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## Tuberculosis cold abscess of anterior chest wall: a case report from Somalia

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### Abstract

**Introduction:** In Western countries, the incidence of pulmonary tuberculosis is declining, while extra-pulmonary tuberculosis has increased. Health care providers in Somalia are concerned about the increase in both forms. Tuberculosis, defined as a cold abscess of the anterior chest wall without involvement of adjoining structures like the sternum, ribs, pleura, and lung in an adult healthy, immune-competent male, is presented due to its uncommon occurrence and fewer reports.

**Case Report:** We did not suspect tuberculosis when a 28-year-old man with no significant medical history presented with a 5 x 2 centimeter swelling over his chest wall. We performed fine needle aspiration to obtain a sample for bacterial culture and initiated empirical antibiotic therapy. Despite antibiotic treatment, the swelling persisted. After cutting the wound and draining it, a lot of pus came out. Gene xpert testing showed a very low level of Mycobacterium tuberculosis (TB). He was non-reactive for anti-HIV; the patient had no known TB exposure or risk factors. We started a course of anti-tuberculosis medication category I. After one month of treatment, the wound had completely healed.

**Conclusion:** In developing countries like Somalia, where PTB is endemic and a major public health problem, EPTB is not rare. However, a cold abscess resulting from M. tuberculosis in the anterior chest wall, without the involvement of any adjacent structures, is relatively rare. Regardless of socioeconomic status, chest physicians and surgeons should evaluate all sternal masses in patients from developing countries for tuberculosis, including biopsy, AFB smear, and culture.

**Highlights:** Tuberculosis Cold Abscess of Anterior Chest Wall: a Case Report from Somalia.

**What is already known:** We did not suspect tuberculosis when a 28-year-old man with no significant medical history presented with a 5 x 2 centimeter swelling over his chest wall. We performed fine needle aspiration to obtain a sample for bacterial culture and initiated empirical antibiotic therapy. Despite antibiotic treatment, the swelling persisted. After cutting the wound and draining it, a lot of pus came out. Gen expert testing showed a very low level of Mycobacterium tuberculosis (TB).

**What this paper adds:** In Western countries, the incidence of pulmonary tuberculosis is declining, while extra-pulmonary tuberculosis has increased. Health care providers in Somalia are concerned about the increase in both forms. Tuberculosis, defined as a cold abscess of the anterior chest wall without involvement of adjoining structures like the sternum, ribs, pleura, and lung in an adult healthy, immune-competent male, is presented due to its uncommon occurrence and fewer report.

