

**Case Report****Open Access****Isolated axillary tuberculous lymphadenitis in a Nigerian female: A case report with review of the literature***¹Uchendu, J. O., ²Yovwin, D. G., and ³Esemuede, O.¹Department of Histopathology/Morbid Anatomy, Delta State University, Abraka, Nigeria²Department of Family Medicine, Delta State University Teaching Hospital, Oghara, Nigeria³Department of Obstetrics and Gynecology, Delta State University Teaching Hospital, Oghara, Nigeria*Correspondence to: ojlinksent@gmail.com; +234 (0) 8038732062**Abstract:**

Tuberculosis (TB) is a chronic granulomatous infectious pulmonary and systemic disease caused mostly by members of the *Mycobacterium tuberculosis* complex (MTBC). It has variable clinical presentation and is a major cause of morbidity and mortality in the middle-and-low-income-countries (LMICs). Isolated axillary tuberculous lymphadenitis (ATL) is rare and is defined as the presence of axillary tuberculous lymphadenitis in the absence of previous or active pulmonary TB or evidence of extrapulmonary TB elsewhere. We present a case of isolated ATL in a 54-year-old HIV-negative Nigerian woman, whose diagnosis was made using histological evaluation that demonstrated typical Langhan's giant cells and caseous necrosis, with the detection of mycobacterial DNA by GeneXpert TB test. Isolated ATL is a diagnostic enigma but should be considered in young and middle-aged women in TB endemic regions presenting with enlarged axillary lymph nodes in the absence of foci of infections or malignancy. Sex difference in immunological response to infection may account for this unique presentation among the female gender.

Keywords: isolated axillary tuberculosis; *Mycobacterium*; histopathology; case report

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Copyright 2023 AJCEM Open Access. This article is licensed and distributed under the terms of the Creative Commons Attribution 4.0 International License <http://creativecommons.org/licenses/by/4.0/>, which permits unrestricted use, distribution and reproduction in any medium, provided credit is given to the original author(s) and the source. Editor-in-Chief: Prof. S. S. Taiwo**Lymphadénite tuberculeuse axillaire isolée chez une femme Nigériane: à propos d'un cas avec revue de la littérature***¹Uchendu, J. O., ²Yovwin, D. G., et ³Esemuede, O.¹Département d'Histopathologie/Anatomie Morbide, Université d'État du Delta, Abraka, Nigéria²Département de Médecine Familiale, Hôpital d'Enseignement de l'Université d'État de Delta, Oghara, Nigéria³Département d'Obstétrique et Gynécologie, Hôpital d'Enseignement de l'Université d'État de Delta, Oghara*Correspondance à: ojlinksent@gmail.com; +234 (0) 8038732062**Résumé:**

La tuberculose (TB) est une maladie pulmonaire et systémique infectieuse granulomateuse chronique causée principalement par des membres du complexe *Mycobacterium tuberculosis* (MTBC). Il a une présentation clinique variable et est une cause majeure de morbidité et de mortalité dans les pays à revenu intermédiaire et faible (PRFI). La lymphadénite tuberculeuse axillaire (LTA) isolée est rare et se définit comme la présence d'une lymphadénite tuberculeuse axillaire en l'absence de tuberculose pulmonaire antérieure ou active ou de signes de tuberculose extrapulmonaire ailleurs. Nous présentons un cas d'ATL isolé chez une femme nigériane de 54 ans, séronégative, dont le diagnostic a été posé à l'aide d'une évaluation histologique qui a démontré des cellules géantes typiques de Langhan et une nécrose caséuse, avec la détection d'ADN mycobactérien par le test GeneXpert TB. L'ATL isolée est une énigme diagnostique mais doit être envisagée chez les femmes jeunes et d'âge moyen dans les régions d'endémie tuberculeuse présentant des ganglions lymphatiques axillaires hypertrophiés en l'absence de foyers d'infection ou de malignité. La différence entre les sexes dans la réponse immunologique à l'infection peut expliquer cette présentation unique parmi le sexe féminin.

