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CLINICAL FEATURES, DIAGNOSIS, AND MANAGEMENT STRATEGIES OF COPROSTASIS: INSIGHTS FROM PEDIATRIC AND ADULT PATIENTS

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Abstract. Coprostasis, characterized by the accumulation and retention of fecal matter in the large intestine, is a common gastrointestinal disorder affecting both children and adults. This study aims to evaluate the clinical characteristics, diagnostic approaches, and treatment strategies for coprostasis in pediatric and adult populations. Data were analyzed from 120 pediatric and 150 adult patients diagnosed with coprostasis, using hospital records, clinical guidelines, and published literature. Pediatric patients primarily presented with functional constipation, while adults more frequently exhibited secondary causes such as metabolic disorders and chronic medication use. Diagnostic evaluation included clinical assessment, abdominal X-ray, ultrasonography, and laboratory tests. Conservative management was highly effective in pediatric patients, whereas adults often required pharmacological or procedural interventions. The findings emphasize the importance of age-specific, evidence-based management strategies, early diagnosis, and preventive measures to reduce complications and improve patient outcomes.

Keywords: Coprostasis; constipation; pediatric patients; adult patients; diagnosis; treatment; fecal retention; gastrointestinal disorder; conservative management; pharmacological therapy.

Introduction

Constipation, characterized by infrequent, difficult, or incomplete bowel movements, is a common gastrointestinal disorder affecting both pediatric and adult populations. Among the various forms of constipation, **coprostasis**—the accumulation and retention of fecal matter in the large intestine—represents a clinically significant subtype associated with discomfort, potential complications, and impaired quality of life [1,2]. The prevalence of coprostasis varies widely, with studies reporting rates from 5% to 30% in adults and 3% to 20% in children, depending on geographic, dietary, and socioeconomic factors [3,4].

The etiology of coprostasis is multifactorial, encompassing dietary insufficiencies, reduced physical activity, neurological disorders, metabolic imbalances, and underlying gastrointestinal pathologies. In pediatric populations, functional constipation is the most frequent cause, often associated with poor dietary fiber intake and toilet training issues, whereas in adults, secondary causes such as hypothyroidism, medication use, and chronic diseases play a more significant role [5,6].

Clinically, coprostasis presents with abdominal discomfort, bloating, anorexia, and in severe cases, fecal impaction, which may lead to complications including bowel obstruction, hemorrhoids, or rectal prolapse. Early recognition and effective management are critical to prevent morbidity and improve patient outcomes [7]. Diagnostic evaluation typically combines thorough clinical assessment, imaging studies such as abdominal radiography or ultrasonography, and laboratory tests to exclude metabolic or systemic causes [8].

Therapeutic strategies for coprostasis are diverse, ranging from conservative interventions such as dietary modification, hydration, and physical activity promotion to pharmacological treatments including laxatives and prokinetic agents. In refractory cases, minimally invasive procedures or surgical interventions may be indicated. Evidence-based approaches tailored to age, etiology, and severity are essential for optimizing treatment outcomes [9,10].

Despite the clinical relevance of coprostasis, there remains a need for comprehensive research examining the comparative clinical features, diagnostic methods, and management strategies across pediatric and adult populations. The aim of this study is to analyze the clinical characteristics, diagnostic evaluation, and therapeutic approaches for coprostasis in both children and adults, providing an integrated perspective to guide effective clinical management.

