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MedPeer Publisher
Abbreviated Key Title: MedPeer
ISSN : 3066-2737
homepage: https://www.medpeerpublishers.com

Isolated Splenic Tuberculosis During Adalimumab Therapy for Crohn's Disease

DOI: 10.70780/medpeer.000QGSI

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ABSTRACT

Tuberculosis (TB) is a known opportunistic infection in patients receiving anti-tumor necrosis factor alpha (anti-TNFα) therapy. Extrapulmonary TB, particularly isolated splenic involvement, is rare and difficult to diagnose. We report a case of a Crohn's disease patient treated with adalimumab who developed isolated splenic TB despite a negative baseline QuantiFERON-TB test. The patient presented with asthenia and general deterioration without respiratory symptoms. Imaging revealed hypodense splenic lesions. Splenic biopsy confirmed Mycobacterium tuberculosis by histopathology and PCR. Anti-TNF therapy was discontinued, and standard antitubercular therapy was initiated, resulting in clinical improvement. This case highlights the importance of ongoing vigilance for TB during anti-TNF therapy, even after negative initial screening.

KEYWORDS :

Splenic tuberculosis; Crohn's disease; Adalimumab; Anti-TNF; Extrapulmonary tuberculosis; QuantiFERON

MAIN ARTICLE

INTRODUCTION

Anti-TNFα agents, including adalimumab, are highly effective in moderate-to-severe Crohn's disease (CD) but increase susceptibility to infections, particularly tuberculosis (1,2). TNFα is essential for granuloma formation and containment of latent TB; its inhibition can lead to reactivation or dissemination (3,4). Screening for latent TB using interferon-gamma release assays (IGRA) and chest imaging is recommended before therapy initiation (5). Despite negative baseline tests, rare cases of TB can occur, often with atypical or extrapulmonary presentations(2). Isolated splenic TB is exceptionally rare and may mimic other diseases, making accurate diagnosis challenging. We present such a case to emphasize diagnostic and management considerations.

CASE REPORT

A 35-year-old patient with a history of ileocolonic Crohn's disease (Montreal classification: A2, L3, B1) had been treated with azathioprine since 2015. Due to the long duration of azathioprine therapy, treatment was switched to adalimumab in 2023. Pre-treatment screening included QuantiFERON-TB Gold and chest radiography, both negative.

One month prior to his admission in January 2026, the patient developed progressive asthenia and significant general deterioration without fever, cough, or other gastrointestinal symptoms. Physical examination revealed poor general condition without palpable splenomegaly. Laboratory tests showed elevated C-reactive protein (56 mg/L) and mild anemia (Hb 11 g/dL); blood cultures were negative.

A repeat QuantiFERON-TB test was positive. Contrast-enhanced CT scan of the thorax, abdomen, and pelvis revealed multiple hypodense nodular lesions confined to the spleen, without pulmonary or lymph node involvement **(Figure 1).** Splenic biopsy was performed. Histopathology showed epithelioid and multinucleated giant-cell granulomas with caseous necrosis **(Figure2).** PCR confirmed Mycobacterium tuberculosis, establishing isolated splenic TB.

Adalimumab was discontinued. Standard antitubercular therapy (isoniazid, rifampicin, pyrazinamide, ethambutol) was initiated with an initial 2-month intensive phase, followed by continuation therapy. The patient's general condition improved, inflammatory markers normalized, and follow-up imaging showed regression of splenic lesions.

DISCUSSION

Tuberculosis remains a major opportunistic infection in patients receiving immunosuppressive therapies, particularly anti–tumor necrosis factor agents. The central role of TNF-α in host defense lies in its involvement in the formation and maintenance of granulomas, which are essential for containing *Mycobacterium tuberculosis*. Disruption of this pathway leads to impaired containment of latent bacilli and may result in reactivation or dissemination of infection (6,7).

In inflammatory bowel disease, and particularly in Crohn's disease, biologic therapies such as Adalimumab have significantly improved long-term disease control. However, these agents are associated with an increased risk of serious infections, including tuberculosis, even in patients with appropriate baseline screening (3,8).

In our patient, initial screening with QuantiFERON-TB Gold and chest radiography was negative prior to starting adalimumab. This illustrates that tuberculosis may still occur during anti-TNF therapy despite recommended screening, either due to false-negative results or new infection acquired during treatment (9).

Abdominal tuberculosis represents a significant proportion of extrapulmonary cases, particularly in immunocompromised patients. Among its manifestations, splenic involvement is rare and may occur either as part of disseminated disease or as isolated infection (10,11). Isolated splenic tuberculosis remains exceptional and is mainly reported in isolated case reports (12,13).

