



## Pancolitis along with Tuberculosis, Vitamin D Deficiency, and iron Deficiency

### Anemia: Case Report

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#### ABSTRACT

Pancolitis is a very severe form of ulcerative colitis which spread throughout the entire large intestine including the right colon, the left colon, the transverse colon, descending colon, and the rectum. Pancolitis is a kind of inflammatory bowel disease that affects the entire internal lining of the colon. The exact cause of this condition is unknown but autoimmune diseases and genetic predispositions might play a role in its advancement. Patients with pancolitis will have the symptoms similar to ulcerative colitis including rectal bleeding as a result of ulcers, pain in the abdominal region, inflammation in varying degrees, and diarrhea (often containing blood along fatigue, fever, and night sweats. In the present case as the functioning of the large intestine is reduced patient is unable to procure nutrients from food which lead to Vitamin D deficiency which is treated by giving calcium

supplements. Apart from this due to loss of blood from ulcer and hemochezia the patient is diagnosed with Iron deficiency anemia and treated with iron supplements. In the current case, patient is also suffering from colon tuberculosis may be due to the decreased immunity and is presently on anti-TB treatment. The current treatment of pancolitis is focused on forcing the disease into remission, with the ultimate goal to reach an improved quality of life, reduction in the need for medicine, and minimization of the risk of cancer. The medications presently utilized include anti-inflammatory agents and corticosteroids to alleviate inflammation and immunomodulators which act to suppress the immune system.

#### KEYWORDS:

Pancolitis, Immunomodulators, Vitamin D deficiency, Iron deficiency anemia

#### 1. INTRODUCTION

Pancolitis is a form of ulcerative colitis that affects the entire lining of the large intestine or bowel. It is a type of chronic inflammatory bowel disease which begins as ulcerative colitis and then spread to the entire large intestine if left untreated for long <sup>[1]</sup>. This disorder has symptoms related to ulcerative colitis such as rectal bleeding, severe pain in the abdomen, blood discharge in the stool, cramps in abdomen, inflammation in varying degrees and urgency and tenesmus. Pancolitis patients exhibit these symptoms and may also experience fatigue, fever, and night sweats. In addition, this condition will also manifest in the form of several types of ulcers like erythema nodosum, sacrolitis, pyoderma gangrenosum and aphthous ulcers.

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#### 2. CASE REPORT:

A 32-year female patient presented to the gastroenterology department with loose stools (6-7 episodes/day), vomiting, weight loss (10 kg), blood in stools, lower gastrointestinal bleeding and weakness. Patient has undergone an appendectomy two years back and has the past history of piles. She is suffering from tuberculosis from past one month and is on Anti-tubercular medication (isoniazid-300mg, pyrazinamide 750 mg, ethambutol-800mg, and rifampicin-450mg). Laboratory investigation showed decrease in total protein-4.8 g/dL (normal range is 6.4-8.2), serum albumin-1.3 g/dL (normal range is 3.4-5), albumin to globulin (A/G) ratio- 0.4 g/L (normal A/G ratio is 0.8-2.0), Serum transferrin- 115 mg/dl (normal value is 202-364), and total Iron-Binding Capacity-98 mcg/dL (normal value is 190-350). Colonoscopy of the patient confirmed severe pancolitis. Computerized tomography scan of the whole abdomen showed hepatomegaly with mild fatty infiltration. Apart from this patient is diagnosed with vitamin D deficiency and iron deficiency anemia. During her, one month stay in the hospital all the vital signs such as temperature, blood pressure, pulse rate, heart rate and respiratory rate were found to be normal.

Patient was immediately admitted in the intensive care unit and prompt treatment was initiated. The course of treatment is presented in table 1.

Medication	Duration	
Dextrose/Sodium Chloride Solution Infusion	100 cc/hr.	Till hospitalized for 30 days
Inj. Pantoprazole	40 mg once a day	Dose reduced to 20 mg on the 16 <sup>th</sup> day of hospitalization and substitute with an oral dose
Zincovit syrup	5 ml thrice a day	Duration reduced to twice a day from 16 <sup>th</sup> day of hospitalization
Inj. Magnesium Sulphate	1gm every night at bedtime	For 15 days
Tab. Budesonide	50 mg twice a day	For one month and after discharge once a day every morning
Tab. Mesalamine	100 mg thrice a day	For one month and after discharge twice a day
Tab. Prednisolone	30mg once a day	For one month and after discharge once a day
Inj. Infliximab	100 mg in 250 ml of DNS	Once a month
Tab. Azathioprine	25 mg once a day	For one month and after discharge once a day
Tab. Domperidone	10 mg once a day	For one month
Inj Ferric Carboxy maltose (Encicarb )	-	Twice a month

