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Retrospective Analysis of Clinical Characteristics, Treatment Outcomes and Risk Factors in Appendicitis and Typhlitis

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ABSTRACT

Background: Appendicitis and typhlitis are distinct gastrointestinal inflammatory conditions with overlapping symptoms, posing diagnostic challenges. This retrospective study compared their clinical features, treatments, and outcomes, and identified associated risk factors.

Methods: Data from 800 appendicitis and 200 typhlitis patients treated at a tertiary hospital (2021–2023) were analyzed. Demographics, symptoms, lab results, treatments, and outcomes were examined. Univariate and multivariate logistic regressions determined risk factors.

Results: Appendicitis patients were younger (median 32 years) than typhlitis patients (median 45 years). Abdominal pain was common in both (98% vs. 92%), but typhlitis patients more often had fever (88% vs. 65%) and diarrhea (75% vs. 12%). Laparoscopic appendectomy was done in 78% of appendicitis cases (10.2% complication rate), while 70% of typhlitis patients received conservative treatment (18% mortality). Multivariate analysis showed perforated appendicitis (OR = 3.2, 95% CI: 2.1–4.8, $p < 0.001$) and severe neutropenia (OR = 4.1, 95% CI: 2.5–6.8, $p < 0.001$) were key risk factors for adverse outcomes in each group.

Conclusion: Appendicitis and typhlitis have distinct profiles. Early diagnosis and targeted treatment based on risk factors improve outcomes. Clinicians should distinguish between them to optimize management.

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Introduction

Appendicitis and typhlitis are two significant inflammatory disorders of the abdominal cavity with different etiologies and management approaches [1]. Appendicitis, a common surgical emergency, usually stems from appendiceal lumen obstruction, potentially leading to perforation [2]. Typhlitis, mainly affecting immunocompromised patients, especially those with hematological malignancies undergoing chemotherapy, involves inflammation of the cecum and adjacent intestines [3]. Their similar symptoms can cause diagnostic confusion, highlighting the need to clarify their differences for better patient care. This study aimed to compare these conditions and identify risk factors for adverse outcomes [4].

Materials and Methods

Patient Selection

A total of 1000 patients (800 appendicitis and 200 typhlitis cases) treated at a tertiary hospital from January 2021 to December 2023 were included. Appendicitis was diagnosed based on symptoms, physical examination, lab tests, and imaging. Typhlitis diagnosis relied on immunocompromised status, abdominal symptoms,

neutropenia, and characteristic CT findings. Patients with incomplete records or failing to meet criteria were excluded.

Data Collection

Electronic medical records provided data on demographics, medical history, symptoms, laboratory results (white blood cell count, neutrophil count, C-reactive protein, lactate level), imaging, treatments, and outcomes (complications, hospital stay, mortality).

Statistical Analysis

Continuous Variables Used Median (IQR) and Mann-Whitney U test for comparison; categorical variables used percentages and chi-square/Fisher's exact test. Univariate and multivariate logistic regressions identified risk factors for appendicitis complications and typhlitis mortality. Odds ratios with 95% CIs were calculated in SPSS 28.0, with $p < 0.05$ significant.

Results

Patient Demographics

Appendicitis patients had a median age of 32 years (IQR: 25–40), with 58% male. Typhlitis patients had a median age of 45 years (IQR: 35–55), 60% male, and 75% had hematological malignancies (Table 1).

Table 1: Patient Demographics

Characteristics	Appendicitis (n = 800)	Typhlitis (n = 200)	p - value
Median Age (years)	32 (25 - 40)	45 (35 - 55)	< 0.001
Male Sex (%)	58	60	0.72
Underlying Hematological Malignancies (%)	-	75	-

Clinical Manifestations

Abdominal pain was reported in 98% of appendicitis and 92% of typhlitis patients. Fever and diarrhea were more prevalent in typhlitis (88% and 75%) than in appendicitis (65% and 12%) (Table 2).

Table 2: Clinical Manifestations

Clinical Manifestations	Appendicitis (n = 800)	Percentage (%)	Typhlitis (n = 200)	Percentage (%)	p - value
Abdominal Pain	784	98	184	92	0.001
Fever	520	65	176	88	< 0.001
Diarrhea	96	12	150	75	< 0.001
Nausea/Vomiting	480	60	110	55	0.21

Laboratory Findings

Appendicitis patients had a median white blood cell count of $12.5 \times 10^9/L$, higher than typhlitis patients' $3.0 \times 10^9/L$. Neutropenia was present in 85% of typhlitis patients and 5% of appendicitis patients (Table 3).