Clinically, presentation is often non-specific, including asthenia, weight loss, or subtle systemic symptoms. In some cases, as in our patient, symptoms may be limited to progressive clinical deterioration without fever or focal signs, contributing to delayed diagnosis (14).

Radiological assessment is essential but non-definitive. Contrast-enhanced CT typically shows hypodense splenic lesions that may mimic abscesses, lymphoma, or metastatic disease (10). Therefore, imaging alone cannot confirm the diagnosis.

Histological and molecular analyses remain the diagnostic cornerstone. The presence of caseating granulomas and detection of Mycobacterium tuberculosis by PCR confirm the diagnosis in most cases (12,13).

Anti-TNF therapy is well known to increase the risk of tuberculosis, particularly extrapulmonary and disseminated forms. Monoclonal antibodies such as adalimumab are associated with deeper suppression of TNF signaling, which may explain this increased susceptibility (3,8).

Management requires immediate discontinuation of immunosuppressive therapy and initiation of standard anti-tuberculous treatment. In most cases, clinical and radiological improvement is observed with appropriate therapy (3). Rarely, paradoxical worsening may occur during treatment due to immune reconstitution phenomena (15). Fortunately, our patient showed progressive improvement after treatment initiation.

CONCLUSION

Isolated splenic tuberculosis is an uncommon manifestation of extrapulmonary tuberculosis that may occur during anti-TNF therapy, even after negative initial screening. In patients with Crohn's disease treated with agents such as Adalimumab, any unexplained clinical deterioration should prompt consideration of opportunistic infections, including tuberculosis.

This case highlights the diagnostic difficulty due to the non-specific clinical and radiological presentation, often requiring histological and molecular confirmation. Early recognition, prompt withdrawal of immunosuppressive therapy, and initiation of appropriate anti-tuberculous treatment are essential for favorable outcomes.

FIGURES

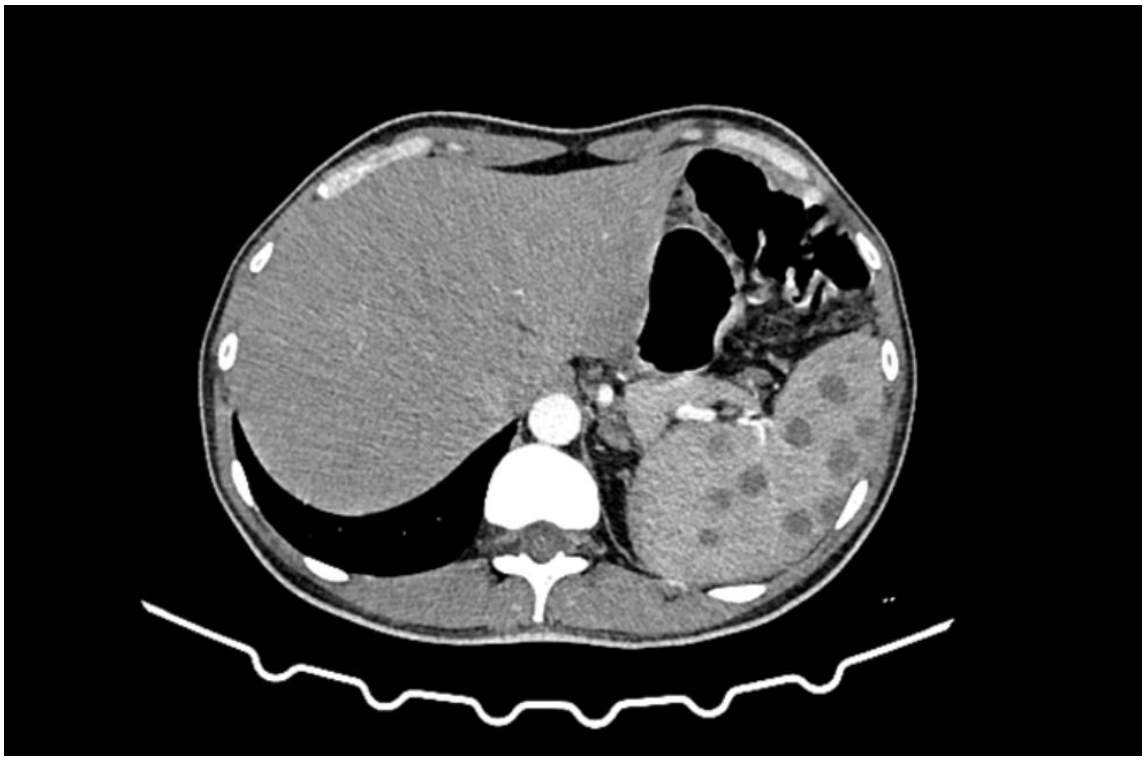

Figure 1 : Axial abdominal CT scan demonstrating multiple hypodense lesions within the splenic parenchyma