**Table 1: Course of treatment**

### 3. DISCUSSION

Pancolitis also known as universal colitis is a chronic condition of inflammation of large bowel [2]. Diagnosis of this condition is made by blood test (for the presence of inflammatory markers), computerized tomography scan (to rule out serious complications within the abdomen if there are other concerning signs or symptoms) and colonoscopy (the most accurate method of direct visualization of the colon using colonoscope) [3]. The primary sign of pancolitis is inflammation of the colon and rectum, which causes a variety of symptoms in the gastrointestinal tract. As the function of the large intestine decreases the patients may lose large amounts of weight from being unable to procure nutrients from food. The risk of colorectal cancer for any patient with ulcerative colitis or pancolitis is known to be elevated due to the severity of

histologic bowel inflammation and chronic nature of this disorder [4]. The precise cause of pancolitis is unclear but maybe caused due to autoimmune diseases and genetic predispositions. Genes that are known to put patients at risk for crohn’s disease have been shown to also increase the risk of pancolitis [5]. Stress and anxiety may trigger ulcers and cause pain and discomfort, but these factors don’t actually cause pancolitis. The large intestine contains the largest bacterial ecosystem in the human body. Gut flora play a role in synthesizing vitamins, and facilitate absorption of dietary minerals, including magnesium, calcium, and iron [6]. In the present case patient has been diagnosed by pancolitis. In this condition the functioning of large intestine will be decreased due to inflammation there by decreasing the bacterial flora in intestine. Altered gut microbiomes causes deficiency in vitamins especially vitamin d and pantothenic acid, there by adversely affecting the immune system, producing a pro-inflammatory state associated with atherosclerosis and autoimmunity [7]. As the patient is suffering with malabsorption of vitamins she is prescribed Zincovit Syrup that contains Carbohydrate, Copper, D-Panthenol, Iodine, L-Lysine, Nicotinamide, Potassium Iodide, Selenium, Vitamin A, Vitamin B1, Vitamin B12, Vitamin B2, Vitamin B6, Vitamin D3, Vitamin E and Zinc as active ingredients.

The complications of pancolitis are ulcer and gastrointestinal hemorrhage which causes significant blood loss over a short time, apart from this patient is experiencing hematochezia passage of blood in stool. This small amount of bleeding over a long time may cause iron-deficiency anemia resulting in patient feeling tired, dizziness, and pale skin color as well as abdominal pain. As the patient is suffering with iron deficiency anemia she is treated with iron supplements (ferric carboxymaltose). Intravenously administered ferric carboxymaltose rapidly improves haemoglobin levels and replenishes depleted iron stores and improved health-related quality-of-life in patients with iron-deficiency anemia. [8]

One month before the administration of patient in icu, she was diagnosed with tuberculosis. Chronic inflammatory state of pancolitis caused immune system to weakened and deficient immune responses to disease. Immunosuppression has been associated with increased in the prevalence of tuberculosis. Patient is prescribed rifampicin 450mg, isoniazid 300mg, pyrazinamide 750mg and ethambutol 800mg for the treatment of tuberculosis.

In the current patient, the medication used for the management of pancolitis includes an anti-inflammatory agent, immunomodulators, and biologics in conjunction with symptomatic treatment with antidiarrheal agents and rehydration. Mesalamine or 5-aminosalicylic acid by its PPAR-γ agonism, inhibition of arachidonic acid metabolism and inhibition of lymphocytes proliferation,

represents the most diffuse first-line therapy for mild to moderate colitis. It is considered to be effective both for the induction as well as the maintenance of remission in mild to moderate disease<sup>[9]</sup>. Glucocorticosteroids are the first choice for moderate to severe flares is quite effective in achieving remission. Apart from this due to its anti-inflammatory effect (Inhibition of NF- $\kappa$ B activation) in the current patient budesonide and prednisolone are employed<sup>[10]</sup>. Azathioprine is the most commonly prescribed immunomodulators for the treatment of Pancolitis. The mechanism(s) of action of these molecules seem to reside in the incorporation of 6-thioguanine into leukocyte DNA, instead of the normal nucleic acid bases, thus, interfering with subsequent leukocyte-dependent inflammatory responses and acting as immunomodulators<sup>[11]</sup>. Infliximab a chimeric monoclonal anti-TNF- $\alpha$  antibody is a biologic agent engineered to specifically target an immune or genetic mediator of a given disease<sup>[12]</sup>. The major concerns regarding anti-TNF treatment are related to several potential serious adverse events, such as opportunistic infections, including tuberculosis, as well as congestive heart failure in cardiopathic patients, therefore, requiring accurate patient screening for appropriate suitability for this treatment<sup>[13]</sup>.

Surgery (ileal pouch-anal anastomosis) has been viewed as definitive therapy for inflammatory pancolitis. This option is indicated for severe cases that are refractory to medical management, fulminant attack refractory to medical management, uncontrolled colonic bleeding and the cases in which cancer development is highly susceptible<sup>[14]</sup>.

#### 4.CONCLUSION

It can be concluded that the current treatment of pancolitis is to decrease regression of disease, achieve increased effectiveness of the drug, prevention of hospitalizations and surgeries, improved quality of life and the development of a much more aggressive treatment for patients with a poor prognosis.

#### CONFLICTS OF INTEREST

The authors do not have any conflict of interest.

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