International Journal of Contemporary Pediatrics
*Thampi F et al. Int J Contemp Pediatr. 2025 Jul;12(7):1259-1261*
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: https://dx.doi.org/10.18203/2349-3291.ijcp20251889

**Case Report**

# Psychiatric crisis to abdominal tuberculosis

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**Received:** 12 May 2025
**Accepted:** 10 June 2025

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## ABSTRACT

We report a case of a 15-year-old female presenting with alprazolam overdose, psychiatric symptoms, and subsequent diagnosis of ileocecal tuberculosis (TB). Initial management addressed acute overdose and psychiatric illness, followed by identification of TB through imaging, colonoscopy, and histopathological confirmation. Drug-induced liver injury (DILI) complicated first-line anti-TB therapy, necessitating a modified regimen. This case highlights the diagnostic challenges in patients with overlapping psychiatric and systemic presentations, underscoring the critical role of thorough clinical and diagnostic evaluation in adolescents presenting with psychiatric symptoms and gastrointestinal complaints and the importance of monitoring for hepatotoxicity during ATT.

**Keywords:** Abdominal tuberculosis, Adolescent depression, Suicidal attempt, Ileocecal tuberculosis, GeneXpert, Drug induced liver injury, Multidisciplinary care

## INTRODUCTION

Adolescents presenting with suicidal behavior require comprehensive evaluation to identify underlying psychiatric and potential medical comorbidities.[1] While depression is a significant risk factor for suicidal attempts, coexisting systemic illnesses can obscure the clinical presentation.[2] TB, an infectious disease with a high burden in India, can present with atypical extrapulmonary manifestations, including abdominal involvement, particularly in pediatric populations.[3]

Abdominal TB often mimics other gastrointestinal disorders, complicating and delaying accurate diagnosis.[4] This case underscores the need for heightened awareness and vigilance in identifying systemic diseases in adolescents presenting with psychiatric manifestations, illustrating the diagnostic and therapeutic challenges associated with abdominal TB.

## CASE REPORT

A 15-year-old female presented to the emergency department with drowsiness following an overdose of 10 tablets of alprazolam (0.5 mg, total 5 mg). Her mother reported behavioral changes, poor academic performance, reduced appetite, and weight loss over the preceding three months. She is the first-born child of non-consanguineous parents, born via full-term normal delivery with appropriate developmental milestones. Her immunizations were upto date and there is no significant family history of psychiatric illness. Examination revealed a Glasgow coma scale score of 11/15, pallor, and hesitation marks on her forearm. She was thin built (44 kg; BMI 17.6 kg/m²) with no other systemic abnormalities.

Initial management in the pediatric intensive care unit (PICU) included gastric lavage, intravenous fluid resuscitation, and continuous monitoring. Blood

investigations revealed microcytic hypochromic anemia with a hemoglobin (Hb) level of 7.3 g/dL (normal: 12-16 g/dL), total leukocyte count of 5000/µL with 65% neutrophils, mean corpuscular volume (MCV) of 79 fL (normal: 80-100 fL), mean corpuscular hemoglobin (MCH) of 24 pg (normal: 27-33 pg), and red cell distribution width (RDW) of 16% (normal: 11.5-14.5%). Platelet count was $300\times10^9$/L. Iron studies revealed an iron level of 40 µg/dL (normal: 37-170 µg/dL), iron-binding capacity of 247 µg/dL (normal: 267-497 µg/dL), transferrin saturation of 16.19%, and ferritin level of 94.3 ng/mL (normal: 13-150 ng/mL). Serum calcium was low at 6.7 mg/dL (normal: 8.8-10.4 mg/dL), with normal magnesium (1.8 mg/dL and phosphorus (4.4 mg/dL) level. Vitamin D3 was deficient at 4.87 ng/mL (normal: 30-100 ng/mL). Her liver function test and renal functions were normal. Thyroid function tests initially showed a mildly elevated thyroid-stimulating hormone (TSH) level of 6.79 µIU/mL (normal: 0.4-4.0 µIU/mL), which normalized on repeat testing, ruling out primary hypothyroidism. Psychiatric consultation was obtained, and the patient was initiated on fluoxetine and olanzapine for suspected major depressive disorder. During her hospitalization, she experienced one fever spike (100.8°F) on the second day, which resolved with antipyretics. There were no further fever spikes, and her sensorium improved. The patient was discharged on iron, calcium, vitamin D3 supplementation, and antidepressants with close follow-up instructions.