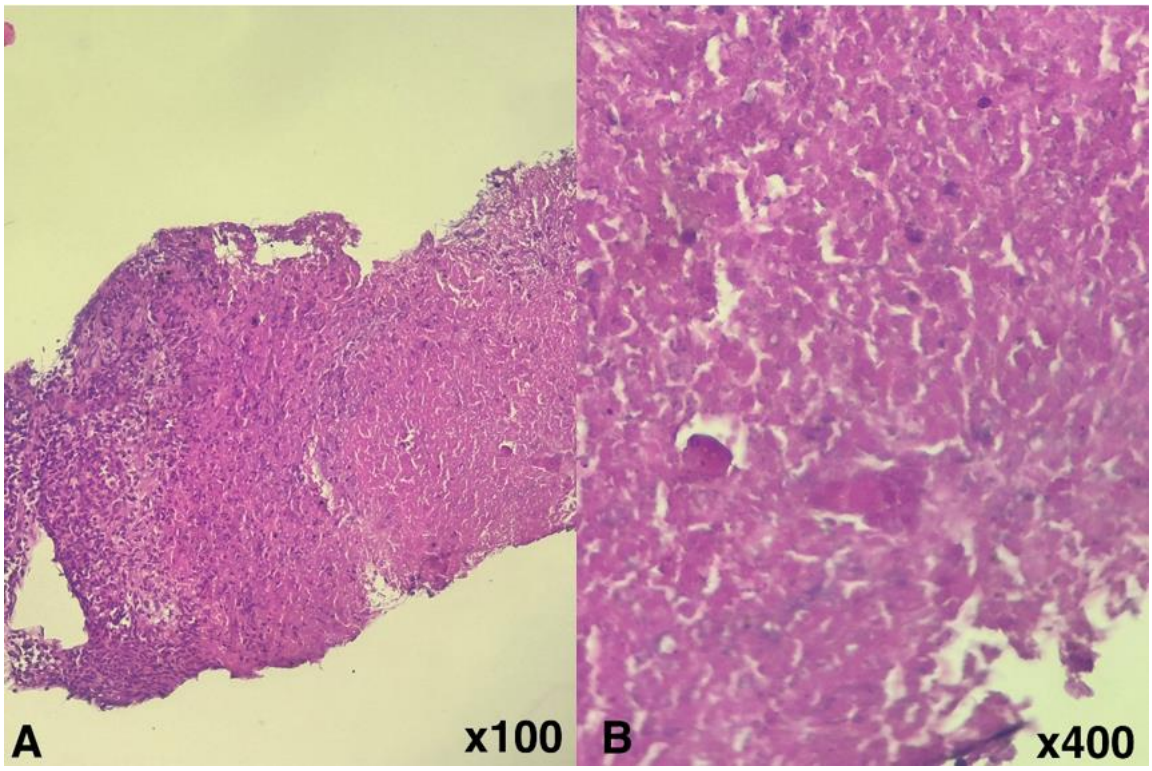

Figure 2: Representative histological images of splenic biopsy revealing epithelioid and giant cell granulomas with caseous necrosis (A: ×100 magnification, B: ×400 magnification)

ACKNOWLEDGEMENTS

The authors declare that they have no conflicts of interest.

The authors would like to thank the staff of the Endoscopy and Radiology departments at Mohammed V military hospital for their assistance in patient care, imaging procedures, and data collection.

REFERENCES

1. Lichtenstein GR, Feagan BG, Cohen RD, Salzberg BA, Diamond RH, Price S, et al. Serious infection and mortality in patients with Crohn's disease: more than 5 years of follow-up in the TREATTM registry. Am J Gastroenterol. sept 2012;107(9):1409-22. doi:10.1038/ajg.2012.218 PubMed PMID: 22890223; PubMed Central PMCID: PMC3438468.
https://doi.org/10.1038/ajg.2012.218

2. Keane J, Gershon S, Wise RP, Mirabile-Levens E, Kasznica J, Schwieterman WD, et al. Tuberculosis associated with infliximab, a tumor necrosis factor alpha-neutralizing agent. N Engl J Med. 11 oct 2001;345(15):1098-104. doi:10.1056/NEJMoa011110 PubMed PMID: 11596589.
https://doi.org/10.1056/NEJMoa011110

