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Clinical Course And Differential Diagnosis Of Dysentery

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Abstract
This review summarizes the clinical features and differential diagnosis of dysentery, primarily shigellosis, based on current literature. Despite declining incidence in some regions, dysentery remains a significant public health concern. The article outlines the disease course from incubation to severe forms, highlighting key symptoms such as bloody diarrhea, abdominal pain, fever, and tenesmus. Special attention is given to vulnerable groups, including children and immunocompromised patients. Diagnostic approaches focus on laboratory confirmation and differentiation from other infectious and non-infectious causes of colitis, including amoebic dysentery, salmonellosis, campylobacteriosis, and Clostridioides difficile infection. Early diagnosis and accurate differentiation are essential for effective management and prevention of complications.
Keywords: dysentery; shigellosis; differential diagnosis; bloody diarrhea; colitis

Introduction

In recent years, diarrheal diseases have remained one of the most pressing global public health challenges. In particular, diarrhea is recognized as one of the leading causes of mortality among children aged 1–59 months, claiming hundreds of thousands of lives annually. According to current epidemiological data, each year more than 443,000 children under the age of five, as well as tens of thousands of children aged 5–9 years, die as a result of diarrheal diseases. Furthermore, approximately 1.7 billion cases of diarrhea are reported annually among children worldwide, highlighting the widespread nature of this condition. In addition, diarrhea is acknowledged as one of the major causes of malnutrition in children under five years of age.

Diarrhea arises as a result of bacterial, viral, or parasitic infections of the gastrointestinal tract and is most commonly transmitted through contaminated food, drinking water, or via person-to-person spread due to poor hygiene practices. Clinically, diarrhea is defined as the passage of three or more loose or liquid stools per day and is associated with significant fluid and electrolyte loss. While severe dehydration was historically the primary cause of diarrhea-related mortality, septic bacterial infections have now emerged as an important contributing factor. High-risk groups include immunocompromised individuals, malnourished children, and persons living with HIV infection [15].

Based on clinical presentation, diarrhea is classified into three main types: acute watery diarrhea, acute bloody diarrhea (dysentery), and persistent diarrhea. Among these, dysentery—particularly shigellosis—occupies a significant place among acute intestinal infections due to its association with bloody diarrhea syndrome and its distinct clinical and diagnostic importance. Microorganisms belonging to the genus *Shigella* are among the leading etiological agents of bacterial diarrhea and are especially prevalent in developing countries. In the Republic of Uzbekistan, despite a certain decline in incidence rates, the epidemiological significance of dysentery remains considerable [16].

In modern clinical practice, accurate differential diagnosis of dysentery from

other intestinal infections—such as amoebic dysentery, salmonellosis, *campylobacteriosis, enteroinvasive and enterohemorrhagic Escherichia coli* infections, as well as *Clostridioides* difficile-associated colitis—is of great importance. Misdiagnosis may lead to ineffective treatment strategies and the development of complications [3].

Accordingly, the aim of this review article is to provide a systematic analysis of the clinical course and differential diagnosis of dysentery based on contemporary scientific data.

Etiology and Classification

Dysentery is a disease belonging to the group of acute intestinal infections, and its development involves various etiological factors. Etiologically, dysentery is primarily of bacterial and parasitic origin [2]. Bacterial dysentery is most commonly associated with microorganisms of the genus *Shigella,* among which *S. dysenteriae, S. flexneri, S. boydii, and S. sonnei* are of major importance. These pathogens exert an invasive effect on the intestinal mucosa, inducing inflammatory processes and clinically manifesting as diarrhea with blood and mucus [1,2].

Parasitic dysentery, on the other hand, is mainly associated with *Entamoeba histolytica* and presents as amoebic dysentery. This infection is characterized by ulcer formation in the intestinal wall and a tendency toward chronic progression [5]. Additionally, in some cases, dysentery-like clinical manifestations may be associated with other bacterial pathogens, including enteroinvasive and enterohemorrhagic strains of *Escherichia coli, Campylobacter jejuni, and Salmonella* species [6].

Clinically, diarrheal diseases are divided into three main categories: acute watery diarrhea, acute bloody diarrhea (dysentery), and persistent diarrhea. Acute watery diarrhea typically lasts several days and is characterized by fluid and electrolyte loss. Acute bloody diarrhea is associated with inflammation of the intestinal mucosa and is manifested by the presence of blood and mucus in the stool. Persistent diarrhea lasts 14 days or more and is often associated with a risk of progression to chronic conditions [8].

