

Correlation of Abdominal Tuberculosis In cases of Tubercular Cervical Lymphadenopathy

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ABSTRACT:

Background: Abdominal TB and cervical tuberculous lymphadenitis are both extrapulmonary forms of tuberculosis, albeit they may be coupled with a primary pulmonary focus. Abdominal tuberculosis refers to TB of the digestive system, peritoneum, omentum, mesentery and its lymph nodes, as well as other solid intra-abdominal organs such as the liver, spleen, and pancreas.

Aim's & Objectives: To evaluate the usefulness of clinical signs and symptoms for identification and early detection of abdominal tuberculosis in presence of tuberculous cervical lymphadenitis.

Methods & Materials: Patients of both sexes between the ages of 13 and 80 who presented to the Surgery Department with cervical lymphadenopathy of tuberculous origin and who met the inclusion criteria were included in the study with their permission. A full medical history, physical examination, and multiple laboratory and radiographic tests were performed. When the benefits outweighed the risks, histological proof was sought.

Results: Our study also showed a 17.5% prevalence of abdominal tuberculosis among tubercular cervical lymphadenopathy cases. Abdominal tuberculosis has a prevalence of 1.42% amongst all cases of tuberculosis according to RNTCP 2011 data. The high prevalence showing a strong correlation amongst tubercular cervical lymphadenopathy and abdominal tuberculosis with a p-value of < 0.0001 using the z-test for proportions.

Conclusion: The patients should be followed up diligently to ensure complete treatment and resolution of disease and then advised to report if any symptoms reoccur for early identification of any relapse and early institution of anti-tubercular treatment to minimize complications and reduce the morbidity and mortality still associated with abdominal tuberculosis.

Keywords: Mycobacterium , Zoonotic , Tuberculosis , peritoneum, omentum, mesentery.

INTRODUCTION:

Tuberculosis has been a dreaded disease through the ages and remains one of the deadliest diseases even after the advent of antibiotics and vaccines. One third of the world's populations have tuberculosis with a higher burden of infection and deaths in developing countries.

India with the highest burden of Tuberculosis in the world has over two million incident cases amounting to more than fifth of global burden. [1] 40% of Indians are infected with tuberculosis. 1 Only about 10% of those infected fall ill with active disease.[2] Left untreated, each person with infectious TB will spread the germs to about 10 to 15 people every year. [2] In 2011, 1,40,00,00 (over 3800 per day) people died from TB and an estimated 8,70,00,00 (8.7 m) people were diagnosed as new cases of TB. [2] Progress in the scaling up of tuberculosis diagnostics, treatment, and control efforts worldwide over the past decade has been associated with improvements in tuberculosis control in many parts of the world, but progress has been substantially undermined by the HIV-1 epidemic, the growing challenge of drug resistance, and other increasingly important epidemiological factors that continue to fuel the tuberculosis epidemic .[3]

Poor treatment compliance and higher treatment dropout rates have led to emergence of multi and extensive resistance strains of the Mycobacterium. Zoonotic Tuberculosis due to M. Bovis is also prevalent as knowledge of the agent and its routes of transmission are lacking in the general population and surveillance and control activities in animals are often inadequate or unavailable. Extrapulmonary TB accounts for 16-20 percent of all tuberculosis cases.[4-6] In India extrapulmonary tuberculosis accounted for 19 percent of all new cases in 2011.[7]

Abdominal Tuberculosis and cervical tuberculous lymphadenitis are both forms of extrapulmonary tuberculosis though they can be associated with a primary pulmonary focus. Abdominal tuberculosis is the term used to encompass TB of the gastrointestinal tract, peritoneum, omentum, mesentery and its nodes and other solid intra-abdominal organs such as liver, spleen and pancreas.[8]

It constitutes about 1-3% of all cases of tuberculosis and about 12% of extrapulmonary TB.[9] More than 70% of the patients have symptoms for more than four months before their diagnosis is actually established.[10,11]

The diagnosis of abdominal tuberculosis is usually very difficult, due to nonspecific symptoms and signs. Moreover, it can mimic many abdominal disorders like malignancy, Crohn's disease, and irritable bowel syndrome.[12,13]

Diagnostic confirmation often requires histopathological examination of the surgical specimen which is available only when surgical intervention is required, that is, at an advanced stage of the disease.[13] Late diagnosis in abdominal tuberculosis results in advanced presentations with increased morbidity and mortality.[12,15-16] Our study aims to

find the incidence of abdominal tuberculosis in cases presenting with tuberculous cervical lymphadenopathy and the usefulness of clinical evaluation of abdominal symptoms and signs for early detection of abdominal tuberculosis in presence of tuberculous cervical lymphadenitis thus reducing the associated morbidity and mortality.