Table 3: Laboratory Findings

Laboratory Findings	Appendicitis (n = 800)	Median (IQR)	Typhlitis (n = 200)	Median (IQR)	p - value
White Blood Cell Count ($\times 10^9/L$)	-	12.5 (10.0 - 15.0)	-	3.0 (1.5 - 4.5)	< 0.001
Neutropenia (%)	-	5	-	85	< 0.001
C - Reactive Protein (mg/L)	-	80 (50 - 110)	-	100 (70 - 130)	0.08
Lactate Level (mmol/L)	-	1.5 (1.0 - 2.0)	-	2.5 (1.5 - 3.5)	< 0.001

Treatment and Outcomes

In appendicitis, 78% underwent laparoscopic appendectomy, with a 10.2% complication rate. In typhlitis, 70% received conservative treatment, and the mortality rate was 18% (Table 4).

Table 4: Treatment and Outcomes

Treatment and Outcomes	Appendicitis (n = 800)	Typhlitis (n = 200)	p - value
Laparoscopic Appendectomy (%)	78	-	-
Open Appendectomy (%)	22	-	-
Conservative Treatment (%)	-	70	-
Surgical Intervention (%)	-	30	-
Overall Complication Rate (%)	10.2	-	-
Mortality Rate (%)	1.0	18.0	< 0.001
Median Hospital Stay (days)	4 (3 - 6)	10 (7 - 14)	< 0.001

Risk Factors Analysis

Perforated appendicitis was the key risk factor for appendicitis complications (OR = 3.2, 95% CI: 2.1–4.8, $p < 0.001$). Severe neutropenia was the main risk factor for typhlitis mortality (OR = 4.1, 95% CI: 2.5–6.8, $p < 0.001$) (Table 5).

Table 5: Univariate and Multivariate Logistic Regression Analyses for Risk Factors

Variable	Appendicitis		Typhlitis	
	Univariate OR (95% CI)	Multivariate OR (95% CI)	Univariate OR (95% CI)	Multivariate OR (95% CI)
Perforated Appendicitis	4.5 (3.1 - 6.5)	3.2 (2.1 - 4.8)	-	-
Severe Neutropenia	-	-	5.2 (3.3 - 8.2)	4.1 (2.5 - 6.8)

Discussion

This study clearly showed the differences between appendicitis and typhlitis. The age disparity aligns with previous research [5, 6], reflecting the distinct patient populations affected by these conditions. The unique symptom profiles, especially the higher incidence of fever and diarrhea in typhlitis, are crucial diagnostic indicators [7, 8].

In treatment, laparoscopic appendectomy’s effectiveness in appendicitis contrasts with the conservative - first approach for typhlitis [9, 10]. Identifying perforated appendicitis and severe neutropenia as key risk factors provides targeted management directions [11, 12]. Limitations include the single - center design, which may introduce bias, and the retrospective nature, potentially causing data incompleteness. Future multi - center, prospective studies are needed to confirm these findings.

Conclusion

Appendicitis and typhlitis have distinct clinical characteristics, treatments, and risk factors. Clinicians should be vigilant in differentiating them to ensure early and appropriate treatment, ultimately improving patient outcomes.

References

1. Smith A, Johnson B, Brown C (2023) Update on the pathogenesis and management of appendicitis and typhlitis. *J Gastrointest Surg* 27: 689-700.

2. Garcia Perez A (2022) Current trends in appendicitis diagnosis and treatment: A systematic review. *Surg Endosc* 36: 4689-4701.

3. Li X (2023) Clinical features and outcomes of typhlitis in immunocompromised patients: A multicenter study. *Infect Dis* 55: 289-298.

4. Wang Y (2022) Diagnostic challenges and misdiagnosis rates of appendicitis and typhlitis: A comparative analysis. *Emerg Med J* 39: 389-395.

5. Chen Z (2023) Age - related differences in appendicitis: A population - based study. *J Am Coll Surg* 236: 345-353.

6. Zhang L (2022) Epidemiology and clinical characteristics of typhlitis in different age groups. *Oncol Lett* 24: 456 -463.

7. Liu H (2023) Clinical manifestations as predictors of appendicitis and typhlitis: A retrospective study. *Clin Gastroenterol Hepatol* 21: 1567-1575.

8. Zhao X (2022) Role of diarrhea and fever in differentiating typhlitis from appendicitis. *Inflamm Bowel Dis* 28: 1789-1796.

9. Xu J (2023) Laparoscopic appendectomy vs. open appendectomy: A meta - analysis of short - term outcomes. *J Minim Invasive Surg* 19: 234-242.

10. Wu S (2022) Conservative treatment strategies for typhlitis: A review of current evidence. *Antibiotics* 11: 1123.

11. Sun M (2023) Risk factors for complications in appendicitis: A large - scale retrospective study. *World J Surg* 47: 987-996.

12. Zhou X (2022) Severe neutropenia as a critical risk factor for typhlitis - related mortality. *Blood* 140: 12341242.