Pathogenesis

The pathogenesis of dysentery is a multistage process characterized by the invasion of pathogenic microorganisms into the intestinal mucosa, the development of a local inflammatory response, and the manifestation of systemic intoxication syndrome. In bacterial dysentery, Shigella species—being the primary etiological agents—enter the body orally, reach the colonic epithelium, and begin to multiply [9]. Shigella bacteria penetrate intestinal epithelial cells via M cells, subsequently replicate intracellularly, and spread from cell to cell. This process leads to disruption of cellular structures and results in the formation of erosions and ulcers in the mucosa. Consequently, inflammatory responses in the intestinal wall intensify, clinically manifesting as diarrhea with blood and mucus [12,14].

Bacterial toxins also play a significant role in pathogenesis. Certain strains produce Shiga toxin, which inhibits intracellular protein synthesis, exerts cytotoxic effects, and further exacerbates tissue damage [17]. In severe clinical forms, this may contribute to the development of systemic complications. The host immune response is another critical component of pathogenesis. Local immune reactions, including neutrophil migration and cytokine release, amplify the inflammatory process. In immunocompromised individuals, the infection tends to be more severe, with an increased risk of complications [18].

In parasitic dysentery, *Entamoeba histolytica* adheres to the intestinal mucosa and destroys tissues through the action of proteolytic enzymes, leading to deep

ulcerative lesions. This results in a chronic course and recurrent symptoms [15].

Clinical Course

The clinical course of dysentery is polymorphic, ranging from mild watery diarrhea to severe, life-threatening dysenteric syndrome. The disease usually begins after a short incubation period (typically 1–3 days) and initially presents with general intoxication symptoms such as fever, weakness, headache, and loss of appetite. In some patients, the early stage is characterized by watery diarrhea, which later progresses to a dysenteric form due to invasive damage to the intestinal mucosa.

A key clinical feature is frequent passage of small-volume stools [20]. The presence of blood and mucus in the stool indicates inflammatory and destructive changes in the intestinal wall. Defecation is often painful and accompanied by tenesmus—a false urge to defecate. Spasmodic pain is typically localized in the lower abdomen, particularly in the left iliac region. In some cases, the frequency of defecation may reach 10–20 times per day, significantly worsening the patient's general condition [11].

Based on severity, the clinical course is classified into mild, moderate, and severe forms. In mild cases, the general condition remains relatively satisfactory, diarrhea is less pronounced, and blood admixture may be absent. In moderate cases, intoxication symptoms intensify, with evident fever, abdominal pain, and bloody diarrhea. Severe cases are characterized by high fever, marked intoxication, frequent bloody stools, dehydration, and a sharp deterioration of the general condition. In such cases, some patients may develop prostration, hypotension, and cardiovascular dysfunction [10,13].

Additionally, dysentery may present with extraintestinal manifestations. Particularly in children and immunocompromised individuals, complications such as neurological symptoms (seizures, altered consciousness), hemolytic uremic syndrome, and reactive arthritis may occur. Although the disease typically lasts 5–7 days, prolonged or recurrent forms may also be observed [10].

The severity of the clinical course depends on several factors, including the virulence of the pathogen strain, infectious dose, patient age, nutritional status, and the functional state of the immune system. It has been noted that children living in developing countries are more likely to experience severe disease and complications [14].

Thus, the clinical course of dysentery presents in various forms, and its early recognition, accurate assessment of severity, and appropriate differential diagnosis are essential for effective treatment and prevention of complications.

Differential Diagnosis

Dysentery is clinically characterized by acute bloody diarrhea syndrome and must be differentiated from other intestinal diseases of similar presentation. Differential diagnosis is based on the onset of the disease, clinical features, epidemiological history, and laboratory findings [15].

First, dysentery must be distinguished from amoebic dysentery caused by *Entamoeba histolytica*. *Amoebiasis* typically has a subacute or chronic onset, with gradually developing clinical symptoms. Although blood may be present in the stool, it often appears as "raspberry jelly." Signs of intoxication are less pronounced, and fever usually does not reach high levels. Laboratory detection of trophozoites is of diagnostic importance [16].

In salmonellosis caused by *Salmonella* species, the disease more commonly presents as gastroenteritis. Patients typically complain of vomiting, profuse watery diarrhea, and high fever. Unlike dysentery, bloody stools are less common, and tenesmus is usually absent.

Epidemiologically, consumption of contaminated food plays a key role [15].

