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A COLON UNDER SIEGE: PERSISTENT BLOODY DIARRHEA FOLLOWING PROLONGED BROAD-SPECTRUM ANTIBIOTIC EXPOSURE – A CASE REPORT

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ABSTRACT

Chronic diarrhea with blood and mucus represents a significant diagnostic challenge, particularly in patients with prolonged hospitalization and exposure to multiple antibiotics. Antibiotic-associated colitis is an important cause of persistent diarrhea and may present with severe systemic manifestations if not recognized early. We report the case of a 44-year-old female who presented with persistent loose stools for two months, occurring 12–14 episodes per day, which were blood-stained, mucoid, and small in volume. The diarrhea was associated with diffuse lower abdominal cramping relieved after defecation, tenesmus, fecal incontinence, nocturnal stools, weight loss, and loss of appetite. The patient also complained of recurrent vomiting for the same duration. Her medical history was significant for systemic hypertension for seven years on treatment, coronary artery disease on antiplatelet therapy, and chronic steroid use for suspected inflammatory arthritis. Three months prior to presentation, the patient had sustained a pin-prick injury to the right foot, which progressed to abscess formation and severe cellulitis requiring multiple hospital admissions, incision and drainage, fasciotomy, and split skin grafting. During this period she received several broad-spectrum intravenous antibiotics including meropenem, piperacillin- tazobactam, cefoperazone-sulbactam, fosfomycin, nitrofurantoin, and linezolid. Notably, the onset of diarrhea occurred approximately 20 days after fasciotomy and prolonged antibiotic therapy. On examination, the patient appeared poorly nourished and dehydrated with pallor, glossitis, and angular stomatitis, along with bilateral pedal edema. Local examination of the right lower limb revealed healing fasciotomy wound with healthy granulation tissue. Laboratory investigations demonstrated severe anemia (Hemoglobin 6.1–7.7 g/dL), elevated inflammatory markers (ESR 120 mm/hr, CRP 69 mg/L), hypokalemia, and hypoalbuminemia. Peripheral smear findings were suggestive of dimorphic anemia. Stool examination revealed occult blood positivity with no ova or cysts detected. Ultrasonography of the abdomen showed moderate hepatosplenomegaly, grade II fatty liver, and cholelithiasis. The clinical presentation, along with the temporal relationship to prolonged antibiotic exposure, raised suspicion of antibiotic-associated colitis, with differentials including pseudomembranous colitis and inflammatory bowel disease. This case highlights the importance of recognizing persistent diarrhea following extensive antibiotic exposure and emphasizes the need for early diagnostic evaluation to prevent complications. Timely identification and targeted management remain crucial in improving patient outcomes.

KEYWORDS: Antibiotic-Associated Colitis, Chronic Bloody Diarrhea, Broad-Spectrum Antibiotics, Pseudomembranous Colitis.

INTRODUCTION

Chronic diarrhea is defined as the passage of loose stools lasting for more than four weeks and represents a common yet challenging clinical problem. The etiology is broad and includes infectious, inflammatory, malabsorptive, and drug-induced causes.

Among these, antibiotic-associated diarrhea has gained increasing clinical importance due to the widespread use of broad-spectrum antimicrobial agents in hospitalized patients. Antibiotic exposure can alter the normal intestinal microbiota, leading to disruption of gut homeostasis and overgrowth of pathogenic organisms. One of the most important complications is pseudomembranous colitis caused by Clostridioides difficile, which typically presents with profuse watery or bloody diarrhea, abdominal pain, and

systemic manifestations. The risk is particularly high in patients with prolonged hospital stay, repeated antibiotic exposure, immunosuppression, and underlying comorbid conditions. In addition to infectious causes, chronic bloody diarrhea may also indicate inflammatory bowel disease, ischemic colitis, or other inflammatory conditions of the colon, making the diagnostic evaluation complex. The presence of systemic features such as anemia, electrolyte imbalance, and nutritional deficiencies further complicates the clinical course. We report a case of a 44-year-old female who developed persistent bloody diarrhea following prolonged hospitalization and exposure to multiple broad-spectrum antibiotics for severe right lower limb cellulitis requiring surgical intervention. This case highlights the diagnostic challenges associated with chronic diarrhea in patients with extensive antibiotic exposure and underscores the importance of early recognition of antibiotic-associated colitis and related complications.

CASE REPORT

A 44-year-old female from Tirunelveli presented with complaints of loose stools for two months. The diarrhea was of acute onset, occurring 12–14 episodes per day, and was described as blood-stained, mucoid, and small in volume (Bristol stool type 7). It was associated with diffuse cramping pain in the lower abdomen which was relieved after defecation, along with tenesmus and a sense of incomplete evacuation. The patient also reported fecal incontinence and nocturnal passage of stools. She had associated loss of appetite and weight loss. There was no history of bloating, flatulence, foul- smelling stools, or relation to food intake.

She also complained of vomiting for two months, occurring approximately six episodes per day, which was non-projectile, non-bilious, and not blood stained, containing partially digested food particles. The vomiting was aggravated by both solid and liquid intake and was not relieved by medications.

