fistula formation, strictures, malnutrition, and intestinal obstruction. This case report describes a 17-year-old female with a known history of left-sided colonic Crohn's disease who presented with chronic abdominal symptoms and significant weight loss. Despite ongoing medical therapy, including biologic treatment with adalimumab, she developed an ileo-sigmoid fistula with splenic flexure stricture and recurrent subacute intestinal obstruction complicated by hypoalbuminemia. The patient required surgical intervention in the form of exploratory laparotomy, fistula dismantling, left colectomy with colo-colic anastomosis, and double-barrel ileostomy. This case highlights the complexity of Crohn's disease in adolescents, the limitations of medical therapy alone, and the importance of a multidisciplinary approach involving medical, surgical, and nutritional management.

1. Introduction

Crohn's disease (CD) is a chronic, relapsing inflammatory bowel disease that can involve any part of the gastrointestinal tract. It commonly affects adolescents and young adults and is associated with complications such as strictures, fistulas, abscesses, and nutritional deficiencies. Transmural inflammation in Crohn's disease predisposes patients to fistula formation between adjacent bowel loops or other organs.

Despite advancements in biologic therapies such as anti-TNF agents (e.g., Adalimumab), a significant proportion of patients eventually require surgical intervention due to complications or failure of medical management. This case report presents a complicated course of Crohn's disease in a young female patient, emphasizing diagnostic challenges, surgical management, and postoperative care.

2. Case Report

Patient Information

A 17-year-old female, she was admitted to the hospital on **03/11/2025** and discharged on **21/11/2025.**

Chief Complaints

The patient presented with complaints of persistent abdominal pain associated with nausea. She also reported episodes of intermittent abdominal distension of a paroxysmal nature. These symptoms had been present for approximately six months prior to hospital admission. In addition, the patient gave a history of significant and progressive weight loss during the same period.

Clinical Examination

At the time of admission, the patient was conscious, alert, and well oriented to time, place, and person. Her vital parameters were within normal limits. There were no clinical features suggestive of acute hemodynamic instability.

Past Medical History

The patient had a known history of left-sided colonic Crohn's disease, which was diagnosed in the year 2023. Since the time of diagnosis, she had been receiving regular medical treatment and was under continuous clinical follow-up. Recently, the patient was initiated on

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biologic therapy and had received adalimumab as part of her disease management.

Laboratory Investigations

On clinical examination, the patient's vital parameters were recorded and laboratory investigations were performed. Hematological analysis revealed a hemoglobin level of 11.9 g/dL. The mean corpuscular hemoglobin (MCH) was 30.9 pg, while the red cell distribution width (RDW) was elevated at 18.7%. The platelet count was reported as $6.3 \times 10^3/\mu L$. Biochemical investigations demonstrated a serum albumin level of 3.20 g/dL and a serum creatinine level of 0.30 mg/dL. The sodium citrate plasma value was elevated at 19.3. Liver function test parameters were assessed as part of the diagnostic evaluation. Kidney function tests revealed a serum creatinine level of 0.40 mg/dL and a serum uric acid level of 1.9 mg/dL. Coagulation profile analysis showed a prolonged prothrombin time of 16.2 seconds with an international normalized ratio (INR) of 1.33. Additionally, the blood urea nitrogen (BUN) level was decreased at 7.0 mg/dL.

Radiological Investigations

Radiological evaluation of the patient included ultrasonography of the abdomen and a chest X-ray as part of the routine preoperative assessment. Computed tomography enterography performed on 09/10/2025 demonstrated imaging features consistent with Crohn's disease and revealed associated complications.

Ultrasonography Picture:

Fig:1 -Ultrasonography shows the whole abdomen few hyoechoic mesteric lymph node are seen in periumbilical regions and right illia fossa largest measuring 16x8mm in size. associated mesentric thinking is also noted, thee is mild thickening of caecum and distal ileum measuring 6 mm in thickness.

Impression: Messentric Lymphadenopathy with Mesentric Thickening and Mild Hyoechoie Thichning of Caecum and Distal Ileum.

Chest X-ray

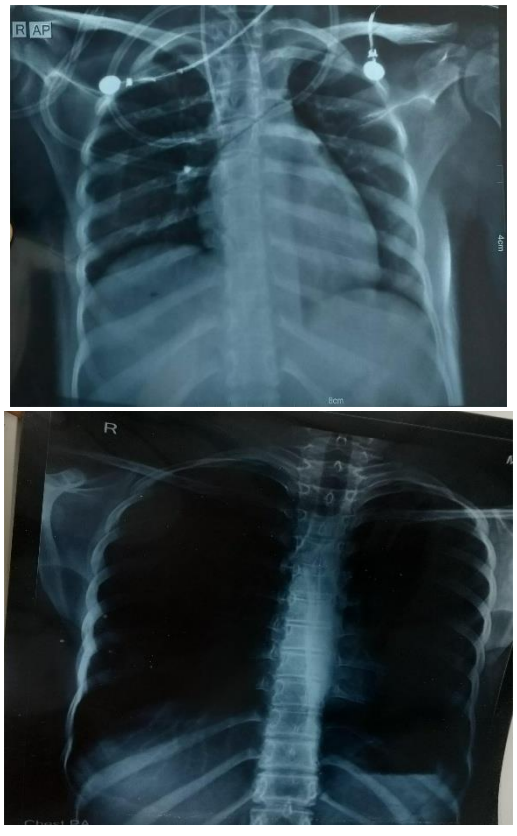

Fig:2 Chest x-ray Shows Abnormalities

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3. Results

Histopathological Findings:

Histopathological examination of the sigmoid colon biopsy specimen (17/10/2025) demonstrated transmural chronic inflammatory infiltrates composed predominantly of lymphocytes and plasma cells. Non-caseating granulomas were identified within the lamina propria, along with focal crypt distortion and ulceration. Areas of fibrosis and architectural distortion were also noted, consistent with chronic inflammatory bowel pathology. These findings were suggestive of **Crohn's disease** and excluded features of ulcerative colitis and malignancy.