**Keywords:** Cold abscess, Sternal mass, TB abscess, Mycobacterium tuberculosis, Anti-tubercular therapy Somalia.

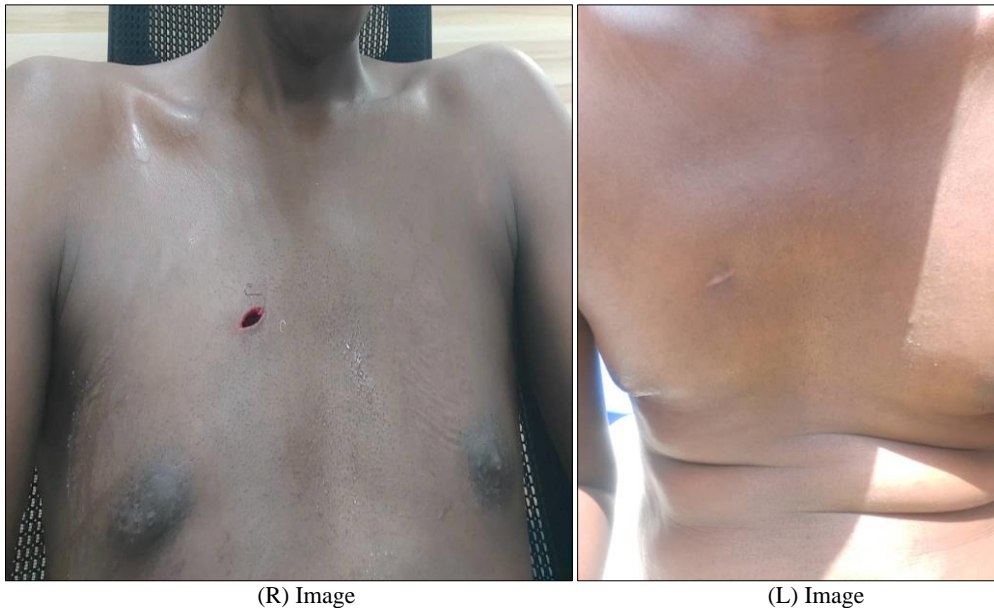
### Introduction

The Mycobacterium tuberculosis bacteria cause tuberculosis (TB), an ancient and contagious disease that poses a significant threat to global health <sup>[1]</sup>. Tuberculosis can affect either the lungs (pulmonary TB) or other parts of the body (extra-pulmonary TB) <sup>[2]</sup>. Extra-pulmonary TB can occur in various areas with rich blood supply, such as lymph nodes, brain coverings, and kidneys, as well as the chest lining, liver, digestive system, urinary tract, abdominal cavity, heart covering, and skin. A particularly uncommon and difficult-to-treat form of tuberculosis affects the chest wall, specifically the sternum.

This condition, which occurs in only 1 to 2% of cases, may or may not also involve the surrounding lung and chest lining<sup>[3]</sup>. Cold abscesses in the chest wall are pockets of dead tissue and debris from infected lymph nodes that form outside of the lung tissue<sup>[4]</sup> here; we present a rare case of a chest wall cold abscess without sternal involvement.

**Case Report:** A 28-year-old man with no significant medical history presented with a four-month history of a painless nodule in the right sternal region and unintentional weight loss. There was no associated fever, night sweats, or cough. Physical examination identified a suspicious soft tissue swelling in the right sternal area. Initial ultrasound imaging revealed a fluid-filled lesion (likely an abscess or

hematoma) measuring 5 x 2 centimeters. We performed fine needle aspiration to obtain a sample for bacterial culture and initiated empirical antibiotic therapy. Despite antibiotic treatment, the swelling persisted. Subsequent incision and drainage yielded a significant amount of pus. There was no involvement of adjoining structures like the sternum, ribs, pleura, and lung. Microbiological culture of the pus did not identify any bacteria, but gene-xpert testing revealed a very low level of *Mycobacterium tuberculosis* (TB). HIV testing was negative. The patient had no known TB exposure or risk factors. We started a course of anti-tuberculosis medication category I, which included isoniazid, rifampicin, ethambutol, and pyrazinamide. After one month of treatment, the wound had completely healed.



**Fig 1:** Right side image was before TB treatment (1A). The left side was after one month of TB treatment (1B)

## Discussion

Tuberculosis (TB) can spread to almost any part of the body after an initial infection or reactivation of a dormant state. According to the 2018 Global TB Report, there were 10 million new TB cases in 2017, with 80% concentrated in ten countries. India had the highest number of cases (26%), followed by Indonesia (11%) and Nigeria (9%)<sup>[5]</sup>. While in Somalia during 2014, there were 274 new cases of TB for every 100,000 people, and a total of 513 people with TB for every 100,000 population<sup>[6]</sup>. Globally, between 10% and 15% of tuberculosis cases affect parts of the body other than the lungs. This type of TB is more common in young people, women, and individuals from Africa or Asia<sup>[7]</sup>. It primarily affects young males with a mean age of 36 years (range 11 to 59 years), although cases have been found in the pediatric population<sup>[8]</sup>.

Three categories of mycobacterium infections affect the sternum: primary infections (67.3% of cases), secondary infections (20.8% of cases), and infections after surgery (11.9% of cases)<sup>[9]</sup>. An empyema necessitatis is an uncommon and severe complication of tuberculosis that occurs when infected fluid from the lungs spreads into the chest wall. Typically, this condition causes fever, weight loss, a chest lump, and chest pain. However, in rare cases, the only symptom is a lump on the front of the chest.

We describe a patient without obvious tuberculosis symptoms who developed empyema, a lung infection that

appeared on imaging to be similar to a different disease called mesothelioma.

This case highlights that empyema necessitatis can be the sole symptom of active tuberculosis in people with healthy immune systems, as reported in Somalia<sup>[10]</sup>. Tuberculosis, which affects the sternum, is a rare type of TB that can occur alone or in conjunction with lung or lymph node TB. When it occurs without other TB symptoms, it can be difficult to diagnose, especially if lung TB is absent. In most cases, it starts as TB in the chest and spreads to the sternum, causing ulcers, draining sores, or a noticeable limp along with general illness symptoms<sup>[11]</sup>. In contrast to typical cases, our patient had a cold abscess located in front of the chest but no involvement of the sternum. Our patient had no known case of chronic disease, and clinically, he did not show any symptoms of pulmonary tuberculosis; he was non-reactive for anti-HIV.