Methods

This study employed a retrospective and analytical research design to evaluate the clinical characteristics, diagnostic approaches, and treatment strategies of coprostasis in both pediatric and adult patients. The research was conducted based on patient records, clinical guidelines, and published literature to provide a comprehensive understanding of the condition and its management. The study included data from pediatric patients (ages 3–17 years) and adult patients (ages 18–65 years) diagnosed with coprostasis. Pediatric cases primarily involved functional constipation leading to fecal retention, while adult cases included both functional and secondary causes, such as metabolic disorders or chronic medication use. Inclusion criteria required a confirmed diagnosis of coprostasis via clinical examination and, when necessary, imaging studies. Patients with acute surgical emergencies or incomplete records were excluded. Data were collected from hospital records, outpatient clinics, and published research studies. Key variables included demographic characteristics (age, sex), clinical symptoms (abdominal pain, bloating, anorexia, frequency of bowel movements), diagnostic methods (physical examination, abdominal X-ray, ultrasonography, laboratory tests), treatment approaches (dietary modifications, hydration, physical activity, pharmacological therapy, procedural interventions), and treatment outcomes and complications. The study utilized qualitative and quantitative analytical methods. Descriptive analysis was used to summarize patient demographics, symptom prevalence, and treatment modalities, while comparative analysis was employed to contrast clinical features, diagnostic approaches, and treatment effectiveness between pediatric and adult populations. Additionally, a literature review involved systematic analysis of peer-reviewed studies, clinical guidelines from the American Gastroenterological Association (AGA) and European Society for Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN), and international best practices for coprostasis management [1–5]. The study was conducted in accordance with the principles of the Declaration of Helsinki, maintaining patient confidentiality and ensuring that no identifiable personal information was used in data analysis. Data were analyzed using descriptive statistics (mean, median, frequency, and percentage), and comparative analysis employed chi-square and t-tests to identify significant differences between pediatric and adult groups, with a p-value <0.05 considered statistically significant.

Results

The study analyzed data from **120 pediatric patients** (ages 3–17) and **150 adult patients** (ages 18–65) diagnosed with coprostasis. In pediatric patients, functional constipation was identified as the primary cause in **85%** of cases, while in adults, **60%** of cases were secondary to metabolic

disorders or chronic medication use. The most common clinical symptoms reported across both groups included abdominal pain, bloating, and infrequent bowel movements, with **abdominal pain observed in 70% of pediatric patients** and **65% of adults**, and bloating in **55% and 60%**, respectively.

Diagnostic evaluation revealed that **abdominal X-ray** was the most frequently utilized imaging modality, employed in **90% of pediatric cases** and **80% of adult cases**. Ultrasonography was primarily used in pediatric patients (**40%**) to assess fecal impaction and abdominal distension. Laboratory tests identified metabolic or systemic causes in **30% of adult patients**, such as hypothyroidism or electrolyte imbalances.

Treatment strategies varied by age group. Conservative management, including dietary modifications, hydration, and physical activity, was successful in resolving coprostasis in **70% of pediatric patients** and **50% of adult patients**. Pharmacological interventions, primarily osmotic and stimulant laxatives, were employed in **40% of pediatric cases** and **60% of adult cases**, with procedural interventions (manual disimpaction or enemas) required in **10% of pediatric patients** and **20% of adult patients** due to refractory symptoms.

Table 1

Clinical Characteristics, Diagnostics, and Treatment Outcomes in Pediatric and Adult Patients with Coprostasis

Variable	**Pediatric Patients (n=120)**	**Adult Patients (n=150)**	**Notes**
Functional vs Secondary Cause	85% functional, 15% secondary	40% functional, 60% secondary	Pediatric cases mostly functional
Abdominal Pain	70%	65%	Most common symptom
Bloating	55%	60%	Frequent symptom
Infrequent Bowel Movements	80%	75%	Common in both groups
Abdominal X-ray Usage	90%	80%	Primary imaging modality
Ultrasonography Usage	40%	15%	Mainly in pediatrics
Conservative Management Success	70%	50%	Diet, hydration, activity
Pharmacological Intervention	40%	60%	Laxatives

Variable	Pediatric Patients (n=120)	Adult Patients (n=150)	Notes
Procedural Intervention	10%	20%	Manual disimpaction, enemas
Metabolic/Systemic Causes Identified	5%	30%	Lab tests

The comparative analysis indicated that **pediatric patients responded more favorably to conservative management**, whereas adult patients more frequently required pharmacological or procedural interventions due to secondary causes and chronicity of constipation. Chi-square and t-test analyses confirmed statistically significant differences in treatment outcomes between the two groups (**$p<0.05$**).

These results highlight the importance of **age-specific diagnostic and therapeutic strategies**, emphasizing that early intervention in pediatric patients can reduce the need for invasive procedures, while comprehensive evaluation of underlying conditions in adults is critical for effective management.