Mots clés: tuberculose axillaire isolée; *Mycobactérie*; histopathologie; rapport de cas

Introduction:

Tuberculosis (TB) is a chronic hypersensitive granulomatous infectious pulmonary and systemic disease, caused mostly by members of the *Mycobacterium tuberculosis* complex (MTBC) (1). It is a major cause of morbidity and mortality, particularly in low-and-middle-income countries (LMICs), where chronic debilitating illness, particularly the acquired immune deficiency syndrome (AIDS), poverty and overcrowding are the major risk factors (1,2). The disease severity also varies from indolent, asymptomatic disease to severe disease depending on the causative organism and the immune status of the individual (1). Its pattern of organ involvement also varies, with pulmonary tuberculosis accounting for majority of cases, and extra-pulmonary TB accounting for 7-30% of cases of which 17-33% of these cases present with tuberculous lymphadenitis (3).

The causative organism is mainly spreads from person to person through airborne droplets containing organisms from an active case to a susceptible host; and rarely by drinking milk contaminated by *Mycobacterium bovis* implicated in oropharyngeal and intestinal TB (1). The pathogenesis involves the infection of macrophages, with subsequent development of cell-mediated immunity resulting in formation of granuloma, tissue destruction and caseous necrosis (1).

The diagnosis of pulmonary TB is made from clinical presentations of patients, chest X-rays, computerized tomographic (CT) scan, sputum smear microscopy and culture, molecular methods, histological evaluation of tissues and use of biological markers (4). In rare cases, extrapulmonary TB may present without classical features of TB and in uncommon locations, resulting in diagnostic difficulties. Unilateral axillary TB has been identified as one of such TB diseases which may present with atypical manifestations. We therefore report such unusual case of axillary TB lymphadenitis in a 57-year-old Nigerian female seronegative for the human immunodeficiency virus (HIV).

Case report:

A 54-year-old Nigerian female patient presented in a private hospital with the complaint of swelling in the left axillary region, dating back to 14 months prior to presentation. The enlargement was insidious in inception but progressive. There was no associated pain or tenderness and no history of cough, loss of appetite, night sweat or chronic weight loss. There was also no previous history of TB or exposure to person with active TB. There was

no history of nipple discharge, ulceration, or retraction or breast mass or mastalgia and no associated history of infection on the chest, neck or left upper limb.

Physical evaluation revealed an apparently healthy female patient. There was no evidence of pallor, icterus, cyanosis, digital clubbing, or pedal edema. Examination of the left axilla showed multiple, firm, mobile, matted, multinodular axillary lymph nodes, altogether measuring 8x6x4 cm. There were no enlarged lymph nodes in the contralateral axilla. Basic investigations such as complete blood count, liver function and renal function tests were normal. Serological tests for HIV I and II were negative. Chest X-ray showed clear lung fields (Fig 1). Fine needle aspiration biopsy of the axillary mass was however inconclusive.

She subsequently had excision biopsy of the left axillary mass, which showed multiple matted lymph nodes, measuring 8x6x4cm (Fig 2A). The biopsy sample was stored in 10% buffered formalin solution and submitted for histological evaluation. The lymph nodes were firm to hard in consistency and cut surface showed gritty sensation with area of caseous necrosis (Fig 2B).

Light microscopic evaluation showed caseous necrosis with numerous Langhan's type giant cells, some lymphocytes, variable fibrosis, and residual lymphoid tissues (Fig 3A and 3B). The presence of *Mycobacterium* DNA in the tissue was confirmed by GeneXpert test. A diagnosis of axillary tuberculous lymphadenopathy (ATL) was made and patient was subsequently referred to special TB treatment centre for continuation of management.