Four days later, she returned with one day history of recurrent non-bilious non-projectile vomiting. This was accompanied by intermittent abdominal pain, low-grade fever spikes, and cough worsening towards the evening since her last discharge. She had further weight loss and appeared lethargic and dehydrated (weight: 41.5 kg). Repeat investigations revealed elevated inflammatory markers, including an erythrocyte sedimentation rate (ESR) of 78 mm/hour and a C-reactive protein (CRP) level of 20 mg/L (normal: <5 mg/L), as well as anemia with a Hb level of 9.8 g/dL and a total leukocyte count of 8500/µL (normal: 4,000-11,000/µL) with 77% neutrophils. Abdominal ultrasound revealed fatty liver with peripancreatic lymphadenopathy. A chest X-ray showed bilateral heterogeneous opacities, although her chest examination was unremarkable. Despite initial empirical antibiotic therapy with amoxicillin-clavulanate, her symptoms persisted.

Further investigations with a TB QuantiFERON Gold test returned positive, but initial sputum testing for TB GeneXpert was negative. Subsequent contrast-enhanced computed tomography (CECT) of the abdomen revealed circumferential bowel wall thickening with mural enhancement in caecum, ileocecal junction and terminal ileum with multiple conglomerate necrotic lymph nodes and peripancreatic and para-aortic lymphadenopathy (Figure 1). Colonoscopy confirmed multiple deep circumferential ulcerations in terminal ileum and caecum with a deformed ileocecal valve (Figure 2). Biopsy specimens obtained from ileum, caecum and ileocecal valve and colon during colonoscopy were positive for *Mycobacterium tuberculosis* on GeneXpert testing. Histopathology specimens showed granulomatous ileitis with ulcerations, suggestive of mycobacterial disease. Based on these findings, she was diagnosed with ileocecal tuberculosis and initiated on a first-line anti-TB regimen, including isoniazid, rifampicin, pyrazinamide, and ethambutol, as per world health organization (WHO) guidelines for treating drug-susceptible TB.[3]

However, a few days after initiating the treatment, she presented with severe nausea and vomiting and laboratory investigations showed altered liver function test with high liver enzymes and coagulopathy with an international normalized ratio (INR) of 1.59 suggestive of DILI. Hence anti-TB treatment was discontinued, and once liver enzymes and coagulation profile normalized, she was started on alternative anti-TB drugs including levofloxacin, Ethambutol and amikacin, while continuing her antipsychiatry medicines, with close monitoring of liver function. She responded well to the modified regimen, with subsequent improvement in liver function and resolution of her symptoms and good weight gain.

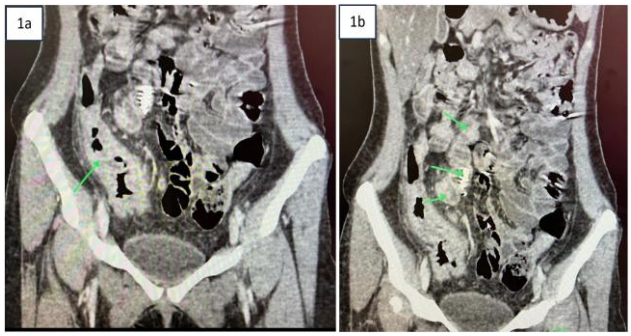


**Figure 1 (a and b): CECT abdomen thin slice coronal section, venous phase showing circumferential short segment bowel wall thickening with mural enhancement in caecum, ileocecal junction and terminal ileum with pericolic and peri-ileal fat stranding (Arrow) (a) and multiple conglomerate, enlarged peripherally enhancing mesenteric lymph nodes with necrotic areas and coarse calcifications (arrows) (b).**

