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ORIGINAL ARTICLE

Evaluation of Treatment Efficacy of Surgical Interventions for Tubercular Cervical Lymphadenopathy

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ABSTRACT

Tuberculosis leads to the most prevalent extrapulmonary problem, which is lymphadenitis. It is quite difficult to diagnose and treat this problem because its ape to several other disorders as well as it is not detectable in physical and lab verdicts.

Objective: The purpose of this research work is to assess the part of surgery for tubercular cervical lymphadenopathy for detection and treatment.

Study design: It is an observational study with the statistical approach

Methods: This work proceeded from January 2021 to June 2022 in the department of ENT, Head & Neck Surgery Lady Reading Hospital Peshawar. The head of the department has given permission for this study work. Total 120 selected patients had some surgery on their necks in the past years.

Results: The biopsy of 120 patients was done for the diagnosis of lymphadenopathy. When a lymph node elimination biopsy was done, some of the patients had been diagnosed with tubercular cervical lymphadenopathy. Among these diagnosed patients, a few react to the CAT-1 (ATT), and a few of the patients further need surgery for the excision of the abscess. Some of the patients redevelop the disease after treatment and few patients show no cure after treatment with CAT-1. When this therapeutic treatment of the patients (previously shown the failure of treatment) had been done for the second time, they all responded and showed no illness.

Conclusion: For the diagnosis of tubular lymphadenopathy, surgical intrusion plays a role and anti-tubular therapy is an effective method of treatment but surgical intrusion is mandatory. Patients having more complicated issues get rid of these issues after this treatment. This treatment led to the enhanced life span of the patient.

Keywords: Biopsy, Tuberculosis, CAT-1, ATT, Surgical treatment

INTRODUCTION

TB (tuberculosis) initiated by Mycobacterium tuberculosis, which is an inflammatory disease. Tuberculosis leads to the most prevalent extrapulmonary problem, which is lymphadenitis. Within the lymph nodes of the head and neck zone, more precisely, within supraclavicular and submandibular regions, lymphadenopathy induced. The most obvious reason for this disease is the higher level of infection of lungs and other respiratory regions. This infection caused by TB is also termed as Scrofula. A bulky mass formed in the lymph node region that can also be destroyed by some chemotherapy. However, this therapy has a number of disadvantages as well, such as normal cells can also be destroyed when this solid mass is exposed to some chemicals [1-4].

Actually, when the progression of bacteria takes place in case of TB lung infection starts, sometimes because of TB or HIV, the microbe makes a chance to enter within the lymphatic fluid as well as blood vascular system. When it enters the bloodstream, the microbe has the ability to approach extra-pulmonary organs and other infection sites like pleura, central nervous system, peripheral nervous system, UTI tract and sometimes it also invades within bones and ligaments. However, lymphadenopathy is always due to the penetration of bacteria in lymph nodes [5-6].

As this disease has multiple symptoms, which are very common in many other diseases, therefore, it is not easy to diagnose the disease properly; a number of methods developed by scientists to diagnose lymphadenitis, but a more appropriate method is not found. Only biopsy of lymph nodes of the neck and head are used to detect whether the lymphadenitis exists or not, but it is quite a complicated method.

For the treatment of this disease, proper medical care is required but this disease is not fatal. Most of the patients suffering from this disease are usually healthy, active adults without having any symptoms. However, this disease leads to the formation of fistula and inflammation in the lymph node regions, which makes a person handicapped or disabled [7-9].

The lymph nodes cannot be treated with any kind of drug or medication, CAT-1 also termed, as ATT is the only treatment method for this disease. The surgical treatment of this disease includes a number of steps like the whole removal of damaged lymph nodes along with skin and other tissues after disrupting the skin of the neck, and drainage. For the diagnosis of tuberculosis, different histopathological tests are used; sometimes the X-pert method is also used for diagnostic purposes. Usually a cluster of the mycobacterium cells found in the positive person. In severe cases granuloma also found[10-12].

This study was typically used to analyze the importance of surgical removal of lymph nodes for the diagnosis and treatment of the disease named tubercular cervical lymphadenopathy [13-14].

MATERIALS AND METHODS

These observational findings were carried out from January 2021 to June 2022. The patients included in this study were those that were reported to ENT and pulmonology departments of Lady Reading Hospital, Peshawar. The patients from many other departments were also included in this study. The patient had not carried out any excision biopsy. The biopsy had three main divisions. One-third was made in formalin for the sake of histopathology, one-third in saline for c/s, and the remaining one-third was used for Gene X- pert in normal saline.

