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Research Article

**CHRONIC GRANULOMATOSIS LYMPHADENTITIS AND
ITS AFFINITY FOR SPECIFIC STAINS**¹Madiha Mubarik, ²Sidra Ashiq, ³Saleem Ullah Zaffar¹WMO, BHU Malian Kalan²WMO, DHQ Sheikhpura³Ittefaq Hospital Trust Lahore**Abstract:**

Objective: To search out the pathogens by using special staining techniques in patients who were suffering from chronic granulomatous lymphadenitis. **Design:** It was a descriptive study. **Setting:** The study was conducted at Jinnah Postgraduate Medical Centre, Karachi Pakistan. **Subjects:** The study sample consisted of 100 patients with 34 males and 66 females. The age range for the patients was between 11 to 75 years. The study lasted for 3 years and all the patients of the chronic granulomatous lymphadenitis were studied. The patients were selected according to the inclusion criteria. All the patients who did not pass the inclusion criteria were dropped and a final sample of hundred patients was obtained. **Results:** The study delivered that major portion of the sites involved in caseating granulomas consisted of cervix lymph- a gland in neck (52%) and 10% each lymph nodes of groin and mesenteric portion. From a sample of 34 males and 66 females (total hundred subjects), sixty-two were having caseating granulomas whereas non-caseating granulomas was found in thirty-eight patients. The characteristics of lymph nodes as observed from special stains process was; acid fast bacilli (22 lymph nodes), LD bodies (4) and gram-negative bacilli (2). **Conclusions:** The study concluded that the pathogens in chronic granulomatous lymphadenitis typically consisted of mycobacterium tuberculosis. The prevalence of other pathogens contributing to the causes of the disease was also noticed.

Keywords: Chronic granulomatous lymphadenitis, special stains and mycobacterium tuberculosis.

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INTRODUCTION:

The prevalence of chronic granulomatous lymphadenitis in the population of poor countries is considered as the most renowned cause of the infection. The pathogens responsible for this disease are called mycobacterium tuberculosis [1]. However, other causes of the disease were also noticed in the form of Brucellosis, Catscratch disease, Yersinioses, Tularemia, Whipple's disease etc. Many fungal infections such as histoplasmosis, coccidioidomycosis, paracoccidioidomycosis, infections like Candida, Aspergillosis and Mucormycosis have also been involved in causing this disease and formation of granuloma in nodes [2, 3]. The granulomas which are parasitic in nature and helps building the disease include toxoplasmosis, Leishmaniasis, Chlamydia and syphilis with different treatment options. In our study, we have included one hundred chronic granulomatous lymph node cases using special stains. Special stains might include Gram, Giemsa, Zeihl Neelsen, Bacteria, PAS and Grocott for Mycobacterium tuberculosis, Parasites and fungus [4, 5]. Other laboratory tests were conducted for unclear / ambiguous results

obtained from special stains.

PATIENTS AND METHODS

A 100 granulomatous lymphadenitis cases were selected from the Department of Pathology, Jinnah Postgraduate Medical Centre, Karachi. Lymph nodes (sites for White Blood Cells which are important for immune system) were taken from outpatient and wards of Jinnah Postgraduate Medical Center. The nodes were then intersected and processed in formalin solution for twenty-four hours. The nodes were treated with paraffin next day prior to performing special stains techniques. The Lymph nodes were then evaluated by using special stains such as PASS & Grocott, Zeihl Neelsen, Gram stain and giemsa for fungus, acid fast bacilli, gram positive or negative organisms and the parasites respectively.

RESULTS

The study delivered that the lymphadenitis sites were present in cervix (52%), groin (10%), mesenteric (10%), auxiliary & submandibular (5%), neck gall bladder (1%) and Para tracheal nodes (1%). The surgeon did not expose the sites in 16% cases.