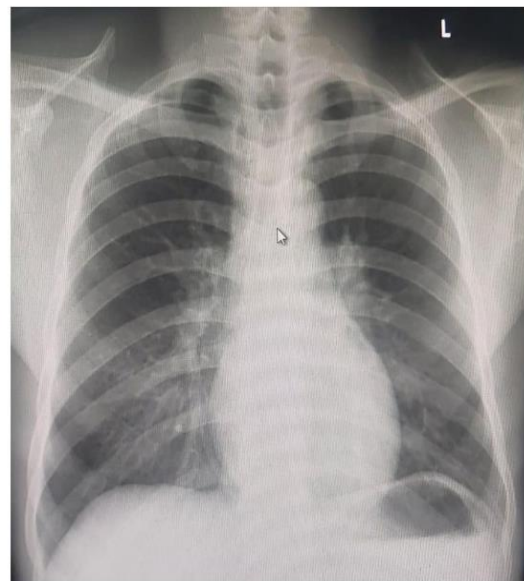


Fig 1: Chest X-ray of the patient (normal finding with no evidence of tuberculosis)



Fig 2A: Gross morphology showing matted axillary lymph nodes (8x6x6cm)

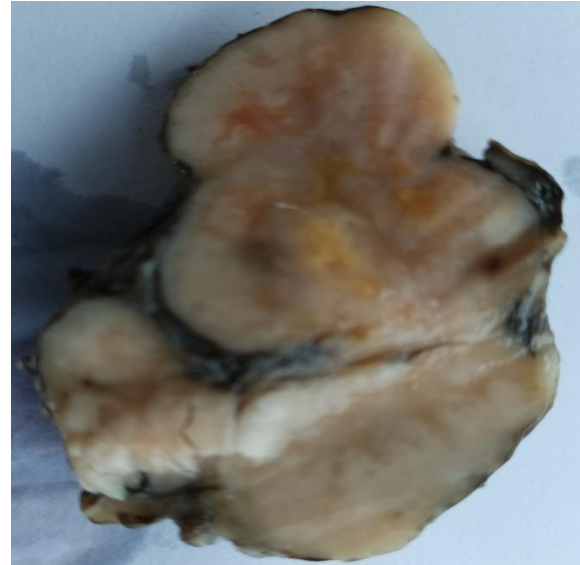


Fig 2B: Cut section through the lymph nodes with cheese-like appearance

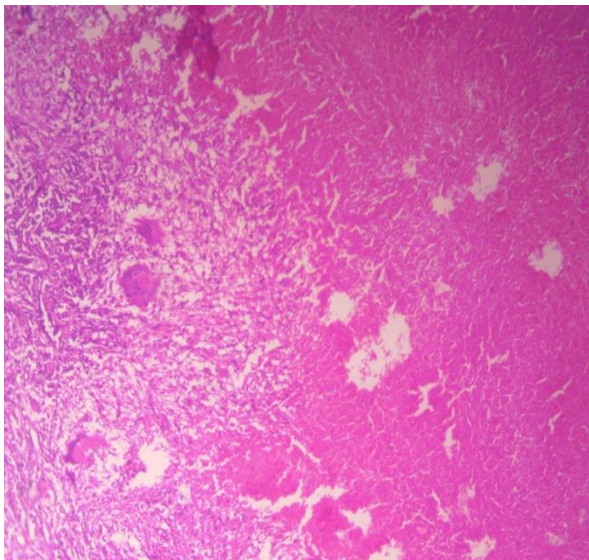


Fig 3A: Histological section of the lymph node showing caseous necrosis, variable fibrosis, lymphocytic, macrophage and langhan's giant cell infiltrates