Tuberculosis has been identified in ancient human civilization the world over. Paleopathology has identified tuberculous lesions as old as 17,000- 20,000 years by DNA analysis.¹⁹ Modern strains of *M. tuberculosis* appear to have originated from a common ancestor about 20,000–15,000 years ago.²¹ Currently circulating strains fall into six major lineages, or clades, all of which are present in East Africa; their global distribution however varies.^[22] Analysis based on the known mutation rate of *M. tuberculosis* indicates that much of the present diversity among these strains originated between 250 and 1000 years ago.^[23]

METHODS & MATERIALS:

The Department of General Surgery, Santosh Medical College Hospital Ghaziabad was conducted the study in the duration of May 2013 to May 2014. This is the prospective, cross-sectional, observational study. There were 200 inpatients from Department of Surgery and casualty.

200 Patients of both sexes between the age group of 13-80 years presenting with cervical lymphadenopathy of tubercular origin presenting to the Surgery Department were included in the study with their consent if they fulfilled the criteria. A detailed history, complete physical examination, various laboratory and radiological studies were carried out. Histological confirmation was sought in cases where benefit outweighed harm.

Diagnosis of tubercular cervical lymphadenopathy TB was made by utilizing FNAC or biopsy specimen for histological or cytological examination or demonstration of Acid Fast Bacillus before inclusion in the study population.

OBSERVATION & RESULTS:

This study was done in Santosh Medical College hospital, Ghaziabad from May 2013 to May 2014. It included a total of 200 (n=200) patients with tubercular cervical lymphadenopathy.

The patient population was divided into two groups according to clinical evaluation and laboratory confirmation. Those positive for abdominal tuberculosis (n=35) and those negative (n= 165) with only tubercular cervical lymphadenopathy. The groups were then analyzed for statistically significant clinical features.

Table 1 : Gender and age distribution of subjects

Age in Years	Cervical Lymphadenopathy		Abdominal Tuberculosis		Total
	Females	Males	Females	Males	
13-20	43	24	5	0	72
21-30	23	16	10	5	54
31-40	7	20	4	5	36
41-50	5	8	2	2	17
51-60	1	12	1	0	14
61-70	1	3	0	0	4
71-80	2	0	1	0	3
Total	82	83	23	12	200

In Table 1: In the cases of cervical lymphadenopathy it was noted that both males and females had the highest number of cases in the age group of 13-20 years, in females the prevalence declined with increase in age whereas in males this pattern was absent. The females had a mean age with SD of 24.96 ± 13.63 whereas the males had a mean age with SD of 33.21 ± 15.8

Table 2: Clinical Features, Frequency and Gender Distribution of subjects

Signs & Symptoms Lymphadenitis	Cervical		Abdominal TB		Total
	F	M	F	M	
Abdominal Pain	13	9	15	10	47
Weight Loss	11	14	11	11	47
Fever	12	4	11	9	36
Constipation	1	5	9	9	24
Abdominal Tenderness	0	5	12	6	23
Nausea/Vomiting	9	5	7	5	26
Distention	1	2	10	2	15
Diarrhoea	2	1	7	4	14
Alternate D&C	2	1	4	4	11
Ascites Clinical	0	1	5	1	7
Doughy abdomen	0	1	4	2	7
Organomegaly	0	0	5	1	6
Abdominal Lump	0	0	5	1	6

There are an increased number of clinical features seen in abdominal tuberculosis in comparison with the cervical lymphadenopathy group. While the cervical lymphadenopathy cases generally had nonspecific systemic symptoms of tuberculosis such as fever and weight loss, the cases with abdominal tuberculosis, along with the generalised systemic symptoms also included those specific to abdominal involvement including abdominal pain and tenderness, bowel disturbances, abdominal distention, ascites and organomegaly.

The mean number of clinical findings in the cervical lymphadenopathy group is 1.94 with a SD of 0.81. Whereas the mean in the abdominal tuberculosis group is 4.85 with a SD of 2.07, the difference is significant with a p-value < 0.0001.

Table 3: Ultrasonography of abdomen of subjects

USG Results			
Total Cases Tested	86	Abdominal Tuberculosis	No Abdomina Tuberculosis
Positive	40	33	7
Negative	46	2	44

- It gave positive findings in 40 cases of which 5 on further testing did not have abdominal TB.
- It was negative in 46 cases of which 2 were positive for abdominal TB on further investigations (diagnostic laparoscopy).

It also was useful in guiding abdominal FNAC and fluid aspiration

DISCUSSION:

This study was conducted to determine the prevalence, the significance of clinical findings and correlation of abdominal tuberculosis with tubercular cervical lymphadenopathy patients presenting to our surgery OPD. In this study, the patients were analyzed based on their age, gender and the clinical signs & symptoms of abdominal tuberculosis.

