Case Report

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A Rare Case of Intestinal Tuberculosis Mimicking Colon Cancer in a Chronic Kidney Disease Patient

Internal Medicine Section

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ABSTRACT

Intestinal Tuberculosis (ITB) is an uncommon form of extrapulmonary TB that poses a diagnostic challenge due to its nonspecific symptoms and radiological resemblance to malignancy. It is particularly rare in patients with End-Stage Renal Disease (ESRD) on haemodialysis, where immunosuppression increases susceptibility to infections. The clinical presentation often mimics inflammatory bowel disease or gastrointestinal malignancy, leading to potential misdiagnosis and treatment delays. Despite advancements in diagnostic techniques, ITB remains a difficult diagnosis, especially in dialysis-dependent patients who may have negative TB screening tests. We present the case of a 47-year-old male with ESRD on haemodialysis who developed progressive weakness, anorexia, and significant weight loss over five months. Imaging studies, including an abdominal CT scan and whole-body Fluorine-18 Fluorodeoxyglucose Positron Emission Tomography (18F-FDG PET) revealed a mass in the ascending colon with associated lymphadenopathy, raising strong suspicion for malignancy. Colonoscopy showed mucosal ulceration, and biopsy findings confirmed caseating granulomas, establishing the diagnosis of ITB. Notably, initial TB screening tests, including sputum examination and Mantoux test, were negative. The patient was started on a standard anti-tubercular regimen, leading to gradual improvement in symptoms. This case highlights the diagnostic dilemma posed by ITB in dialysis patients, emphasising the importance of maintaining a high index of suspicion, especially in those with persistent gastrointestinal symptoms. Early recognition and treatment are crucial to preventing complications, as misdiagnosis can result in unnecessary interventions and delayed therapy for a potentially life-threatening condition.

Keywords: End-stage renal disease, Kidney diseases, Mycobacterium infections, Renal insufficiency chronic, Tuberculosis extrapulmonary

CASE REPORT

A 47-year-old male with Chronic Kidney Disease (CKD) stage 5 on haemodialysis for one month presented to the nephrology department with five months of generalised weakness, anorexia, and significant weight loss of 10 kg. He had no prior history of pulmonary TB. Laboratory tests showed leukocytosis, elevated inflammatory markers, and deranged renal function tests [Table/Fig-1].

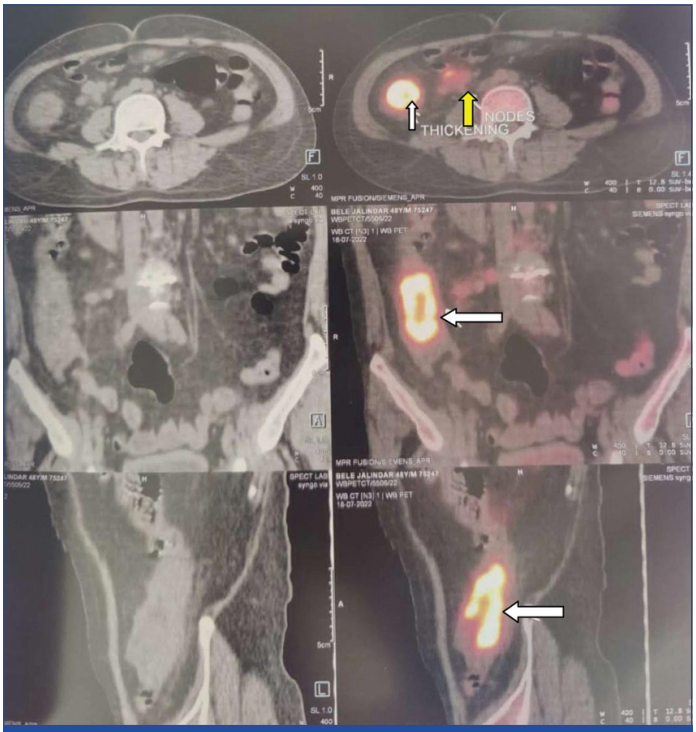
The patient's family history was unremarkable for TB or malignancy.