The findings carried out in this diagnostic study were recorded in an already designed register labeled as “diagnostic notes” where all data is kept saved. Charts of both female and male patients were made. It was reviewed, in addition to analyzing the data of diagnostic notes. The age of patients ranged from 14-75. The total number of patients that were taken for this were 120**.** A proper procedure and guidelines followed before proceeding with any study in this field. After the ethical committee approved the study, the data collected for publication. The written consent was taken from all the patients that participated in this study.

In case of tubercular lymphadenitis, the inclusion standards include the general clinical signs and symptoms in addition to caseation granuloma; another case is granuloma condition and Gene X-pert positive patients. Asymptomatic patients that show no

general symptom of TB but their biopsy reflect granuloma or any granulated granuloma were also made the part of this project.

The patients that showed no reaction to the anti TB therapy or medicine taken for surgical operation that included neck dissection and excision. The anti TB medication used was CAT-2 SHRZE, if this medication showed no response then surgery was carried out. It was also measured that the disease had anything to do with the gender of the patient so the ratio of disease in male and female was also checked.

All the data was obtained after surgery, medication, or other therapy. The Data has been analyzed by using SPSS software to check that either the data is statistically significant or not. For further validation Pearson chi square test was carried out as a significance test. If the p value came greater than 0.06 then the data considered as non-significant. In order to study the involvement of surgical operation in treating TB cervical lymphadenopathy the diagnostic and therapeutic findings were measured.

RESULTS

The study was conducted on 120 patients attended the pulmonology department of our hospital. The 26 out of 120 were males, while other 94 were females. Tubercular lymphadenitis is more common in the females as compared to the males. The 2:57:1 was the ratio of man and women. The age of the included patients was ranged between 14-75 years.

Table 1: The Biopsy findings of the patients diagnosed with cervical lymphadenopathy

Biopsy findings	Number of patients	Percentage
Tuberculosis	67	56%
Foreign body granuloma	4	3%
Sarcoidosis	4	3%
Kikuchi disease	3	2%
Metastatic carcinoma	18	15%
Taxoplasmosis	3	2%
Lymphoma	9	8%
Nonspecific lymphadenitis	7	6%
Undiagnosed	5	4%

The 67 patients out of 120 were diagnosed with tuberculosis including caseation granuloma and gene X-pert positive. The foreign body granuloma was seen in 4 patients, sarcoidosis in 4 patients, kikuchi in 3 patients. The 18 patients were diagnosed with metastatic carcinoma, 3 with taxoplasmosis, 9 with lymphoma and other 7 with nonspecific lymphadenitis. The 5 patients were remained undiagnosed. (Showed in table 1)

Table 2: Distribution of tubular lymphadenitis according to the gender

Gender	Number of patients (n)	Percentage
Female	94	78.3%
Male	26	21.6%

Table 3: The laboratory findings obtained after the TB node surgical excision (n=67)

Features	Laboratory Findings	Number of patients	Percentage
Gene X-pert	Positive	16	23%
Histopathology	Caseation necrosis	57	85.0%
Culture sensitivity	AFB	2	2.9%

Table 4: The number of patients developed complications during/after anti-tubercular drug (n=14)

Developed complications	Number of patients	Percentage
Abscess	8	57%
TB lymphnode to the other site of neck	1	7%
Having caseation necrosis but increase in size	1	7%
Having caseation but no change in size	3	21%
Tubercular sinus	1	7%

The ATT (CAT-1 HRZE) was performed on 67 patients, out of which 56 were cured by the treatment. While the treatment failure were seen in the 11 patients. During the course of ATT the abscess formation were seen in 3 patients. These patients were completely cured after the surgical interventions. The 5 out of the 11 uncured patients developed cold abscess without sinus, while the one patient developed abscess with sinus. The lymph-adenopathy on the other side of the neck was seen in one patient. The lymph node with positive caseating necrotizing granuloma was observed in the three patients. The lymph node with increased size and positive caseating necrotizing granuloma was observed in the one patient. The relapse were observed in the 8 patients followed during the study.

