FNAC Diagnosis of Cutaneous Leishmaniasis

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ABSTRACT

Cutaneous leishmaniasis is rare in Nepal although visceral leishmaniasis and post-kalazar dermal leishmansis have frequently been reported. Diagnosis is often made in skin biopsy. Fine needle aspiration cytology diagnosis of the disease is a rare event. This was a 33 year male presenting with ulcerated cutaneous nodule at anterior neck. Fine needle aspiration cytology showed granulomatous inflammation with numerous intracellular and extracellular amastigotes. Fine needle aspiration cytology diagnosis of this condition is easy and less time consuming compared to skin biopsy.

Keywords: *anterior neck; cutaneous leishmaniasis; FNAC.*

INTRODUCTION

Skin lesions associated with Leishmania manifest in various forms such as Post kala-azar dermal leishmaniasis (PKDL), mucocutaneous leishmaniasis and cutaneous leishmaniasis (CL). It is a skin infection caused by leishmania that is transmitted by sandfly bites. Cutaneous leishmaniasis is rare in Nepal and only a handful of cases have been reported, although visceral leishmaniasis is quite common and is endemic in certain areas of eastern terai.[1]

Usual methods of diagnosis of CL are skin scrap smears and skin biopsy. Fine needle aspiration cytology (FNAC) is rarely thought of in the diagnosis; however, efficacy of FNAC has been tested by some of the studies and has been proved to be highly effective.[2,3]

CASE REPORT

This 33 years male from hilly region of Nepal developed non-itching painless skin lesion over anterior neck of two months duration. The lesion was nodular to begin with however ulcerated in a few days. Before development of the lesion he was staying in terai region of Nepal for 14 months. He did not give any travel history outside the country. He did not give any history related to Kalazar and recently did not have any history of fever.

On examination there was an infiltrating plaque in the skin over the anterior neck superior to cricoid region measuring about 4x2 cm. Plaque had ill defined borders. The plaque had a central ulcer measuring 0.7x0.5 cm and the base was indurated.(Figure 1) Physical examination did not reveal any significant findings including organomegaly. Patient was referred for FNAC from department of ENT with a clinical diagnosis of tuberculous lymphadenitis. FNAC using 23 G needle and 10 cc syringe was performed from the base of the

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lesion. Smears revealed intense inflammatory infiltrate composed of lymphocytes, neutrophils, a few plasma cells and numerous macrophages.

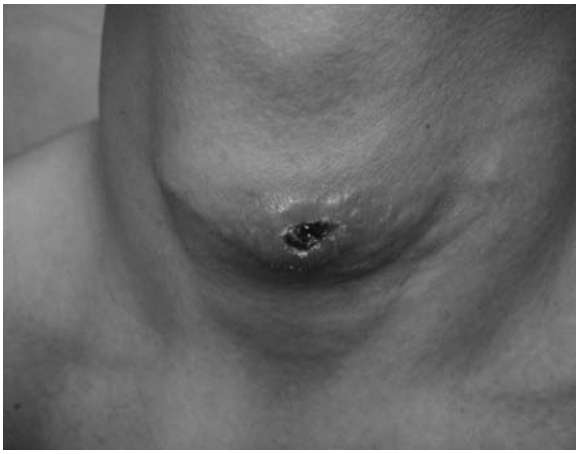

Figure 1. Infiltrating plaque with ill defined borders and central ulcer with indurated base in the skin over the anterior neck superior to cricoid region measuring about 4x2 cm.

A few epithelioid granulomas including multinucleated giant cells were also seen. Numerous amastigote form of parasites with round to oval shape were seen mostly intracellularly in the cytoplasm of macrophages, however, a few extracellular organisms were also seen. They showed eccentric nucleus and some of them also showed kinetoplast (Figure 2-4).

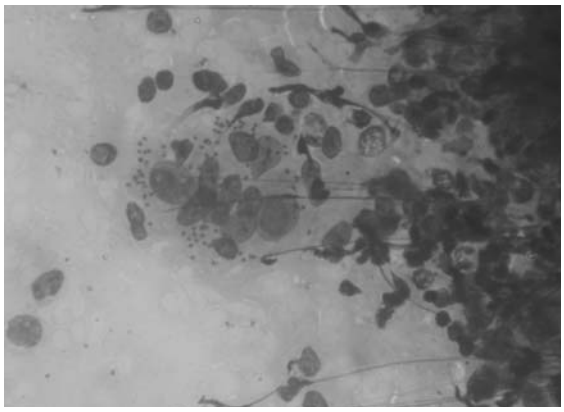

Figure 2. FNAC smear, Giemsa stain, 40x; an epithelioid granuloma containing amastigote of Leishmania. Background shows chronic inflammatory cells.

With these findings diagnosis of leishmaniasis was made and after retrospective history final diagnosis of cutaneous leishmaniasis was made. Patient was treated in dermatology department with intralesional sodium stibogluconate. The lesion subsided after a few weeks of treatment.