Test	Result	Reference range	Interpretation
White blood cell count	13,100/µL	4,000-11,000/µL	**Leukocytosis** (suggestive of infection/inflammation)
Haemoglobin	8.9 g/dL	13-17 g/dL (M)/12-15 g/dL (F)	**Anaemia** (likely CKD-related)
Platelet count	253,000/µL	150,000-400,000/µL	Normal
Erythrocyte Sedimentation Rate (ESR)	92 mm/h	<20 mm/h	**Elevated** (inflammation/infection)
C-Reactive Protein (CRP)	121 mg/L	<5 mg/L	**Elevated** (inflammation/infection)
Blood Urea Nitrogen (BUN)	96.9 mg/dL	7-20 mg/dL	**Elevated** (renal dysfunction)
Serum creatinine	8.1 mg/dL	0.6-1.2 mg/dL	**Severely elevated (CKD stage 5)**
Estimated Glomerular Filtration Rate (eGFR)	**7.1 mL/min/1.73 m²**	>90 mL/min (normal)	**End-stage Chronic Kidney Disease (CKD stage 5)**
Aspartate Aminotransferase (AST)	20 IU/L	10-40 IU/L	Normal
Alanine Aminotransferase (ALT)	18 IU/L	7-56 IU/L	Normal
Sodium (Na^+)	124 mEq/L	135-145 mEq/L	**Hyponatraemia**
Potassium (K^+)	4.4 mEq/L	3.5-5.0 mEq/L	Mildly elevated (CKD-related)
Chloride (Cl^-)	104 mEq/L	96-106 mEq/L	Normal
Calcium (Ca^{2+})	8.1 mg/dL	8.5-10.5 mg/dL	**Hypocalcaemia** (CKD-related)
Phosphorus (PO_4^{3-})	4.51 mg/dL	2.5-4.5 mg/dL	**Mildly elevated (CKD-related)**
Uric acid	9.2 mg/dL	3.4-7.0 mg/dL	**Hyperuricaemia**
Dengue IgM and NS1	Negative	-	No evidence of dengue infection
Malarial parasites	Not seen	-	No evidence of malaria
Urinalysis:			
Albumin	1+	Negative	**Proteinuria (CKD-related)**
White Blood Cells (WBCs)	8-10/HPF	<5/HPF	**Pyuria (suggestive of UTI/inflammation)**
Red Blood Cells (RBCs)	1-2/HPF	<3/HPF	Mild haematuria
Blood and urine cultures	No growth	-	No bacterial infection

Sputum examination	Negative for AFB		
Mantoux test	Negative		

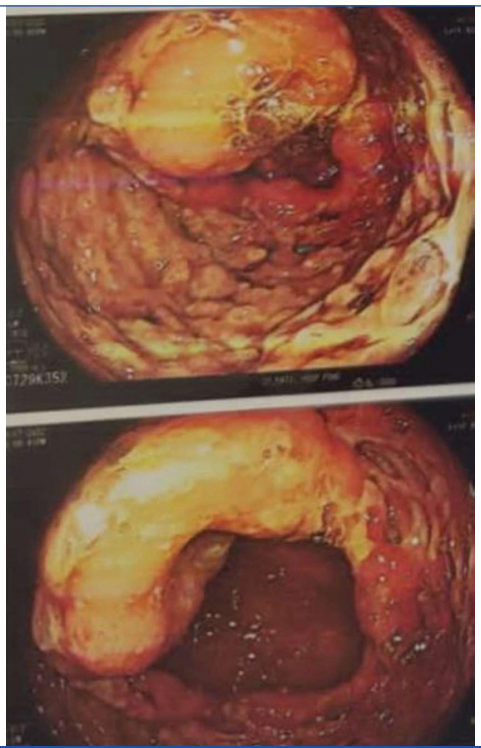
[Table/Fig-1]: Laboratory investigations.
AFB: Acid-fast bacilli; UTI: Urinary tract infection

Abdominal ultrasound revealed an ileocaecal mass with lymphadenopathy. Contrast-enhanced CT scan showed circumferential wall thickening in the ascending colon, caecum, and ileocaecal junction with adjacent lymphadenopathy, suggestive of malignancy [Table/Fig-2].



[Table/Fig-2]: An 18F-Fluorodeoxyglucose (FDG) positron emission tomography at presentation shows increased 18F-FDG uptake in ascending colon (marked by white arrow) and enlarged lymph nodes (marked by yellow arrow).

Colonoscopy revealed a circumferential mass with irregular margins and ulcerations in the ascending colon, mimicking a colonic tumour [Table/Fig-3].



