



INCIDENCE OF TUBERCULOSIS IN AUTOPSY CASES IN RIMS : 5 YEARS RETROSPECTIVE STUDY

Pathology

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ABSTRACT

Background: India accounts for one fourth of the global TB burden. An estimated 2 million cases occur annually. According to WHO around 3,00,000 people die annually in India from TB. Tuberculosis is one of the most lethal infectious diseases in the world. In spite of effective treatment available in most cases, it is still a leading cause of death in India. Failure to diagnose and inadequate treatment, TB could lead to premature death and unrecognized transmission of Mycobacterium Tuberculosis. The proportion of missed TB cases is usually not reported. The objective of this study was to quantify the number of cases of TB identified by autopsy in Prisoners.

Methods: This was a retrospective study and analysis of 155 medical autopsies of patients over a period of 5 years reported in the department of Pathology, Rajendra Institute of Medical Sciences, Ranchi, India. A total of 155 medical autopsies were reported and included in this study. We did gross pathological and histopathological analysis.

Results: This study shows that out of 18 cases of tuberculosis, 13 were prisoners, showing tuberculosis is more common in prisoners than civilians.

Conclusion: TB remains a major cause of death. Tuberculosis often remains undiagnosed and hence there is a need to increase awareness and actively search for tuberculosis.

KEYWORDS

Tuberculosis, Autopsy, prisoner

INTRODUCTION:

India accounts for one fourth of the global TB burden. In 2015, an estimated 28 lakh cases occurred and 4.8 lakh people died due to TB. The table below shows the estimated figures for TB burden globally and for India reported in WHO Global TB Report for the year 2015¹. One in ten people that are infected with Mycobacterium Tuberculosis may develop active tuberculosis at some time in their lives (WHO 2010). This risk is greatest in the first year after infection, but active disease often does not occur until many years later. Immune compromised individuals either because of HIV infection or other factors such as old age or undernutrition, who have latent TB infections are likely to develop TB disease. TB is second only to HIV/AIDS as the greatest killer worldwide. Over 95% of TB deaths occur in low and middle income populations. Accurate data on incidence and prevalence of TB are not available, as data are based on national TB return and death certificate records, all of which are inaccurate².

Autopsy called as "Ultimate Audit" remains the gold standard for identifying specific causes of death as it offers valuable insights into the accuracy of the earlier clinical diagnosis and can identify previously undiagnosed disease burden³.

Estimate of TB burden	Global	India
Incidence of TB cases	104 lakh	28 lakh
Mortality of TB	14 lakh	4.8 lakh

METHODS:

We analysed all the autopsy cases sent to the Pathology department of RIMS, Ranchi over a period of 5 years (2012-2016). The complete postmortem reports were assessed and analysed. Basic demographic data such as age, sex, and medical history were recorded. The gross and the histopathological findings were recorded. It was again confirmed by Ziehl-Nielsen stain.

The aim of the study was to investigate the incidence of tuberculosis in autopsy cases in prisoners. The results were compared with studies done by other authors. The main area of interest was to ascertain the proportion of cases of tuberculosis in prisoners which were undiagnosed during life.

Observations:

Out of total 155 autopsy case samples received for histopathological examinations over a period of 5 years, we found 18 cases (11.61%) of

active tuberculosis. 78% corresponding to men. Mean age of this group was 39 years. Out of these 18 cases, 13 were prisoners (72.22%) and 5 (27.77%) were civilians. The lungs were the most commonly affected organ followed by liver. In all cases of active TB, caseous epithelioid granuloma were present. The table below shows the year wise incidence of tuberculosis in prisoners and the respective organs involved.

YEAR	Number of Autopsy reported in Department of Pathology	Positive for T.B (Histo + AFB)	Prisoners positive for TB
2012	17	1(Liver) + 1(Intestine)	1
2013	35	2(Lungs)+1(Liver)	2
2014	26	2(Lungs)+ 1(Liver)+ 1(Intestine)+ 1(Heart) +1(Lymph node)	5
2015	36	1(Lung) + 1(Kidney)+ 1(Spleen)	2
2016	41	2(Lungs)+ 1(Kidney) +1(Liver)	3
Total	155	18	13



Fig 1. H&E stain of spleen showing epithelioid cell granuloma.

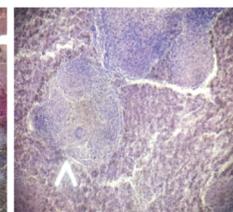


Fig 2. H&E stain of Liver showing Granuloma

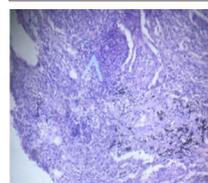


Fig 3. Langhans giant cells and Carbon Particles in lung

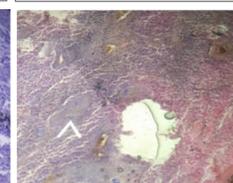


Fig 4. H&E stain of Liver showing langhans giant cells

Discussion

Morbidity and mortality of TB has decreased tremendously in developed countries but it still exist in higher rates in developing countries and specially among the population of low socioeconomic status and prisoners. The importance of diagnosis is that disease is curable, if diagnosed, but fatal if undiagnosed. An undiagnosed infective person or prisoner is of epidemiological importance when he is in contact with person or prisoner not immunized to the disease. Our study shows that there is increased proportion of TB in prisoners compared to general population upto 3times higher than the civilians. The reason for increased number is the disproportionate number of prisoners coming from low socioeconomic status, where the burden of disease may be already high and limited access to medical care. Other reasons are, late diagnosis, inadequate treatment, overcrowding, poor ventilation, and frequent prison transfers. HIV infection and other pathology (malnutrition, substance abuse) are more common in prisoners, encouraging the development of active disease and further transmission of infection.

There is evidence in literature to suggest that there are grounds for suspecting that the autopsy room apart from prison might be a center for dissemination for tuberculosis. Post mortem attendants might be exposed to risk, as many of them do not understand the elementary rules of hygiene, let alone the problem of bacterial contamination. Post mortem room is a source of potential hazard and risk, not only to doctors and technicians, but also to visitors to the mortuary and those handling body after autopsy. Post mortem staff has ethical and legal responsibility to make themselves aware of, and to minimize these dangers. [5, 6] The upsurge of tuberculosis has been associated with HIV infection and immunodeficiency. It is therefore necessary to suspect and screen all tuberculosis patients for possible HIV positivity. Absence of suspicion and delayed diagnosis mean increased risk in health care and at autopsy.

The reason for carrying out this study is to emphasize on incidence of TB in prisoners, because prisons act as reservoir for TB, pumping the disease in civilians, through staff, visitors and inadequately treated former inmates. Despite being a serious cause of morbidity and mortality among incarcerated populations, many prison systems encounter a variety of challenges that hinder TB control. These include insufficient laboratory capability and diagnostic tools, interrupted supply of medicines, weak integration between civilian and prison TB services, inadequate infection control measures, and low priority for prison healthcare.

Conclusion

The above study shows that the Tuberculosis is more common among the prisoners as compared to civilians. So health care system should be more strengthen and focused to provide more diagnostic, treatment and prevention facilities to prisoners.

Governmental commitment, partnerships and sustained finance are needed in order to facilitate improvements in TB control in prisons, which will translate to the wider community at large.

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