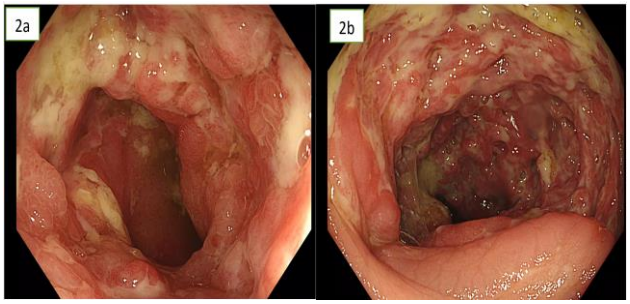


**Figure 2 (a and b): Colonoscopy showing multiple deep circumferential ulcerations in terminal ileum and caecum with deformed ileocecal valve.**

## DISCUSSION

Adolescent depression, a significant public health concern, often presents with psychosomatic complaints that can obscure underlying systemic conditions.[5] This case highlights the diagnostic complexity when psychiatric and physical symptoms coexist, leading to potential delays in accurate diagnosis and appropriate management. The patient's initial presentation with depressive symptoms and behavioral changes initially dominated the clinical picture, resulting in a delay in the recognition of abdominal TB.

Abdominal TB accounts for less than 5% of extrapulmonary TB cases and frequently involves the ileocecal region.[6] Common symptoms include abdominal pain, fever, weight loss, and altered bowel habits. Diagnosis is challenging due to nonspecific presentations and overlapping features with other gastrointestinal conditions such as Crohn's disease.[7]

In this case, imaging modalities like CECT and colonoscopy, combined with tissue-based diagnostic tools like GeneXpert, were instrumental in confirming the diagnosis. GeneXpert has high sensitivity and specificity for detecting *M. tuberculosis* and rifampin resistance, making it invaluable in resource-limited settings.[8-10]

The patient's initial presentation with anemia, hypocalcemia, and vitamin D deficiency likely reflects malnutrition exacerbated by systemic TB. Early recognition and treatment of TB are crucial to prevent complications such as strictures and perforation.[11] DILI is a known complication of first-line anti-TB drugs, particularly isoniazid and rifampicin, necessitating vigilant monitoring.[12] The successful use of a modified regimen highlights the importance of tailored therapy in managing complications.[13] Multidisciplinary care involving pediatrics, psychiatry, pulmonology, and gastroenterology was pivotal in addressing her complex needs. Adolescent patients with psychiatric presentations require thorough evaluation for underlying systemic diseases. Abdominal tuberculosis, though rare, should be considered in endemic regions, particularly in patients with unexplained weight loss and gastrointestinal symptoms. Drug-induced hepatitis is a significant complication of anti-TB therapy, requiring prompt recognition and management. Multidisciplinary collaboration is essential for managing overlapping psychiatric and medical conditions in adolescents.

## CONCLUSION

This case underscores the critical need for a comprehensive diagnostic approach in pediatric care. Recognizing the interplay between psychiatric and systemic symptoms is pivotal to uncovering rare but treatable conditions such as abdominal tuberculosis. Early recognition of abdominal TB and prompt initiation of therapy led to a favourable outcome. Clinicians should remain vigilant for systemic diseases in patients with atypical psychiatric presentations, ensuring comprehensive and timely care.

*Funding: No funding sources*
*Conflict of interest: None declared*
*Ethical approval: Not required*

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**Cite this article as:** Thampi F, Francis JV, Kokkat A, Louis V, Afeefa KK. Psychiatric crisis to abdominal tuberculosis. Int J Contemp Pediatr 2025;12:1259-61.