Of the 200 tubercular cervical lymphadenopathy patients the majority of the cases were in the younger age groups with 63 % under 30 years of age and 36% under 20 years of age. In the group with only tubercular cervical lymphadenopathy the same pattern was seen with 40.6% of cases occurring in the age group 13-20 years followed by 23.6% in the age group of 21-30 years. This pattern has been noted by many researchers including Subrahmanyam [21, 23-25,]

This does not rule out the condition in other age groups and in our study we observed an 80 year old woman with impending rupture of a cervical cold abscess. In the current study the group with only cervical involvement had a near equal proportion of sexes, females

accounting for 49.69% (n=82) and males 50.3% (n=83) and though some studies report a female preponderance 83,85,172,173 others such as Farer et al, reported 55% male and 45% female 9 Most of the patients in our study did not have systemic symptoms (57%, n=114) and commonly their only symptom was a painless slowly enlarging cervical lymph node. Of the 200 cases 43% had systemic symptoms. When divided into those with and without 91 abdominal tuberculosis it is seen that all the patients with abdominal tuberculosis had symptoms whereas only 30.09% of those with cervical lymphadenopathy had them.

This lack of systemic symptoms in a condition thought to be a local manifestation of a systemic disease has been remarked upon by S.K. Sharma et al⁵³ and Nancy E. Dunlap et al¹⁵ in an official statement for the Centers for Disease Control and Prevention has stated that in persons not infected with HIV but with tuberculous lymphadenitis, systemic symptoms are not common unless there is concomitant tuberculosis elsewhere.

Abdominal tuberculosis is predominantly a disease of young adults, in this study 42.85% of all abdominal tuberculosis cases were between the ages of 21-30 years 25.71% were between the ages of 21-40 years. This is remarked upon by many including Sanjay Bandyopadhyay¹²⁴ and M.P. Sharma et al [23] The mean age of the abdominal tuberculosis group was 31.48 ± 11.82 years. This age group has been seen in studies by Vij JC et al²¹ and Palmer et al²⁶ We had a high female to male ratio of 1.9:1 in the abdominal tuberculosis group and although a few other Indian studies have found a female preponderance 121,175 most seem to consider it equal [20, 22-24]

We found a lower prevalence of symptoms which may be due to early diagnosis as the majority of the patients (67.57%) did not come to the hospital for abdominal complaints but came for the neck swelling and were diagnosed on screening for abdominal involvement.

Laparoscopy is generally considered the gold standard for the diagnosis of peritoneal TB, because of its safety and high diagnostic yield [25]. In our study 7 cases underwent diagnostic laparoscopy out of which the 5 cases with positive macroscopic features were confirmed as abdominal tuberculosis on histopathology of the samples obtained during the procedure.[26-28] Laparoscopy not only allows direct visualisation but also enables biopsies and collection of samples. In a meta-study analysis by Sanai FM et al¹³ the cumulative data of 402 patients from 11 studies showed impressive sensitivity and specificity rates of 93% and 98% respectively when the macroscopic appearances are combined with the histological findings (epithelioid granuloma with caseation or Mycobacterial identification).

Our study also showed a 17.5% prevalence of abdominal tuberculosis among tubercular cervical lymphadenopathy cases. Abdominal tuberculosis has a prevalence of 1.42% amongst all cases of tuberculosis according to RNTCP 2011 data. The high prevalence shows a strong correlation amongst tubercular cervical lymphadenopathy and abdominal tuberculosis with a p-value of < 0.0001 using the z-test for proportions.

CONCLUSION:

Our study showed that the prevalence abdominal tuberculosis in tubercular cervical lymphadenopathy was very high (17.5% compared to 1.4% in the affected population) and since these patients are at higher risk of morbidity and mortality and at risk for requiring surgical intervention, measures for early diagnosis and proper treatment should be instituted. Patients should be educated regarding treatment compliance as incomplete and inadequate treatment is the single most important risk factor for the development of complications. We found that a thorough history and actively searching for symptoms and signs helped us in identification of abdominal tuberculosis in patients who had sought treatment only for cervical swelling.

The findings of our study suggests that all tuberculous cervical lymphadenopathy patients, given the high prevalence of abdominal tuberculosis, should be screened for abdominal tuberculosis using a through history and examination. The patients should be followed up diligently to ensure complete treatment and resolution of disease and then advised to report if any symptoms reoccur for early identification of any relapse and early institution of anti tubercular treatment to minimize complications and reduce the morbidity and mortality still associated with abdominal tuberculosis.

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