# Master of Disguise in Pediatrics: A Case-Based Review of Abdominal Tuberculosis

## Introduction

Tuberculosis (TB) in children is often referred to as a "master of disguise" due to its non-specific and variable clinical presentation. Abdominal tuberculosis, a form of extrapulmonary TB, can mimic many other conditions such as malignancy, appendicular pathology, and inflammatory bowel disease. Early recognition is crucial to reduce morbidity and prevent complications.

## Case Presentation

### Patient Information

A pediatric patient presented with abdominal symptoms.

*(All identifying details have been removed to maintain confidentiality.)*

## History

### History of Present Illness

- Abdominal pain for 5 days (umbilical and lower abdominal region)
- Pain described as **dull aching and colicky**, non-radiating
- History of **recurrent abdominal pain for approximately 1 year**
- Associated with **occasional vomiting**
- Loss of appetite present
- No significant weight loss

No history of:

- Prolonged fever
- Respiratory symptoms
- Neurological symptoms

Bowel and urinary habits were normal.

## Past & Contact History

- Recurrent abdominal pain treated intermittently with local/traditional remedies
- Positive history of **contact with a tuberculosis patient**
- Previous hospitalization for severe abdominal pain

Immunization history:

- Incomplete
- BCG scar absent

No relevant family history of inflammatory bowel disease.

## Examination

### General Examination

- General condition: Fair
- Nutritional status: Within normal limits for age
- No pallor
- No jaundice
- Temperature: Normal
- Blood pressure: 110/70 mmHg
- Pulse rate: 100/min

## Systemic Examination

### Skin & Lymph Nodes

- Old healed skin lesions noted over chest and limbs
- Small cervical lymph nodes palpable

### Abdominal Examination

- Guarding present
- Tenderness in:
  - Right iliac fossa
  - Umbilical region
- No rebound tenderness
- Bowel sounds present

Palpation revealed:

- **Vague mass in right iliac fossa**

Organomegaly:

- Liver: Not palpable
- Spleen: Enlarged (~5 cm below costal margin)

### Other Systems

- Cardiovascular system: Normal
- Respiratory system: Normal
- No bone or joint abnormalities
- No perianal lesions (no fistula, abscess, or tags)

**Provisional Diagnosis**

- Appendicular mass
- Abdominal tuberculosis
- Lymphoma
- Inflammatory bowel disease (Crohn's disease / Ulcerative colitis)

## Investigations

**Imaging Studies**

**Ultrasound Abdomen**

- Revealed features suggestive of an intra-abdominal pathology
- Presence of a **right iliac fossa mass**
- Findings were suspicious for:
    - Appendicular mass
    - Abdominal tuberculosis
    - Neoplastic pathology

**Computed Tomography (CT Abdomen)**

- Recommended for further characterization of:
    - Intra-abdominal mass
    - Extent of bowel involvement
    - Lymph node enlargement
    - Possible complications (obstruction, perforation)

**Laboratory Investigations**

*(Based on standard evaluation for suspected abdominal TB)*

**Hematological Tests**

- Complete blood count (CBC):
    - May show mild anemia
    - Possible leukocytosis
- Erythrocyte sedimentation rate (ESR):
    - Typically elevated in chronic infections

**Infectious Disease Workup**

- Tuberculin skin test (TST): supportive if positive
- Interferon-gamma release assay (IGRA): may support diagnosis
- HIV testing: recommended in TB evaluation

### Microbiological Tests

- Sputum examination (if possible):
  - Acid-fast bacilli (AFB) smear
  - GeneXpert / MTB-RIF
- Gastric aspirate (in children unable to produce sputum):
  - For microbiological confirmation

### Fluid / Tissue Analysis

- Ascitic fluid analysis (if ascites present):
  - High protein
  - Lymphocytic predominance
- Histopathology (gold standard):
  - Caseating granulomas
  - Epithelioid cells
  - Langhans giant cells

### Endoscopic / Surgical Evaluation

- Colonoscopy/laparoscopy may be considered
- Allows:
  - Direct visualization
  - Biopsy for definitive diagnosis

### Interpretation of Investigations

- Imaging findings of **right iliac fossa mass + lymphadenopathy**
- Chronic clinical history + TB contact
- Supportive laboratory profile

## Management

### Initial Treatment

- Intravenous antibiotics:
  - Metronidazole
  - Broad-spectrum antibiotics
- Supportive care
- Nutritional support
- Semi-solid diet

### Definitive Treatment

- Anti-tuberculosis therapy (first-line regimen: HRZE)
- Pyridoxine (Vitamin B6) supplementation

## Discussion

### Why TB is a "Master of Disguise"

- Non-specific symptoms
- Chronic, fluctuating course
- Mimics:
    - Appendicular mass
    - Malignancy (lymphoma)
    - Inflammatory bowel disease

### Risk Factors for Childhood TB

- Close contact with infected individuals
- Young age
- Malnutrition
- Absence of BCG vaccination
- Immunosuppression

### Clinical Features of Abdominal TB

- Chronic abdominal pain
- Abdominal mass
- Loss of appetite
- Lymphadenopathy
- Splenomegaly

### Pathogenesis

- Hematogenous spread
- Ingestion of infected sputum
- Lymphatic dissemination

### Pathological Types

- Ulcerative
- Hypertrophic (mass-forming, mimics malignancy)
- Ulcerohypertrophic (most common)
- Fibrotic (causing obstruction)

### Diagnosis

- No single definitive test
- Requires combination of:
    - Clinical suspicion
    - Imaging
    - Laboratory tests
    - Histopathology (gold standard)

## Key Clinical Insight

Childhood TB is:

- Primarily a **clinical diagnosis**
- Supported—but often not confirmed—by investigations

## Key Learning Points

- Chronic abdominal symptoms should raise suspicion of TB
- Abdominal TB can mimic malignancy and surgical conditions
- Imaging alone is insufficient
- Histopathology remains the gold standard
- Early treatment improves outcomes

## Conclusion

This case highlights the diagnostic challenges of abdominal tuberculosis in children. Due to its varied and non-specific presentation, a high index of suspicion is required. Early recognition and initiation of anti-tuberculosis therapy are essential to improve prognosis and reduce complications.