Microbiological Findings:

Pus culture and sensitivity analysis (05/11/2025) revealed growth of *Escherichia coli*, sensitive to third-generation cephalosporins and piperacillin-tazobactam, and resistant to ampicillin. No anaerobic or fungal growth was detected. The microbiological findings guided the initiation of targeted antibiotic therapy, resulting in clinical improvement of infective symptoms.

Final Diagnosis:

Based on the correlation of clinical manifestations, radiological imaging, histopathological confirmation, and microbiological evidence, the final diagnosis was established as **Complicated Crohn's Disease with Ileo-Sigmoid Fistula, Colonic Stricture & Recurrent Subacute Intestinal Obstruction.**

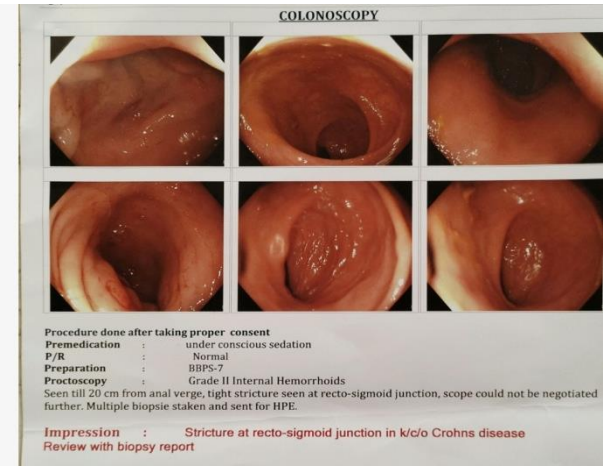

Fig:3 Colonoscopy shows the recto-sigmoid junction in Crohn's disease

Therapeutic Intervention – Preoperative Management

Prior to surgery, the patient was kept N.P.O and managed with intravenous fluid therapy to maintain adequate hydration. Total parenteral nutrition (TPN) was initiated in view of underlying malnutrition and hypoalbuminemia, and existing electrolyte imbalances were appropriately corrected. After detailed explanation of the planned procedure along with its potential risks and benefits, informed written consent was obtained from the patient and her caregivers.

Surgical Management

On 05/11/2025, the patient underwent exploratory laparotomy under general anesthesia, during which dismantling of the ileo-sigmoid fistula, left colectomy with colo-colic anastomosis, and creation of a double-barrel ileostomy were successfully performed.

Postoperative Care

Following surgery, the patient was successfully extubated and transferred to the postoperative care unit in stable condition. Early mobilization and ambulation were initiated from postoperative day one to promote recovery. The ileostomy became functional by postoperative day two, following which the Ryle's tube was removed and oral liquids were gradually introduced. During the postoperative period, the patient developed a superficial surgical site infection, for which sutures were partially opened and bedside wound dressing was carried out. On postoperative day five, the drain output was initially purulent and subsequently became feculent. The patient exhibited mild tachycardia; however, other vital parameters remained within normal limits. Antibiotic therapy was revised in accordance with intraoperative culture and sensitivity reports. Dietary intake was progressively advanced from liquids to a soft diet, and the midline surgical wound was managed with regular bedside dressing until discharge.

At the time of discharge, the patient was prescribed fosfomycin sachet to be taken once daily for a duration of seven days. She was advised to take syrup Alcazar at a dose of one teaspoon mixed in a cup of water three times daily for seven days. Capsule Nexpro-IT was prescribed once daily for seven days to manage gastric symptoms. Nutritional supplementation was advised in the form of syrup A to Z, 5 ml to be taken twice daily for

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one month. As part of ongoing disease-modifying therapy, injection adalimumab was continued at a dose of 40 mg every two weeks. In addition, immunomodulatory therapy with azathioprine was prescribed at a dose of 75 mg twice daily.

The patient was advised to adhere to a low-residue diet in order to reduce bowel workload and prevent obstruction. She was instructed to avoid foods containing small seeds, nuts, and kernels, as well as food items known to increase gas formation or cause gastrointestinal discomfort. Emphasis was placed on maintaining appropriate stoma care, including regular emptying of the stoma bag when it becomes one-third full to prevent leakage and skin irritation. The patient was further advised to change the stoma appliance every seven to ten days or earlier if required. Proper wound care was emphasized, and she was instructed to keep the surgical wound clean and dry to promote healing and prevent infection.

The patient was advised to report for follow-up evaluation at the Gastro-Surgery outpatient department seven days after discharge. During follow-up, regular monitoring of stoma function, surgical wound healing, and nutritional status was recommended to ensure appropriate postoperative recovery and early identification of any complications.

4. Discussion

This case demonstrates the aggressive nature of Crohn's disease in adolescents, even with biologic therapy. Chronic inflammation led to fistula formation and colonic stricture, resulting in recurrent subacute intestinal obstruction and malnutrition. Surgical intervention became unavoidable due to failure of conservative management. A combined approach involving surgery, biologic therapy, immunomodulators, nutritional support, and meticulous postoperative care resulted in clinical stabilization.

5. Conclusion

Crohn's disease can present with severe complications despite optimal medical therapy. Early recognition of complications, timely surgical intervention, and comprehensive postoperative management are essential to improve outcomes. Multidisciplinary care plays a crucial role in managing complex Crohn's disease cases, especially in adolescent patients.

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