[Table/Fig-3]: Colonoscopy showed a large circumferential mass with irregular margins and ulcerations in the ascending colon.

Histopathology showed the presence of chronic granulomatous inflammation with central caseation necrosis and interspersed Langhan giant cells, fibroblasts and macrophages confirming the diagnosis of ITB.

The patient initially presented with symptoms suggestive of colonic malignancy, with differential diagnoses including colon cancer, inflammatory bowel disease, intestinal lymphoma, and Crohn's disease. However, the final diagnosis was confirmed as ITB.

Treatment was initiated with standard anti-tubercular quadruple therapy (isoniazid, rifampicin, pyrazinamide, and ethambutol), adjusted for renal function. After six months of treatment, the patient demonstrated significant symptomatic improvement.

DISCUSSION

The CKD patients, particularly those with advanced stages or undergoing dialysis, face a significantly elevated risk of TB due to immune dysfunction. Uraemia in dialysis patients impairs cellular immunity, while non-dialysis CKD patients exhibit reduced vitamin D levels and compromised monocyte/macrophage activation, heightening susceptibility [1,2]. This risk correlates with declining renal function, peaking in stage 5 CKD, as shown by meta-analyses demonstrating a 1.5-3× increased TB risk compared to non-CKD populations [2,3].

The current study presents a rare case of ITB in a patient with CKD on haemodialysis, highlighting the diagnostic challenge posed by ITB in immunocompromised individuals. The patient exhibited symptoms suggestive of malignancy, including weight loss, anorexia, and weakness, with radiological findings reinforcing the suspicion of colon cancer. However, histopathological examination confirmed ITB through the presence of caseating granulomas. This aligns with findings from previously published studies where ITB frequently masquerades as colorectal cancer, leading to misdiagnosis and unnecessary surgical interventions.

A similar diagnostic dilemma was reported by Panthi S et al., where ITB mimicked colon cancer in a low-resource setting. Their findings highlighted the importance of histopathological and microbiological confirmation, as initial radiological and endoscopic findings were misleading [4]. Similarly, a study by Gharbi R et al., emphasised the necessity of considering ITB in differential diagnoses when faced with colonic masses, as radiological overlap with malignancies is significant [5]. The study by Lee H et al., also documented a case of ITB in a haemodialysis patient, where initial misdiagnosis as colorectal cancer led to extensive investigations before ITB was identified [6]. This parallels the current study's findings, reinforcing the increased susceptibility of CKD patients to TB due to impaired immunity. Furthermore, the need for heightened clinical suspicion in dialysis patients, as emphasised in the current study, is also supported by findings from Abdelrahman M et al., showed a higher prevalence of extrapulmonary TB in CKD patients [7].

Another critical aspect of the current study is the difficulty of diagnosing ITB using conventional TB tests in immunocompromised patients. The patient's initial TB screening tests, including the Mantoux test and sputum analysis, were negative, which is consistent with findings from Segall L and Covic A, who reported reduced sensitivity of standard TB tests in dialysis patients [2]. This further underscores the need for histopathological confirmation in suspected cases. The treatment approach in the present study aligns with standard Anti-Tubercular Therapy (ATT), which led to symptom resolution over six months. This is consistent with Romanowski K et al., who reported favourable outcomes in CKD patients receiving ATT, although they highlighted increased drug toxicity risks [8]. The current study also

Parameter	Current study (CKD patient)	Segall L and Covic A (2010) [2]	Panthi S et al., (2022)[4]	Gharbi R et al., (2023) [5]	Lee H et al., (2020) [6]
Clinical presentation	Weight loss, anorexia, weakness	Non-specific symptoms	Similar	Similar	Similar
Radiology	Mass in ascending colon, mimicking malignancy	Non-specific findings	Similar	Similar	Similar
Histopathology	Caseating granulomas confirmed TB	Often required for diagnosis	Confirmed TB	Confirmed TB	Confirmed TB
TB screening tests	Negative Mantoux, sputum tests	Reduced accuracy in CKD	Not emphasised	Not emphasised	Negative Mantoux
Patient population	CKD Stage 5 on dialysis	CKD population	Non-CKD	Non-CKD	Haemodialysis patient
Treatment outcome	ATT with gradual symptom resolution	Higher toxicity risks in CKD	Similar	Similar	Similar

[Table/Fig-4]: Comparative study of findings of similar articles with the present case study.

observed a higher likelihood of side-effects in the CKD patient, supporting previous reports on the need for close monitoring during TB treatment in such populations. A comparative analysis of the clinical, radiographic, and histological features of similar cases is summarised in [Table/Fig-4].