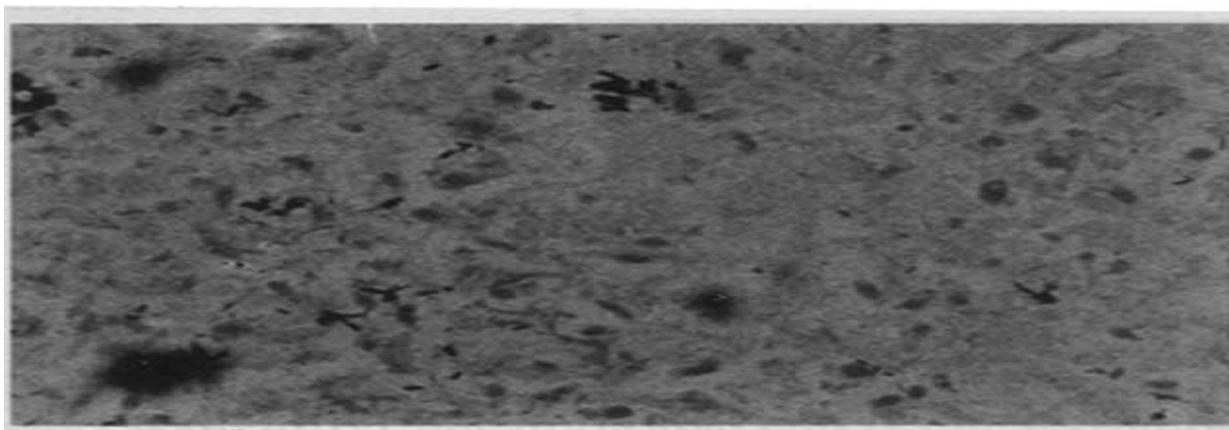


Figure 1: Histopathological section of lymph node showing abundant Acid-fast bacilli scattered and in groups. Ziehl Neelsen stain X 1000.

Table – I: AFB results in granulomatous lesion according to age group

Age Groups (in years)	Caseating Granulomas results	Caseating Granulomas +ve results	Non- Caseating Granulomas +ve results	Non- Caseating Granulomas -ve results
11-20	5	11		16
21-30	8	19	1	11
31-40	2	5	1	4
41-50	2	4	1	2
51 +	2	4		2
Total	19	43	3	35

Table – II: Results Of special stains in 100 granulomatous lymphadenitis

Sex	Total No. of Patients	Zeihl Nelsen (Mycobacterin)	Gram (Gram -ve bacilli)	Giemsa (Leishmaniasis)	PAS/Grocott (Fungus)
Females	66	14 (21.5%)	1 (1.5%) 1 (2.8%)	2 (52/0)	4 (6.0%) 2 (5.7%)
Male	34	8 (22.8%)			
Total	100	22	2	4	6

The sample consisted of one hundred subjects from both genders. The composition of the sample included sixty-six females and 34 males. The female to male ratio was 2:1. Sixty-two cases were having granulomatous lymphadenitis which have become stiff like cheese and were referred to as caseating granulomas. Among 62 cases of caseating granulomas, 39 were females whereas 23 males were diagnosed with this condition. The other cases were termed as non caseating granulomas. Among 38 cases of non-caseating granulomas, twenty-seven females and eleven males were marked with this

condition. The sample age was between 11 to 75 years. Most of the patients diagnosed with lymphadenitis fall between the age range of 21 to 30 years' age group which is 38% of the sample (Table-I). Special stains applied to the sample and revealed that lymph nodes showed acid fast bacilli (22), caseating granuloma (19), fungus (6) confirmed by PAS and Grocott stains. LD bodies were found in 4 lymph nodes as confirmed by giemsa stain. Only two lymph nodes showed Gram negative bacilli (Table-2).