Table 5: The number of patients undergoing 2nd re-intervention (n=21)

Surgery Pattern	Number of patients	Percentage
En-block resection	7	35.3%
Selective neck dissection	5	23.8%
Excision of lymphnode	9	42.8%

The 21 patients undergone surgical interventions. The treatment failure was observed in the 11 patients, the 8 relapse patients along with ATT. The two patients were observed with TB abscess during ATT. The seven patients were cured by the en-block resection surgery, 5 by selective neck dissection and other 9 by excision of lymphnode. (Showed in table 4).

DISCUSSION

The cervical lymphadenopathy is the most commonly occurring mycobacterial infection. The main risk factor associated with the cause of cervical lymphadenopathy is lymphatic tissue reactive hyperplasia. These are highly linked with the inflammatory responses[15-16]. Proliferation of the inflammatory cells may cause the lymph node enlargement. The incidence of cervical lymph nodes in the children ranged between 38% to 45%. The neoplasmatic process manifests during the disease. Different types of viral, bacterial and fungal infections are increasing the incidence of lymphadenopathy in the childrens[17].

It is the neoplasmatic complication of the pediatric age. The most common observed malignant etiology in the diagnosed patient is granulomatous disease with 73% and non-hodgkin's lymphoma with 46% percentage. The most commonly observed symptoms of the diseases are fever, cough and sore throat. The fixed and rubbery lymph nodes are seen in all the patients. Epsstein-Barr virus, non-specific diagnosis and malignancies are the most commonly observed etiologies in the cervical lymphadenopathy[18-19].

The females are more prone to the disease, different studies have shown that the incidence of cervical lymphadenopathy is higher in females as compared to the males. It is not proven to be a fatal disease but the treatments are expensive and require the surgeons and physicians. It is normally observed in the young and healthy person without any constitutional symptoms. The patients with the cervical lymphadenopathy are more prone to formation of the abscess and fistula. This is a socially unacceptable disease. The findings of the laboratory can be unreliable as they can mimic the other pathological process[20].

For the removal of the enlarged lymph node, surgery is preferred while ATT is normally used for treatment. TCL is also used for the treatment of cervical lymphadenopathy.

The 67 patients were cured by the ATT treatment in the present study. The 8 patients out of 67 who were cured by ATT required the 2nd surgical intervention indicated by the follow-up. These patients had relapses. The two patients were cured by surgical intervention[21].

The 21 patients underwent surgical interventions. The treatment failure was observed in the 11 patients, the 8 relapse patients along with ATT. The two patients were observed with TB abscess during ATT. The study conducted by Kanjanopas K et al., also reported the similar findings. The cure rate was observed to

be 100% in the patients undergoing the surgical excision of lymph nodes. In the study conducted by kanjanopas K the all patients were cured by the neck dissection type of surgery. These patients were not treated by the medications before the surgical interventions[22].

The study conducted by K.F Sui et al., also indicated that the cure rate remained 100% in all the patients treated with surgical interventions. The lymph node was excised by the surgery in the included patients. The chemotherapy and surgery was used to treat 35 patients included in the study conducted by subrahmanyam. 29 out of 35 patients were completely cured. 52 out of 70 patients were also observed to be cured by the chemotherapy. In present study the seven patients were cured by the en-bloc resection surgery, 5 by selective neck dissection and other 9 by excision of lymphnode[23].

In our study 5 out of the 11 uncured patients developed cold abscess without sinus, while the lymph-adenopathy on the other side of the neck was seen in one patient. The lymph node with positive caseating necrotizing granuloma was observed in the three patients. The lymph node with increased size and positive caseating necrotizing granuloma was observed in the one patient. The relapses were observed in the 8 patients followed during the study. The one patient developed abscess with sinus[24].

The kanjanopas K et al., treated 14 patients with drug therapy, out of which the complications were seen in 6 patients. The abscess formation was observed in the two patients, while 4 had the enlargement of residual lymph nodes. The outcomes shown by combining anti tubercular chemotherapy with the surgical interventions are much better than the outcomes shown by the chemotherapy alone. Therefore we can conclude that the combination of the therapy and intervention can be a better solution to the treatment of cervical lymphadenopathy[25].

CONCLUSION

For diagnosis of diseases, the surgical interventions are proved to play a strong role. The most commonly used treatment of tubercular lymphadenitis is the antitubercular treatment. But the surgical intervention is needed in the patients who developed complications during the treatment, or relapsed after the treatment. The formation of abscess, sinus and fistula can be reduced after the treatment with surgical interventions as compared to the medical treatment. Hence it is concluded from the study that the morbidity can be reduced by surgical interventions. This also increases the quality of life of the diagnosed patients.

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