The patient had a past medical history significant for systemic hypertension for seven years, for which she was on regular treatment with Amlodipine. She was also a known case of coronary artery disease on Clopidogrel 75 mg for the past three years.

Additionally, she had a history suggestive of chronic inflammatory arthritis for five years, for which she had been receiving steroid therapy, although detailed records were unavailable. She had discontinued these medications three months prior to admission.

Three months before presentation, the patient sustained a pin-prick injury to the right foot, which subsequently progressed to abscess formation requiring admission to a private hospital. She underwent incision and drainage and received intravenous antibiotics including meropenem. Subsequently, the condition progressed to right lower limb cellulitis, requiring admission at a tertiary care center where she underwent wound debridement and fasciotomy followed by split skin grafting. During her hospitalization, she received multiple broad-spectrum antibiotics including piperacillin-tazobactam and cefoperazone-sulbactam, and was later discharged on oral cephalexin. Due to inadequate wound care at home, she developed foul-smelling discharge from the wound site, necessitating another hospital admission where she received additional intravenous antibiotics including fosfomycin and nitrofurantoin, followed by oral linezolid, nitrofurantoin, and rifaximin. Notably, the onset of persistent diarrhea occurred approximately 20 days after the fasciotomy and prolonged antibiotic exposure.

On examination, the patient was poorly nourished and dehydrated. Pallor was present, and examination of the oral cavity revealed angular stomatitis and glossitis with loss of tongue papillae. There was bilateral pitting pedal edema up to the lower third of the legs. Examination of the right lower limb revealed cellulitis with a healing fasciotomy wound and healthy granulation tissue.

Vital signs were stable, with a pulse rate of 78 beats per minute, blood pressure of 110/60 mmHg, respiratory rate of 18 per minute, and temperature of 98.2°F. Abdominal examination revealed a soft, non-distended abdomen with normal bowel sounds and no organomegaly or palpable mass. Per rectal examination showed normal sphincter tone with fecal staining and no evidence of active bleeding.

Laboratory investigations revealed severe anemia with hemoglobin levels ranging from 6.1 to 7.7 g/dL, along with elevated inflammatory markers including ESR of 120 mm/hr and CRP of 69 mg/L. Peripheral smear showed dimorphic anemia with microcytic hypochromic cells admixed with macrocytes and macro-ovalocytes. Serum electrolytes demonstrated hypokalemia, and biochemical parameters revealed hypoalbuminemia. Stool examination showed occult blood positivity with no ova or cysts detected, and stool culture revealed no bacterial growth.

Ultrasonography of the abdomen demonstrated moderate hepatosplenomegaly, grade II fatty liver, cholelithiasis, and fibroid uterus. Ultrasonography of the neck shows normal study.

Complete blood count	At the time of admission	At the time of discharge
TC	11.2	5.3
RBC	3.14	2.94
HB	9.5	7.7
PCV	25.2	29.7
MCV	80.7	101.0
PLATLET	2.20	3.49

RENAL FUNCTION TEST	At the time of admission	At the time of discharge
UREA	22.1	15
CREATININE	0.64	0.67
SODIUM	144	134
POTASSIUM	2.0	3.1
RBS	68.2	62.9

LIVER FUNCTION TEST	At the time of admission	At the time of discharge
TOTAL BILURUBIN	0.78	0.79
DIRECT BILURUBIN	0.6	0.53
INDIRECT BILURUBIN	0.2	0.3
SGOT	18.8	63
SGPT	15.1	21
ALP	123	106
TOTAL PROTEIN	5.2	5.82
ALBUMIN	2.0	2.51
GLOBULIN	3.2	3.3

COAGULATION PROFILE	
PT	15.5
APTT	26.8
INR	1.17

CECT ABDOMEN AND PELVIS

Shows smooth circumferential long segmental symmetrical thickening involves rectum, sigmoid colon descending transverse and ascending colon noted with associated pericolonic fat stranding

No evidence of skip lesions – p/o inflammatory bowel disease involving rectum and colon

p/o ulcerative colitis, cholelithiasis, fibroid uterus with degeneration

MR ENTEROGRAPHY

Diffuse long segmental edematous wall thickening noted involving rectum, sigmoid colon, descending, transverse, ascending colon and caecum with adjacent fat stranding loss of normal haustral margins – featureless colon / lead pipe sign p/o IBD- ulcerative colitis

Other

Investigation	Result
ESR	120 mm/hr
CRP	69 mg/L
Serum Calcium	6.1 – 7.4 mg/dL
Serum Uric Acid	7.2 mg/dL
LDH	584 U/L
Stool Occult Blood	Positive
24 hr urine protein	0.518gms/day
TSH	6.6
Serum amylase	45u/L
Stool Culture	No growth
RA Factor	Negative
HBsAg	Negative
Anti-HCV	Negative
HIV	Non-reactive
ABG	Normal study
Fecal calprotectin	126

Clostridum difficile / clostridioides toxin qualitative pcr, stool

Clostridum difficile toxin A specific DNA	not detected
Clostridum difficile toxin B specific DNA	detected

C.DIFFICILE TOXIN A C B C GDH, STOOL

GDH	Positive
TOXIN A C B	Positive

Lower gastrointestinal endoscopy report – pancolitis

Pus culture and sensitivity shows klebsiella pneumoniae resistant to all the antibiotics ((ampicillin, piptaz, gentamycin, high level gentamycin, cefotaxime, ciprofloxacin)

Based on the clinical presentation and temporal association with prolonged exposure to broad-spectrum antibiotics, the patient was evaluated for antibiotic-associated colitis and other causes of chronic inflammatory diarrhea.