Key risk factors include advanced CKD stage (68.7% of TB cases occur in stages 4–5D) [9]. Hypoalbuminaemia and chronic anaemia [10], diabetes and hypertension as primary CKD aetiologies [8,9]. Mortality reaches 7-7.5% in dialysis-dependent patients, exceeding national averages for TB mortality [8,9]. Management challenges include Tuberculin skin tests and interferon-γ release assays show reduced accuracy in CKD populations [3]. Treatment complications showed 57.5% experience anti-TB drug adverse effects vs. 30.6% in non-CKD patients, particularly gastrointestinal/neurological side-effects [10]. TB incidence in CKD populations reaches 4200/100,000 in endemic regions, with dialysis patients showing peak susceptibility within the first treatment year [9,10]. This syndemic interaction poses particular public health challenges in TB-endemic countries experiencing rising CKD prevalence [3].

This comparative analysis highlights the importance of considering ITB in immunocompromised patients, particularly those on dialysis, and the necessity of histopathological confirmation for accurate diagnosis. Future research should focus on improving diagnostic methodologies and treatment optimisation for CKD patients with TB to enhance clinical outcomes.

CONCLUSION(S)

The ITB can mimic malignancies, particularly in patients with CKD, posing significant diagnostic challenges. CKD patients, often immunocompromised, are at higher risk for atypical infections like ITB, which may present as colonic masses, leading to misdiagnosis as colorectal cancer. Early and accurate diagnosis is essential to avoid unnecessary treatments or surgeries; this requires a high-index of suspicion, especially in endemic regions or among at-risk populations. Diagnostic confirmation relies on histopathological analysis, including identification of granulomas or acid-fast bacilli, and advanced techniques like Polymerase Chain Reaction (PCR) for Mycobacterium TB. Clinicians must remain vigilant and incorporate ITB into differential diagnoses for colonic lesions to ensure timely anti-TB therapy and prevent complications.

Declaration: This case was presented at an interdepartmental meet for PG teaching at Dr. D. Y. Patil Medical College, Pune.

REFERENCES

[1] Klote MM, Agodoa LY, Abbott KC. Risk factors for Mycobacterium tuberculosis inn US chronic dialysis patients. Nephrol Dial Transplant. 2006;21:3287-92.
[2] Segall L, Covic A. Diagnosis of tuberculosis in dialysis patients: Current strategy. Clin J Am Soc Nephrol. 2010;5:1114-22.
[3] Chong VH, Lim KS. Gastrointestinal tuberculosis. Singapore Med J. 2009;50:638-45.
[4] Panthi S, Khatiwada P, Adhikari S, Acharya R, Neupane D, Sharma A, et al. Intestinal tuberculosis masquerading as carcinoma colon: A case report of diagnostic quandary in low-resource setting. J Surg Case Rep. 2022;2022(5):rjac210. Doi: 10.1093/jscr/rjac210. PMID: 35620228; PMCID: PMC9129883.
[5] Gharbi R, Bouzid F, Khemakhem R, Zribi S, Jilani S, Belhadj N, et al. Colonic tuberculosis: A case report. Future Sci OA. 2023;8(10):FSO830.
[6] Lee H, Kim JS, Jung J, Park J. Intestinal tuberculosis in a patient with end-stage renal disease on hemodialysis: A case report. Medicine (Baltimore). 2020;99(32):e21641.
[7] Abdelrahman M, Sinha AK, Karkar A. Tuberculosis in end-stage renal disease patients on hemodialysis. Hemodial Int. 2006;10:360-64.
[8] Romanowski K, Clark EG, Levin A, Cook VJ, Johnston JC. Tuberculosis and chronic kidney disease: An emerging global syndemic. Kidney Int. 2016;90:34-40.
[9] Siu YP, Tong MK, Kwok YL, Leung KT, Kwan TH, Lam CS, et al. An unusual case of both upper and lower gastrointestinal bleeding in a kidney transplant recipient. Transpl Infect Dis. 2008;10:276-79.
[10] Hussein MM, Mooij JM, Roujouleh H. Tuberculosis and chronic renal disease. Semin Dial. 2003;16:38-44.

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