3. Solovic I, Sester M, Gomez-Reino JJ, Rieder HL, Ehlers S, Milburn HJ, et al. The risk of tuberculosis related to tumour necrosis factor antagonist therapies: a TBNET consensus statement. Eur Respir J. nov 2010;36(5):1185-206. doi:10.1183/09031936.00028510 PubMed PMID: 20530046.
https://doi.org/10.1183/09031936.00028510

4. Wallis RS. Tumour necrosis factor antagonists: structure, function, and tuberculosis risks. Lancet Infect Dis. oct 2008;8(10):601-11. doi:10.1016/S1473-3099(08)70227-5 PubMed PMID: 18922482.
https://doi.org/10.1016/S1473-3099(08)70227-5

5. Mazurek GH, Jereb J, Vernon A, LoBue P, Goldberg S, Castro K, et al. Updated guidelines for using Interferon Gamma Release Assays to detect Mycobacterium tuberculosis infection - United States, 2010. MMWR Recomm Rep Morb Mortal Wkly Rep Recomm Rep. 25 juin 2010;59(RR-5):1-25. PubMed PMID: 20577159.

6. Lukacs NW, Chensue SW, Strieter RM, Warmington K, Kunkel SL. Inflammatory granuloma formation is mediated by TNF-alpha-inducible intercellular adhesion molecule-1. J Immunol. 1 juin 1994;152(12):5883-9. doi:10.4049/jimmunol.152.12.5883
https://doi.org/10.4049/jimmunol.152.12.5883

7. Roach DR, Bean AGD, Demangel C, France MP, Briscoe H, Britton WJ. TNF Regulates Chemokine Induction Essential for Cell Recruitment, Granuloma Formation, and Clearance of Mycobacterial Infection1. J Immunol. 1 mai 2002;168(9):4620-7.

doi:10.4049/jimmunol.168.9.4620
https://doi.org/10.4049/jimmunol.168.9.4620

8. Burmester GR, Mease P, Dijkmans B a. C, Gordon K, Lovell D, Panaccione R, et al. Adalimumab safety and mortality rates from global clinical trials of six immune-mediated inflammatory diseases. Ann Rheum Dis. 1 déc 2009;68(12):1863-9. doi:10.1136/ard.2008.102103 PubMed PMID: 19147611.
https://doi.org/10.1136/ard.2008.102103

9. Stavroulakis P, Nikolidaki A, Daskalogiannis S, Kolokouris K, Fanourgiakis P. Adalimumab-Associated Isolated Splenic Tuberculosis In A Patient With Psoriasis Following A Negative Screening With Tuberculin Skin Test And QuantiFERON-Gold. Hosp Chron. 1 sept 2010;5(4):199-201. doi:10.2015/hc.v5i4.238

10. Pereira JM, Madureira AJ, Vieira A, Ramos I. Abdominal tuberculosis: Imaging features. Eur J Radiol. 1 août 2005;Tuberculosis55(2):173-80. doi:10.1016/j.ejrad.2005.04.015
https://doi.org/10.1016/j.ejrad.2005.04.015

11. Gupta N, Kumar R, Agrawal B. New Players in Immunity to Tuberculosis: The Host Microbiome, Lung Epithelium, and Innate Immune Cells. Front Immunol. 10 avr 2018;9. doi:10.3389/fimmu.2018.00709
https://doi.org/10.3389/fimmu.2018.00709

12. Solitary splenic tuberculosis: a case report and review of the literature | World Journal of Surgical Oncology | Springer Nature Link [Internet]. [cité 7 mai 2026]. Disponible sur: https://link.springer.com/article/10.1186/s12957-016-0905-6

13. Chablou M, Jabi R, Id M'barek A, Seghrouchni N, Bouziane M. Isolated Splenic Tuberculosis in an Immunocompetent Patient: A Rare Case. Cureus. 21 févr 2021. doi:10.7759/cureus.13463
https://doi.org/10.7759/cureus.13463

14. Grover S, Arya Y, Gaba S, Gupta M, Syal A. Isolated Splenic Tuberculosis: A Diagnostic Conundrum. Cureus. 28 janv 2021. doi:10.7759/cureus.12958
https://doi.org/10.7759/cureus.12958

15. Wangai F, Achieng L, Otieno G, Njoroge J, Wambaire T, Rajab J. Isolated splenic tuberculosis with subsequent paradoxical deterioration: a case report. BMC Res Notes. 24 avr 2017;10(1):162. doi:10.1186/s13104-017-2483-2
https://doi.org/10.1186/s13104-017-2483-2