DISCUSSION

Chronic diarrhea is defined as the passage of loose stools lasting for more than four weeks and has a wide range of etiologies including infectious, inflammatory, malabsorptive, and drug-induced causes. Among these, antibiotic-associated diarrhea (AAD) is increasingly recognized due to the widespread use of broad-spectrum antimicrobial agents in hospitalized patients. Approximately 5–35% of patients receiving antibiotics develop antibiotic-associated diarrhea, with severity ranging from mild self-limiting diarrhea to life-threatening colitis.

One of the most important causes of severe antibiotic-associated diarrhea is pseudomembranous colitis caused by Clostridioides difficile. The pathogenesis involves disruption of the normal intestinal microbiota following antibiotic exposure, allowing overgrowth of toxin-producing C. difficile. The toxins released by the organism cause mucosal inflammation, epithelial injury, and formation of pseudomembranes in the colon, leading to clinical manifestations such as profuse diarrhea, abdominal pain, fever, and leukocytosis.

In the present case, the patient had multiple risk factors for antibiotic-associated colitis, including prolonged hospitalization, repeated exposure to multiple broad-spectrum antibiotics, and possible immunosuppression due to chronic steroid therapy. The antibiotics received by the patient, including meropenem, piperacillin-tazobactam, cefoperazone-sulbactam, and linezolid, are known to significantly disrupt gut flora and predispose to C. difficile infection. Notably, the onset of diarrhea occurred approximately 20 days after fasciotomy and extensive antibiotic therapy, suggesting a strong temporal relationship.

Another important aspect of this case was the presence of bloody diarrhea associated with systemic manifestations such as anemia, electrolyte imbalance, hypoalbuminemia, and elevated inflammatory markers. These findings indicate a significant inflammatory process involving the gastrointestinal tract. Stool examination revealed occult blood positivity, while stool culture showed no bacterial growth, which further raises suspicion for antibiotic-associated colitis or inflammatory bowel disease.

The patient also demonstrated dimorphic anemia on peripheral smear, which could be attributed to chronic blood loss, nutritional deficiency, and chronic inflammatory state. Additionally, laboratory findings of hypokalemia and hypoalbuminemia are commonly observed in patients with chronic diarrhea due to electrolyte loss and poor nutritional intake.

Another important consideration in patients presenting with chronic bloody diarrhea is inflammatory bowel disease (IBD), including ulcerative colitis and Crohn's disease. However, the temporal relationship between antibiotic exposure and symptom onset in this patient strongly suggests antibiotic-associated colitis as a probable etiology.

This case highlights the importance of maintaining a high index of suspicion for antibiotic-associated colitis in patients who develop persistent diarrhea following prolonged antibiotic therapy. Early recognition and appropriate management are essential to prevent complications such as severe dehydration, toxic megacolon, sepsis, and colonic perforation.

CONCLUSION

This case highlights the diagnostic challenge of chronic bloody diarrhea in a patient with prolonged exposure to multiple broad-spectrum antibiotics. The temporal association between antibiotic therapy and onset of symptoms strongly suggests antibiotic-associated colitis as a probable etiology. The presence of systemic manifestations such as severe anemia, electrolyte imbalance, and elevated inflammatory markers further indicates significant gastrointestinal inflammation. Early recognition of antibiotic-associated diarrhea and related complications is crucial to prevent severe outcomes such as dehydration, toxic megacolon, and sepsis. This case emphasizes the importance of judicious antibiotic use, careful monitoring of patients receiving prolonged antimicrobial therapy, and timely evaluation of persistent gastrointestinal symptoms to ensure appropriate management and improved patient outcomes.

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Ethical Approval / Consent: Not required.

REFERENCES

1. Saco LS, Herlihy KJ, Powell DW. Pseudomembranous (antibiotic-associated) colitis. J Am Acad Dermatol, 1981; 4(5): 619-629.
2. Bartlett JG. Treatment of antibiotic-associated pseudomembranous colitis. Rev Infect Dis., 1984; 6(1): S235-S241.
3. Pierce PF, Wilson R, Silva J. Antibiotic-associated pseudomembranous colitis: an epidemiologic investigation of a cluster of cases. J Infect Dis., 1982; 145(2): 269-274.
4. Hurley BW, Nguyen CC. The spectrum of pseudomembranous enterocolitis and antibiotic-associated diarrhea. Arch Intern Med., 2002; 162(19): 2177-2184.
5. Chen J, Yu W, Zhang W, Sun C. Antibiotics-associated pseudomembranous colitis: a disproportionality analysis of the FAERS database. Expert Opin Drug Saf, 2024; 23(10): 1359-1365.