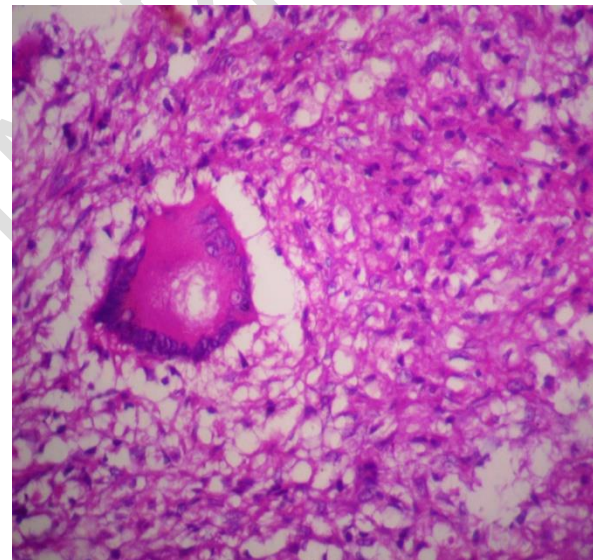


Fig 3B: Higher magnification showing multi-nucleated Langhan's giant cell characteristic of tuberculous lymphadenitis

Discussion:

Tuberculous lymphadenitis is relatively common and is second most common extrapulmonary manifestation of TB with the most common location being cervical lymph nodes (5,6,7). Other documented sites of tuberculous lymphadenitis in decreasing order of frequency are supraclavicular, axillary, mesenteric, porta hepatis, perihepatic and inguinal regions (4,8,9). While TB lymphadenitis may be a local manifestation of systemic disease and therefore easy to diagnose, isolated TB lymphadenitis is relatively uncommon, and therefore presents with unique diagnostic challenges.

Isolated axillary TB lymphadenitis is extremely rare and is described in a patient with enlarged axillary lymph nodes without previous or active pulmonary TB or evidence of extrapulmonary TB elsewhere (7,10). In the case reported, systemic TB was immediately considered after diagnosis of tuberculous lymphadenitis was made. However, the absence of radiological features on chest X-ray excluded pulmonary TB. From the literature, only six such cases have been documented, affecting only women within the age of 21-69 years, with predilection for left axilla (3,4,7, 8,10,11, 12). This pattern of presentation is however poorly understood. Jayabal and Arumugam (4) attributed it to the direct communication of left

axillary lymphatics from the left thoracic duct or lymphatic supply from the left upper limb.

This female gender predilection for isolated ATL also elicits curiosity. Interestingly studies have shown that adult females have stronger humoral and adaptive immune response against infectious diseases (13). This may likely account for the gender difference in clinical presentation of isolated ATL. There is an overlap between the age group affected and the peak age for breast cancer (14), which is also likely to present with axillary lymph node enlargement secondary to metastasis. Incidentally, our patient did not have any symptom or sign in keeping with breast cancer, which excluded breast cancer as the possible initiator.

Other likely causes of asymptomatic axillary lymph node enlargement are mastitis, regional infective causes, post-vaccination lymphadenitis, silicon induced granulomatous lymphadenitis, metastatic carcinoma or lymphoma (9). In our patient, there was no evidence of infection in the region drained by the left axillary lymph node. There was also no history of vaccination or silicon implant in ipsilateral breast, and no constitutional symptom of TB or history suggestive of immunodeficiency. Lymphoma was also excluded after history taking and basic laboratory investigations.

Histological diagnosis is critical in diagnosis of TB in resource poor countries. Prior to such evaluation, radiological evidence of presence of foci of calcifications on the lymph nodes are clues to possibility of TB lymphadenitis (11), but absence of such positive clues made the diagnosis difficult. Isolation of *Mycobacterium* DNA using GeneXpert from the biopsy sample further supported the diagnosis of TB in this patient.

Conclusion:

In conclusion, isolated axillary tuberculous lymphadenitis is a diagnostic enigma but should be considered in absence of infections or malignancy in TB endemic areas. Histological evaluation of such lymph nodes is key to such diagnosis. Sex difference in immunological response to infection may account for this unique presentation among females (13).

Contribution of authors:

UOJ wrote the section on discussion and performed the laboratory investigations;

YDG did the literature review and wrote the section on introduction; and EO managed the patient and provided the clinical summary.

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Conflict of interest:

Authors declared no conflict of interest

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