In *Campylobacter jejuni* infection, clinical manifestations may resemble dysentery. However, the disease often begins with high fever and marked systemic intoxication. Diarrhea may be watery or sometimes bloody, but tenesmus is less pronounced [18].

Enteroinvasive and enterohemorrhagic Escherichia coli infections can also produce a clinical picture similar to dysentery. In particular, enterohemorrhagic strains (EHEC) are associated with bloody diarrhea and carry a risk of developing hemolytic uremic syndrome. In such cases, inappropriate use of antibiotics may worsen outcomes, making accurate differential diagnosis critically important [17].

Table 1. Differential diagnosis of dysentery

Disease	Onset	Stool characteristics	Fever	Tenesmus	Key features
Dysentery (Shigella)	Acute	Small volume, blood and mucus	Moderate–high	Present	Left lower abdominal pain
Amoebiasis	Gradual	"Raspberry jelly" appearance	Low or absent	Rare	Chronic course
Salmonellosis	Acute	Large volume watery	High	Absent	Frequent vomiting
Campylobacter infection	Acute	Watery or sometimes bloody	High	Rare	Severe intoxication
EHEC (E. coli)	Acute	Bloody diarrhea	Low	Absent	Hemolytic uremic syndrome
Clostridioides difficile colitis	Gradual (post-antibiotics)	Watery, sometimes bloody	Moderate	Absent	Associated with antibiotics
Ulcerative colitis	Chronic	Bloody, prolonged	Usually absent	Present	Remission and relapse

Differential Diagnosis

In cases of antibiotic-associated diarrhoea, it is essential to exclude pseudomembranous colitis caused by Clostridioides difficile. This condition is characterized by diarrhoea accompanied by abdominal pain and fever, and in severe cases, may lead to toxic megacolon. The diagnosis is confirmed by detecting toxins in stool samples.

In addition, non-infectious intestinal diseases, including ulcerative colitis and Crohn's disease, may present with prolonged bloody diarrhoea. These conditions are typically characterized by a chronic course with alternating periods of remission and exacerbation. Endoscopic and histological examinations play a crucial role in establishing the differential diagnosis.

The key differential features characteristic of dysentery include:

1. acute onset of the disease
2. frequent passage of small-volume stools
3. bloody and mucous diarrhoea

4. presence of tenesmus
5. pain localized in the left lower abdominal quadrant

Thus, the differential diagnosis of dysentery requires a comprehensive approach based on the integrated assessment of clinical features, laboratory findings, and epidemiological data. Accurate differential diagnosis is crucial for effective treatment and for preventing complications [15].

Conclusion

The findings of this review article indicate that dysentery (primarily shigellosis) occupies a significant place among acute intestinal infections and remains a major public health concern globally, particularly in developing countries. The analysis confirms the high prevalence of diarrhoeal diseases and their substantial contribution to morbidity and mortality, especially among children. Despite a certain decline in incidence rates in the Republic of Uzbekistan, dysentery continues to retain its epidemiological significance.

From an etiological perspective, dysentery is mainly associated with bacterial agents (*Shigella)* and parasitic organisms (*Entamoeba histolytica*), while its pathogenesis involves invasive damage to the intestinal mucosa, inflammatory processes, and toxic effects.

Clinically, the disease demonstrates a polymorphic course, ranging from mild watery diarrhoea to severe dysenteric syndrome with bloody stools. The principal clinical manifestations include bloody and mucous diarrhoea, tenesmus, abdominal pain, and systemic intoxication.

Within the scope of this study, particular attention was paid to the issue of differential diagnosis. The analysis revealed that accurate differentiation of dysentery from amoebic dysentery, salmonellosis, campylobacteriosis, enteroinvasive and enterohemorrhagic Escherichia coli infections, Clostridioides difficile-associated colitis, as well as non-infectious intestinal diseases, is of critical importance in clinical practice. In this process, it is necessary to consider not only clinical manifestations but also epidemiological history and laboratory findings.

Furthermore, contemporary scientific data indicate an increasing level of antibiotic resistance among *Shigella* strains, which directly affects treatment outcomes and necessitates an individualized approach to therapy selection. Therefore, early diagnosis of dysentery, accurate assessment of its clinical course, precise differential diagnosis, and the application of modern therapeutic strategies are essential for reducing complications and improving patient outcomes.

Overall, the problem of dysentery requires a comprehensive approach, and its adverse consequences can be significantly reduced through strengthening preventive measures, improving sanitation and hygiene conditions, and implementing advanced diagnostic and treatment methods.

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