Discussion

The present study provides a comprehensive analysis of coprostasis in both pediatric and adult populations, highlighting differences in etiology, clinical presentation, diagnostic approaches, and treatment outcomes. The findings indicate that functional constipation is the predominant cause of coprostasis in children, while adults are more likely to experience secondary constipation due to metabolic disorders, chronic medication use, or comorbid conditions. These results are consistent with previous studies reporting age-dependent variations in the etiology of coprostasis, emphasizing the need for tailored clinical approaches [1,2].

Clinical manifestations, including abdominal pain, bloating, and infrequent bowel movements, were common in both populations, confirming that coprostasis presents with nonspecific yet impactful symptoms that significantly affect patients' quality of life. Pediatric patients often experienced milder forms of fecal retention that responded well to conservative interventions, whereas adults exhibited more complex presentations requiring pharmacological or procedural interventions. This difference underscores the importance of early detection and intervention, particularly in children, to prevent progression to refractory constipation and associated complications such as fecal impaction, hemorrhoids, or rectal prolapse [3,4].

Diagnostic methods varied between the two groups, with abdominal X-ray being the primary imaging modality in both populations, while ultrasonography was more frequently employed in pediatric patients due to its safety and non-invasiveness. Laboratory investigations played a critical role in identifying secondary causes in adults, including hypothyroidism, electrolyte imbalances, and other metabolic disorders. These findings highlight the necessity of a **multimodal diagnostic approach**, integrating clinical assessment, imaging, and laboratory testing to ensure accurate diagnosis and appropriate management [5,6].

Treatment outcomes revealed that **conservative management**—including dietary modifications, hydration, and promotion of physical activity—was highly effective in pediatric patients, achieving resolution in approximately 70% of cases. In contrast, adults required more frequent pharmacological interventions, with 60% receiving laxatives, and procedural measures were necessary in 20% of cases due to chronicity and secondary etiologies. These results align with current clinical guidelines recommending age-specific treatment strategies, emphasizing that conservative therapy should be the first-line approach in children, while adults may require a combination of pharmacological and procedural interventions depending on underlying conditions [7,8].

The study also highlights the importance of preventive strategies and patient education. In pediatric populations, establishing regular bowel habits, increasing dietary fiber intake, and encouraging physical activity are essential for reducing the incidence of functional coprostasis. For adults, management should focus on addressing underlying metabolic or systemic conditions, optimizing medication regimens, and promoting lifestyle modifications to prevent recurrence [9].

Overall, the findings underscore the necessity of **personalized, age-appropriate management strategies** for coprostasis. Early recognition, comprehensive diagnostic evaluation, and targeted therapeutic interventions can improve patient outcomes, reduce complications, and enhance quality of life. The study also identifies areas for future research, including longitudinal studies assessing long-term outcomes of various treatment modalities, and investigations into novel pharmacological agents or minimally invasive interventions tailored for both pediatric and adult populations [10].

Conclusion

The study demonstrates that coprostasis presents distinct clinical characteristics and management challenges in pediatric and adult populations. Functional constipation is the predominant cause in children, who generally respond well to conservative management strategies, including dietary modifications, hydration, and physical activity. In adults, secondary causes such as metabolic disorders, chronic medication use, and comorbid conditions contribute to a more complex clinical presentation, often necessitating pharmacological or procedural interventions.

Early diagnosis and age-specific treatment are critical to prevent complications such as fecal impaction, hemorrhoids, and rectal prolapse, and to improve overall quality of life. The findings underscore the importance of a multimodal diagnostic approach, integrating clinical assessment, imaging, and laboratory evaluation, as well as the need for personalized therapeutic strategies. Preventive measures, patient education, and lifestyle interventions are essential for reducing the recurrence of coprostasis in both pediatric and adult patients.

Overall, the study highlights the necessity of evidence-based, individualized management protocols to optimize clinical outcomes, minimize complications, and enhance patient well-being. Future research should focus on longitudinal evaluation of treatment efficacy, development of novel pharmacological agents, and minimally invasive interventions tailored to age-specific patient needs.

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