It is difficult to confirm TB on the chest wall radiologically, so it is important to screen all such sternal masses by biopsy, ZN smears, and TB culture. Smear examination can only detect up to half of lung TB cases and only a quarter of TB cases affecting other parts of the body. Some quick and easy ways to find growth are the radiometric BACTEC 460TB system, the non-radiometric fluorometry-based BACTEC MB9000 and BACTEC MGIT 960 systems, the MB/BacT ALERT 3D System for measuring carbon dioxide, and the ESP Culture System II for measuring pressure. These

automated systems are very useful for rapid diagnosis of pulmonary tuberculosis (PTB) and EPTB cases. These automated systems for culturing *M. tuberculosis* would hasten the process of organism recovery, identification, and drug susceptibility, facilitating early diagnosis and providing appropriate treatment. The nucleic acid test (cartridge-based nucleic acid amplification test) revealed a positive result for *Mycobacterium tuberculosis* in Pus. However, the low *Mycobacterium tuberculosis* in the sample made it challenging to detect drug susceptibility. Consequently, we initiated Category I anti-TB treatment, which included Isoniazid, Rifampicin, Ethambutol, and Pyrazinamide. After a month of treatment, the wound fully healed.

### Conclusion

In developing countries like Somalia, where PTB is endemic and a major public health problem, EPTB is not rare. Yet, a cold abscess due to *M. tuberculosis* of the anterior chest wall without involvement of any adjoining structures is quite uncommon. Therefore, we present this case to raise awareness among pulmonologists and cardiothoracic surgeons in Somalia and abroad. Regardless of socioeconomic status, chest physicians and surgeons should evaluate all sternal masses in patients from developing countries for tuberculosis, including biopsy, AFB smear, and culture.

### Abbreviations

Pulmonary Tuberculosis (PTB)

Tuberculosis (TB)

Extra Pulmonary Tuberculosis (EPTB)

Human immunodeficiency virus (HIV)

Acid-fast bacillus (AFB)

Ziehl-Neelsen (ZN)

### Conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Ethical approval:** Based on the regulations of the review board of the Mogadishu Somali Turkish Training and Research Hospital, institutional review board approval is not required for case reports.

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**Availability of data and materials:** The data is available from the corresponding author and can be accessed if requested.

### Abbreviations

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### References

1. Yadav S, Rawal G. The case of pulmonary tuberculosis with COVID-19 in an Indian male-a first of its type case ever reported from South Asia. *Pan African Medical Journal*. 2020;36(374):1-5.

2. Central TB Division, Directorate General Health Services, Ministry of Health and Family Welfare. TB India 2012 Annual Status Report. RNTCP [Internet]. 2013, 185. Available from: [www.tbcindia.org](http://www.tbcindia.org)
3. Prasad TR. Tuberculosis control in India. *Medicine and Surgery*. 1984;24:17-22.
4. Ray S, Meena RK, Jain PC. Subcutaneous tubercular cold abscess: Uncommon presentation of a common disease. *Sri Lanka Journal of Child Health*. 2018;47(3):276-278. \* ن د د د د د د د د ج ل د د د د د د ع \* ب 2020 - 2018 ب 2020. 2016-2018 p.
5. Ali MK, Karanja S, Karama M. Factors associated with tuberculosis treatment outcomes among tuberculosis patients attending tuberculosis treatment centres in 2016-2017 in Mogadishu, Somalia. *Pan African Medical Journal*. 2017;28:1-14.
6. Held MFG, Hoppe S, Laubscher M, Mears S, Dix-Peek S, Zar HJ, *et al*. Epidemiology of musculoskeletal tuberculosis in an area with high disease prevalence. *Asian Spine Journal*. 2017;11(3):405-411.
7. Vasa M, Ohikhuare C, Brickner L. Primary sternal tuberculosis osteomyelitis: A case report and discussion. *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2009;20(4):181-184.
8. Shi-Min Y. Sternal mycobacterial infections. *Annals of Thoracic Medicine*. 2016;11(2):103-111.
9. Dirie AMH, Özdemir H, Hussein AM, Warsame AM. Empyema necessitans mimicking mesothelioma: Unusual presentation of active pulmonary TB in an immuno-competent state. *Annals of Medicine and Surgery*. 2022;75:2020-2022.
10. Bains L, Lal P, Chand T, Gautam KK, Beg MY, Kumar P. Isolated primary cold abscess of the sternum: A case report. *Journal of Medical Case Reports*. 2019;13(1):9-14.
11. Sohrabi C, Mathew G, Maria N, Kerwan A, Franchi T, Agha RA. The SCARE 2023 guideline: Updating consensus Surgical Case Report (SCARE) guidelines. *International Journal of Surgery*. 2023;109(5):1136.s