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ORIGINAL ARTICLE

Diagnosing Tuberculosis for the First Time at Autopsy

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ABSTRACT

Among the most common infectious diseases in the developing and underdeveloped countries Tuberculosis stands high and is among one of the leading cause of death in infectious diseases. Government of Pakistan have no doubt supported and started many programs to tackle the problem and have tremendous efforts to eradicate this disease. Stating from diagnosis and providing treatment free of cost of a large group of population. Inspite of all these efforts tuberculosis is still raising due to multiple factors. The rise in the number of patients mainly factors involved are unawareness on the part of the patient and doctor as well. Lacks of education, poor compliance, ignorance, poor follow up are among the main reasons on the part of the patient which lead to a rise in the number of patient annually. Among living patients only 40% are diagnosed. This study is done to determine tuberculosis at autopsy which was diagnosed during life of the patient. Awareness about the disease and its high prevalence in Pakistan is essential to reduce missed diagnoses.

Keywords: Diagnosis, Tuberculosis, Forensic Medicine, Autopsy, Evidence

INTRODUCTION

The diagnosis of tuberculosis is sometime not made during the life time of a person who is suffering from it. It is still one of the leading infectious and contagious disease targeting underdeveloped countries in particular(1). Pakistan is a country where Tb is still not properly controlled Inspite of multiple programme run by the government and private sectors, its prevalence is gradually at an increase(2). Pakistan harbors a big pool of tuberculosis patients and the figures provided by the government curtails those patients who have been diagnosed with active tuberculosis, this group does not cater those cases that still are awaited to be diagnosed. The reason being they are not aware of their disease or the consulting physician still has not considered it to be investigated(3). To add in the gravity of the situation, among the newly diagnosed cases, approximately 3% have multiple drug resistance tuberculosis(4). Among the pool of patients who have never been diagnosed with tuberculosis include those patients, who are asymptomatic, such patients are usually diagnosed accidently when investigation for some disease is being done. The primary objective of the study is to diagnose cases of tuberculosis at autopsy which remain undiagnosed as some other cause of death is determined or the diagnosis remains undetermined. Special efforts were made to take detail history from the relatives of the deceased to conclude the case and achieve the desired results.

METHODS

From 1st January till 30th June total 250 autopsy cases were reported at DHQ Kasur Hospital. A detail history from relatives of the deceased was taken to rule out cases of suspected tuberculosis. Suspected cases were tabulated separately and investigation was done with the help of pathology department. All pathological finding both gross and microscopic were recorded. All suspected cases of tuberculosis were confirmed with Ziehl-Nielson stain. The primary objective was to determine tuberculosis as the primary cause of death at autopsy which has never been reported before.

Finding: During the period of 06 months,' from 1st January till 30th June 2022, samples analyzed for histopathological examination were 250, out of which the cases of active tuberculosis were 20(8%), dominated by male population almost 70%. Mean age group was 40 years. Before death only 25% of the cases were suspected of tuberculosis. Those dying due to tuberculosis 80% had pulmonary tuberculosis and 20% had extra-pulmonary tuberculosis. Lungs were affected in nearly all cases. The hallmark of all cases was typical caseous granuloma whereas, 04 cases were positive for Acid-fast bacilli in ZN stain Table-I. 09 male deaths were reported with natural disease and organs affected with tuberculosis were lungs, intestine and bones. In all these cases cirrhosis of liver was observed. 04 female cases presented with chronic illness had tuberculosis of lungs and intestine. 03 male cases dying due to natural disease had tuberculosis of lungs; they were also having myocardial infarction. 02 male patients dying due to heart attack had pulmonary tuberculosis. 02 male patients reported of dying due to hepatic failure had pulmonary tuberculosis.

Table 1: Tuberculosis positive cases out of 250 autopsies

Sr No	Age	Gender	No of cases	Apparent cause of death	Organs affected by Tuberculosis	Co-morbidities
1	25	Male	9	Natural death	Lungs, intestine, bone	Cirrhosis
2	32	Female	4	Chronic illness	Lungs, intestine	Fatty liver
3	40	Male	3	Natural death	Lungs	Myocardial Infarction
4	42	Male	2	Heart attack	Lungs	Atherosclerosis
5	45	Male	2	Liver failure	Lungs	Myocardial Infarction

