



Cytological diagnosis of lepromatous nerve abscess: a case report

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Abstract

Leprosy, also known as Hensen's disease is a long standing chronic multi-system disorder mainly involving skin and peripheral nerves, prevalent in many parts of World including Asia, Latin America and Africa.

We present a case report of 30-year-old male presented with a long standing ulcerated nodular cord-like swelling on right forearm for past six months. The patient was diagnosed as leprosy on cytology and confirmed on histopathology. Multi drug treatment for leprosy was given. The patient responded well. This case report provides an insight in to the usefulness of fine needle aspiration cytology as primary investigation in diagnosing lepromatous nerve abscess.

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Introduction

Leprosy is a long standing chronic multisystem disorder mainly involving skin and peripheral nerves.^[1] It is caused by *Mycobacterium leprae*. The gold standard test for diagnosing leprosy is histological examination and bacteriological index.^[2] The procedure of biopsy and histological examination is both time consuming and tedious for the patient. The cytological diagnosis of leprosy is an effective and rapid way of diagnosing leprosy, and may prevent unnecessary burden on already stressed laboratory in a developing country like ours.

Case Report

A 30-year-old male presented in our hospital with chief complaint of a long standing multinodular ulcerated swelling in the right forearm for past six months. The ulcerated swelling was 3 x 2 cm in size and was not associated with any history of trauma. On palpation there were multiple cords like thickening raising the suspicion of an associated lepromatous nerve abscess (Figure 1). The fine needle aspiration (FNAC) was performed and a creamy material was obtained. A total of six slides were prepared; four of the slides were Giemsa stained and two were stained by modified ZN stain. The material was smeared on slides and slides were stained with both Giemsa and ZN stain.



Figure 1: Image showing multinodular ulcerated swelling in the right forearm.

On microscopic examination the smears were cellular and consisted of occasional wavy spindle-shaped cells in clusters suggestive of Schwann cells intermixed with numerous epithelioid cells

and histiocytes with numerous ill defined granulomas. The modified ZN stain showed occasional rod-shaped bacilli in the smear. A diagnosis of leprosy with possibility of mid borderline leprosy was given based on cytological findings (Figure 2). The swelling was excised and sent for histopathological examination.

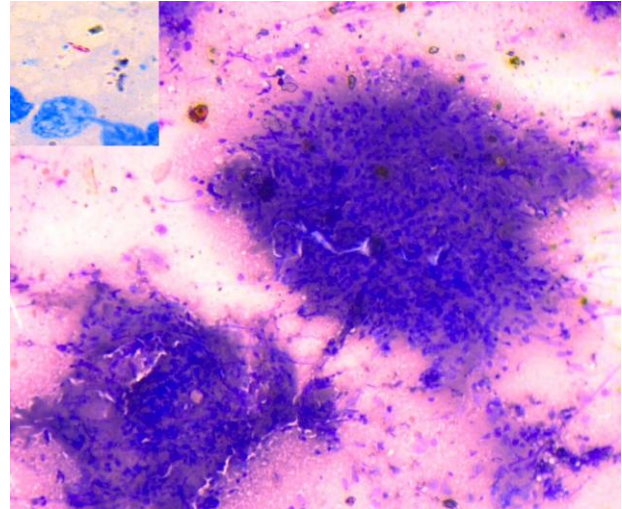


Figure 2: The cyto-smear showing epithelioid cells' granuloma in necrotic background (Giemsa, 10x). The inset showing acid fast positive bacilli (ZN, 100x).

On section, diagnosis of leprosy was confirmed and patient was started on multidrug treatment therapy. On follow up, patient was responding well to the treatment regimen and there was no therapy related complications.

Discussion

Leprosy, also known as Hensen's disease is a chronic infectious disease, prevalent in many parts of World including Asia, Latin America and Africa.^[3] Lepromatous nerve abscess presents as long standing ulcerated nodular swelling. The differential diagnosis of multiple nodular swellings on forearm is leprosy, primary skin tuberculosis, neurofibroma, schwannoma and parasitic cyst. The primary skin tuberculosis can present with ulcerated nodular swelling, however tuberculosis does not present as cord like multinodular swelling which is suggestive more of lepromatous nerve abscess. The aspirate of tuberculosis presents with granulomas consisting of multiple epithelioid cells with occasional giant cells with or without necrosis in the background, however the clusters of occasional wavy spindle-shaped cells suggestive of Schwann cells are absent, as seen in our case.

The neurofibroma presents with long standing swelling slowly increasing in size with normal overlying skin. The FNAC is usually scant with myxoid background substance, stripped nuclei, dispersed cells and loose clusters of spindle cells

with elongated nuclei along with mixture of cells with wavy, irregular nuclei with pointed ends. The schwannoma rarely ulcerates and shows Antony A and Antony B areas along with verocay bodies on cytology. The parasitic cyst usually presents as solitary subcutaneous intramuscular or subcutaneous swelling with mostly normal or inflamed overlying skin. The cytology findings usually reveal fragments of parasite in murky background.

The leprosy is categorized in to various histological subtypes by Ridley and Jopling reflecting the immunological status of the patient. There were studies describing the role of fine needle aspiration cytology in diagnosing various sub-types of leprosy.^[5,6] Nigam et al.^[5] in their study on 53 histologically confirmed cases of leprosy found fairly good correlation of cytomorphological features with clinicopathological diagnosis in 41(77.3%) cases. They found that leprosy can be diagnosed on skin aspirates and can be classified based on Ridley and Jopling classification on cytology. Mehdi G et al.^[6] gave a cytological diagnosis of leprosy in 92 % of cases and they were able to classify the leprosy in to tuberculoid and lepromatous type in most of cases. They recommended fine needle aspiration cytology as an effective tool in diagnosis of leprosy with clinical correlation and AFB staining. Studies aimed at diagnosis and classification of leprosy by Ridley and Jopling classification by Rao S et al.^[7] reveal strong concordance in tuberculoid leprosy cases (18 of 20 cases, 90%) and in lepromatous cases (15 of 16 cases, 93.7%). Prasad P et al.^[8] describe the morphology of borderline leprosy showing mainly lymphocytes, epitheloid cells and few foamy macrophages. The histoid leprosy shows elongated, spindle-shaped macrophages along with scattered lymphocytes; the Fite stain shows strong positivity with numerous acid fast bacilli.^[9] The neuritic leprosy shows scattered spindle-shaped cells and lymphocytes.

The diagnosis of lepromatous nerve abscess can be a diagnostic dilemma with case report showing that lepromatous nerve abscess being misdiagnosed as tubercular lymphadenitis on fine needle aspiration cytology and started on ATT. Because of no improvement patient was further investigated and a diagnosis of lepromatous nerve abscess was given. Thus cytological diagnosis of lepromatous nerve abscess can provide fast and accurate diagnosis with minimum discomfort to the patient.

Conclusion

Fine needle aspiration cytology can be a useful tool for early and accurate diagnosis of lepromatous nerve abscess.

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Competing Interests

None declared.

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