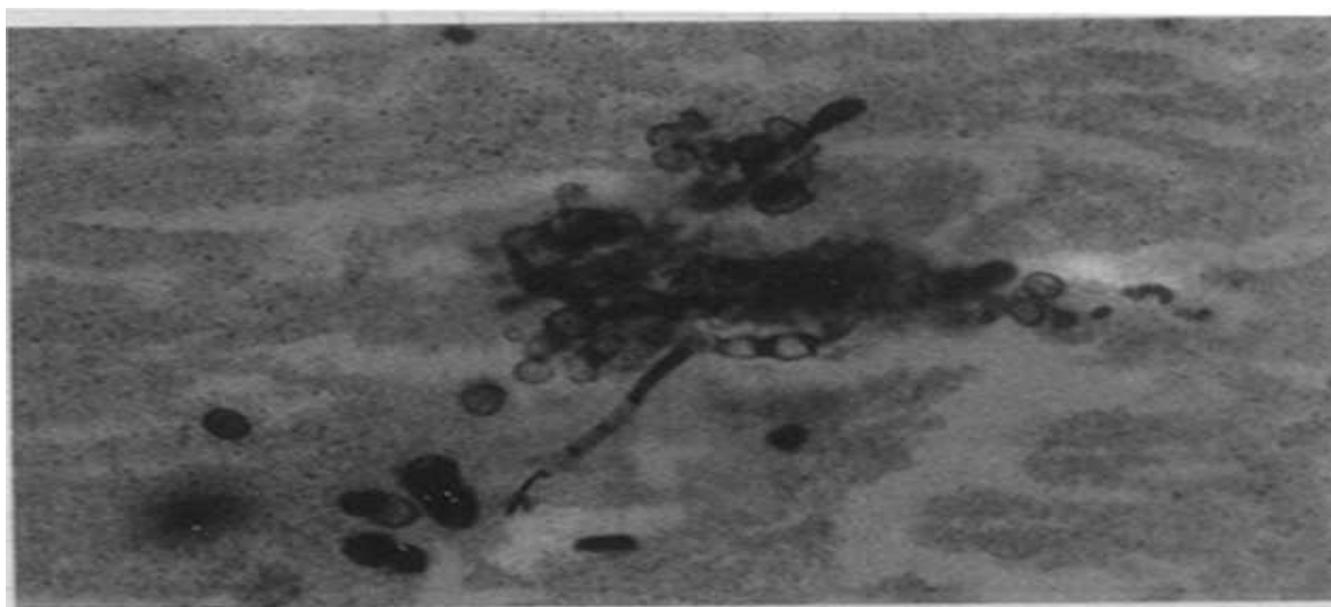


Figure 2: Histopathological section of lymph node showing fungus (Candida) having pseudo hyphae and budding yeast cells. Grocott stain X 400.

DISCUSSION:

Beside other factors the tuberculosis is considered as the most general source of granulomatous lymphadenitis. The developed countries are also facing frequent incidences of the tuberculosis due to increase in AIDS and associated antibiotic resistant strains. The diagnosis of Tuberculosis can be confused with other contributing agents of the diseases such as fungus. Moreover, if suitable treatment is not provided the disease will exist and it would be more

difficult to terminate the disease at a later stage [6]. Due to advancements in medical science, a number of diagnostic methods are in use for diagnosis of the disease but in this research, we have utilized the special stain techniques which is at least possible at all stages and under all circumstances to evaluate the agents causing the disease. A number of studies have been done on this topic and were found in line with the study in hand. The already existed studies (Taufeeque and Sultana, Lincoln and Gilbert and

Bengamin) have revealed that cervical lymph was most common site for the lymphadenitis granulomatous [9]. Our study delivered that both type of lymph nodes was present in the subjects. 62 subjects were diagnosed with caseating granulomas whereas 38 were marked as non-caseating type granulomas. The result was verified by another study Fourteen females and eight males were diagnosed with the help of Zeihl Neelsen [7]. Among 22 cases, nineteen subjects were diagnosed with caseating granulomas and three were diagnosed with non-caseating granulomas. The findings of our study are a bit greater when compared with Marglith work. Marglith reported 20% cases of granulomatous. Another study done by Robert and Linsay documented 30% cases with positive acid-fast bacilli (AFB) [8]. In our study, sixty-six cases failed to establish an etiological relation after special staining techniques whereas in thirty-four cases special stains revealed the presence of microorganisms. For 66 undetermined cases additional tests and culture reports were required. Only two cases in our study were gram negative bacilli located at mesenteric site. Though

Brucellosis is attained through the ingestion of infected milk and meat products, there are bright chances that these are due to intestinal Brucellosis. Giemsa stain revealed LD bodies in four nodes.

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led by Woodard. Woodward acknowledged 67% cases of caseating granuloma. A study carried out by Lake and Osaki showed 76% cases of caseating granuloma. The non caseating granuloma cases were 24% in the research by Lake and Osaki. Zeihl Neelsen stain showed positive for 22 subjects in our case.

Leishmaniosis (caused mostly by the biting of sand flies) is commonly seen in upper areas of Pakistan which may contribute to chronic granulomatous lymphadenitis. PAS and Grocott stain confirmed the presence of fungus in 6 lymph nodes. The results of our study was comparable with another study carried out by Woodard et al. Woodard et al delivered that twenty-six percent cases in their study were diagnosed with causative agents whereas we diagnosed the same organisms in thirty-four percent cases during our research. Our study showed that sixty-five percent cases were having mycobacterium tuberculosis.

CONCLUSIONS:

The study concluded that the pathogens in chronic granulomatous lymphadenitis typically consisted of mycobacterium tuberculosis. The prevalence of other pathogens contributing to the causes of the disease was also noticed.