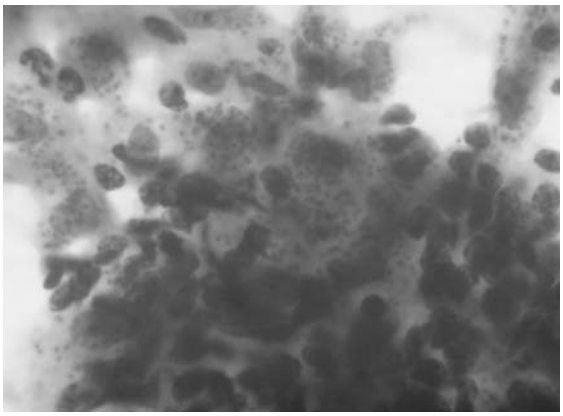

Figure 3. FNAC smear, Papanicolaou stain, 40x; an epithelioid granuloma containing numerous amastigote of Leishmania within histiocytes. Background shows chronic inflammatory cells.

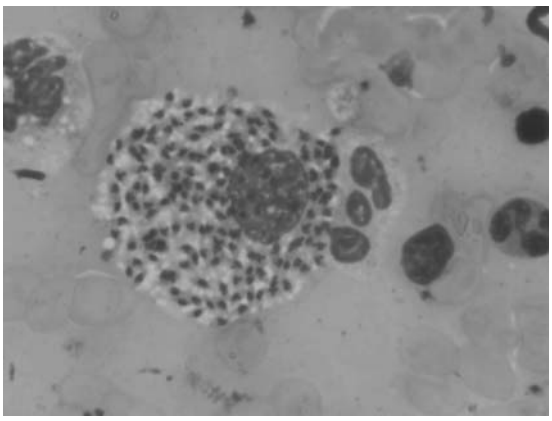

Figure 4. FNAC smear, Giemsa stain, 100x; histiocyte containing amastigote of Leishmania. Background shows chronic inflammatory cells including plasma cells and a few neutrophils.

DISCUSSION

Nepal is endemic area for visceral leishmaniasis and post-kalazar dermal leishmaniasis (PKLD) is not uncommon, however, solitary cutaneous leishmaniasis is rare. There are a few reported cases of CL but the diagnosis on FNAC is not so far reported.[4-6]

Skin biopsy and scrape smear examination are the two most commonly employed investigatory techniques

in the diagnosis of cutaneous leishmaniasis. Although cases of Leishmania lymphadenitis are reliably diagnosed by FNAC, it has not attained popularity in the diagnosis of cutaneous leishmaniasis, and only a few reports are available. In six cases reported in Nepal diagnosis were made on skin biopsy and imprint cytology or slit skin smears.[4-6]

In a study of al-Jitawi et al involving 46 cases, conventional scrapping and FNAC in diagnosis of CL was compared. The study indicated that both methods are comparable if performed by trained individuals. However, FNAC is easier to perform and repeat; and takes less time to demonstrate the organism. Therefore, FNAC is recommended as the method of choice in confirming the clinical suspicion of cutaneous leishmaniasis in endemic areas.[2] Malik et al reported a case of CL in Kuwait, in which scrap smears were non-diagnostic while FNAC revealed amastigote form of leishmania along with lymphocytes, histiocytes and epithelioid granulomas.[3]

FNAC is easier, less painful and more cost-effective than the conventional skin biopsy. The high sensitivity and specificity eliminate the need for other time-consuming and invasive procedures. However, if amstigote form (Leishman and Donovan bodies) are not detected then any further comment cannot be made regarding the diagnosis and it is necessary to perform skin biopsy.[7]

In a study of Kassi et al, taking histopathology as a standard diagnostic procedure, FNAC showed a remarkably high sensitivity (89%) and specificity (100%). The positive and negative predictive values were 100% and 60%, respectively. This study concluded FNAC is easier, less painful and more cost effective than the conventional scraping method/biopsy followed by histopathology. The high sensitivity and specificity eliminate the need for other time consuming and invasive procedures. Limitations include poor sampling and poor yield.[8]

Human leishmaniasis is usually classified as cutaneous and visceral or old world type and new world type. The species involved in old world type are L. major, L. tropica, L. aethiopica and L. donovani infantum. The species responsible for new world type of cutaneous leismaniasis are L. mexicana, L brasiliensis. It is transmitted by the bite of female sandfly of the genera Phlebotomus in Old world, Lutzomyia and Psychodopygus in the new world.[9] CL is associated with L. donovani (infantum), L. tropica and L. major.[4-6]

Species identification is not possible by FNAC and requires PCR. However, despite diversity in species cutaneous leishmaniasis responds with intralesional sodium stiboglucontate therapy.[10]

In summary, cutaneous leishmaniasis is rare in Nepal and often diagnosed in skin biopsy. FNAC can confidently diagnose the disease however; species identification is not possible which is often not required for treatment as the condition responds well to sodium stibogluconate therapy despite species diversity.

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