DISCUSSION

Due to advanced treatment and regular follow up initiated by multiple government programs, mortality and morbidity of tuberculosis has declined in the recent past. Inspite of tremendous efforts at different levels by the government, still a large population is affected by tuberculosis, a study conducted by Malik A, Amanullah F, Codlin A, Siddiqui S, Jaswal M, Ahmed J, et al in 2018 supports the present study(5). The major factors involved are ignorance, poor compliance, follow up and illiteracy, a study conducted in 2019 by Fatima R, Yaqoob A, Qadeer E, Hinderaker SG, Ikram A, Sismanidis C is in favor of our study(6). In developing countries like Pakistan due to low socioeconomic status of majority of the population a rise in the trend of active cases of tuberculosis has been observed, three studies conducted in Pakistan first by Saqib SE, Ahmad MM, Amezcua-Prieto C, Virginia M-R in 2018, 2nd by Saqib SE, Ahmad MM in 2019 and 3rd in 2018 by Saqib SE, Ahmad MM, Amezcua-Prieto C supports the finding of our study(7-9).

The present study highlights the fact that a large portion of cases diagnosed with active tuberculosis at the time of autopsy were unexpected and diagnosed for the first time, a study conducted in 2018 in Karachi Pakistan is in favor of our study(10). Multiple reasons lay behind such missed diagnosis during life of

the patient which include are diverged in two main groups, reasons related to patient and reasons related to doctors, a multicenter study conducted in 2018 by Neshati H, Sheybani F, Naderi H, Sarvghad M, Soltani AK, Efterkharpoor E, et al supports the present study(11).

On behalf of the patient the major reason is not seeking for medical attention when required, a study conducted in 2021 by van Heerden JK, van Zyl A, Schaaf HS, Frigati LJ, Goussard P, Rabie H supports the finding of our study(12). On behalf of doctor not investigating the case properly due to casual attitude when required despite strong suspicion of tuberculosis. Sometime doctor did not enquire the patient indepth and patient also did not show any concern about the seriousness of the condition. Sometime diagnosis is missed by the doctor as the symptoms appear to be quite close to TB and patient shows improvement to treatment provided by the doctor, in such cases diagnosis is missed by the doctor, a study conducted in 2020 by Li C, Chen E, Savova G, Fraser H, Eickhoff C supports this study(13).

Active tuberculosis is considered to be a disease of elderly as at this age the immune system is weak and the likely of dormant tuberculosis to be become active is high, a retrospective study done in Italy in 2020 and another study conducted in 2021 by Caraux-Paz P, Diamantis S, de Wazières B, Gallien S supports the finding of our study(14, 15). Lung cancer and pulmonary tuberculosis affect the upper lobe of the lungs more as compared to other parts of the lungs, the chances of confusing in the diagnosis of this disease is high, a study conducted in 2020 by V is in favor of this study(16). A better approach is to perform cytology and acid fast bacilli test to confirm the diagnosis, a study conducted in 2021 by Du D, Gu J, Chen X, Lv W, Feng Q, Rahmim A, et al supports this study(17).

Diagnosis of GIT tuberculosis is difficult as the symptoms closely resemble many other similar conditions, in majority of such cases investigations usually are not quite fruitful, a study conducted in 2020 by Eribo OA, du Plessis N, Ozturk M, Guler R, Walzl G, Chegou NN supports the finding of our study(18). A very useful information about tuberculosis is that once diagnosed it can be cured quite easily and if left undiagnosed the result is fatal. A grave part of undiagnosed case is that as the person himself if unaware of his disease, he is in close contact with many other persons so he can be a source of infection to many others.

Many of the autopsy attendants are unaware of the hygiene required to be followed for autopsy, they are exposed to all undiagnosed cases and may get infected during autopsy, a study conducted in 2019 by Stephenson L, Byard RW and another study conducted by Nolte KB, Muller TB, Denmark AM, Burstein R, Villalobos YA in 2021 supports the finding of our study(19, 20). Indirectly mortuary is a big source for tuberculosis not only for doctors but to all paramedical staff. The likely chances of staff working in the mortuary to get infected with tuberculosis are 100-200 times more than general public.

CONCLUSION

The mortality with tuberculosis is quite high due to failure in diagnosis and treatment at an earlier stage. Awareness about the disease is very important as the cure is quite successful, once treatment is provided. During autopsy preventive measure include wearing proper face masks, proper hygiene, wearing autopsy suit to minimize the risk of tuberculosis.

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