

TUBERCULOSIS IN AUTOPSY CASES IN IRAQ

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ABSTRACT

Background: Tuberculosis (TB) is one of the most common infectious diseases that may lead to death in our country despite the availability of effective treatment and this could be due to failure of diagnosis or inadequate treatment among both prisoners and civilians.

Objective: To determine the prevalence of tuberculosis in autopsy cases in Iraq.

Materials and methods: A two years retrospective study of forensic autopsy in Medicolegal directorate in Baghdad- Iraq, from June 2016 to June 2018. During which all the referred autopsies (5350) were analyzed depending on the gross pathological and histopathological findings.

Results: Out of total (5350) autopsy cases, 68 cases were diagnosed as TB. Male predominates over females forming 73.5% mostly with age group between 38 – 50 years, among which the prisoners were forming 29.4%. Pulmonary TB was forming most of the cases 91% while the extra-pulmonary 26% and miliary TB was seen in 15%. Only 3% were with previous diagnosis of TB while the other 97% of the cases were diagnosed only at autopsy, 75% of the cases were with histopathological picture of necrotizing granuloma reaction.

Conclusion: Awareness of tuberculosis is essential for minimizing the transmission among prisoners and civilians as it remains a major cause of death.

INTRODUCTION

It is well known that TB is regarded as a global health problem in the developing countries as it is a common cause of respiratory morbidity and mortality.¹ About one third of the world's current population has been infected with M. tuberculosis, however the latent infection is most common and it may proceed to the active form of the disease, which if not diagnosed correctly may kill half of the patients.² In many cases of active TB, either there is failure or delay in the diagnosis which will lead to the continuous exposure of the TB bacilli to the environment or there may be inadequate therapy by the patient himself.³

MATERIALS AND METHOD

In this retrospective study, we analyzed all the autopsy cases (5350) referred to the pathology department of the Medicolegal directorate in Baghdad- Iraq from June 2016 to June 2018. The data regarding age, sex and available medical history were recorded. All the specimens were fixed in 10% formalin. The gross examination was done and representative sections from the pulmonary and extra-pulmonary tissues were submitted. Staining with the routine stains Haematoxylin and Eosin was done and histopathological examination has been taken on.

RESULTS

Out of total of (5350) autopsy cases received for histopathologic examination of two years duration, 68 cases (1.3%) was diagnosed as TB. Fifty cases were male (forming 73.5%). The highest number was between the age of 38-50 years as shown in table 1. The prisoners were 20 cases (29.4%). Among the 68 cases, 62 were involving the lungs (91%) whether restricted to it or as disseminated (miliary) TB too. The gross appearance of the lungs was diagnostic in all the cases of lung involvement (62) cases (figure 1), of which 30 were found as multiple small grey white nodules, 20 lungs were with caseation, 12 cases were with cavitation (as shown in the figure 1 below). No fibrosis was seen in the examined specimens. Regarding the histopathology, TB was proved to be present in all 62 gross positive lung appearance (91%), so the lungs regarded as the most frequent affected organ with TB, while miliary spread was seen in 15%, extra-pulmonary in 26%. Liver was the most target organ in extra-pulmonary and miliary cases.

Histopathological pattern was epithelioid granuloma in all the cases, the necrotizing granuloma 40% (as shown in figure1 below), non necrotizing granuloma 5%, caseous necrosis in 55%. Only 3% were previously diagnosed as TB (premortem) while 97% were diagnosed at autopsy. The number of the TB cases collected in the first year was 45 cases (2.04%) and in the second year was 23 cases (0.73%) as shown in table 3.

Table 1: Age and Sex distribution of TB cases

Age	Male	Female	Total
0 - 10	—	—	—
11 – 20	1	—	1 (1.47%)
21 – 30	1	2	3 (4.41%)
31 - 40	15	6	21(30.88%)
41 - 50	23	7	30(44.11%)
51 – 60	7	2	9(13.23%)
61 - 70	2	1	3(4.41%)
71 – 80	1	—	1(1.47%)
Total	50	18	68(100%)

Table 2: Organ involvement by TB

Organ	No. of cases
Lung	62
Liver	10
Spleen	2
Kidney	3
Brain	1
Heart	1
Uterus	1

Table 3: Frequency of TB cases by year

Year wise distribution of cases	June2016- June 2017	June2017- June 2018
Total no. of analyzed cases	2200	3150
TB cases (No. and %)	45(2.04%)	23(0.73%)

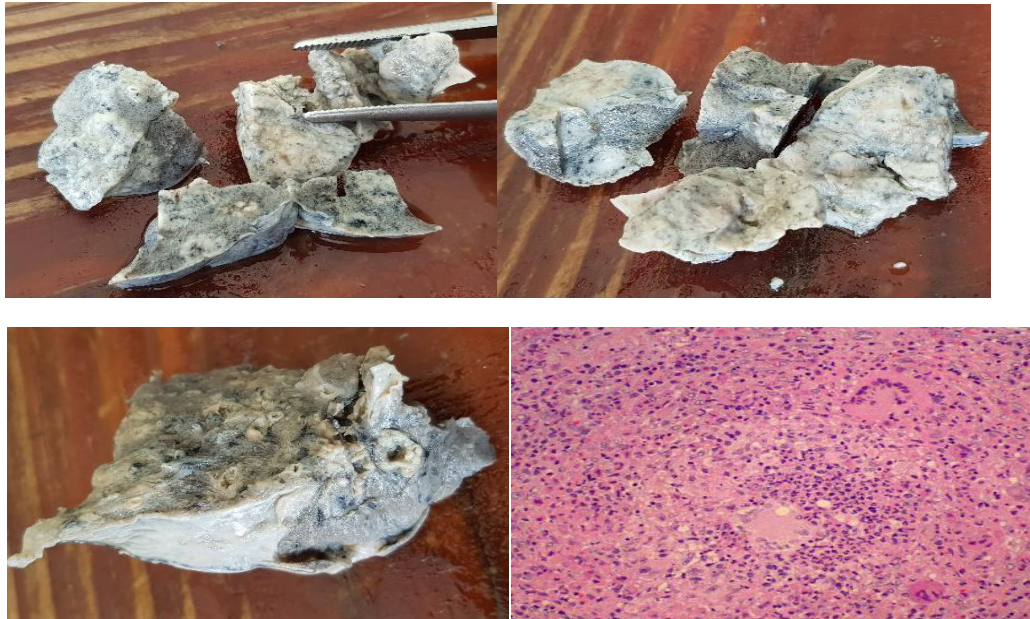


Figure 1 pulmonary TB: (a) gross findings of caseation,(b)gross findings of multiple small grey white nodules, (c)gross findings of cavitation,(d) histopathological picture shows epithelioid granuloma with Langhans giant cell.

DISCUSSION

The morbidity and mortality associated with TB has decreased in the developed countries, while in the developing countries it is still a threatening disease. The majority of the cases are pulmonary and transmitted by person to person through air-borne route.⁴ TB cases are proved to be decreased throughout the world, however in the study of Mitul M Sangmaet *al*⁵, a slight increase in the number of cases of TB was observed during the years 2010 and 2012, Hassan and Hanna⁶ had reported approximately 2% of all sudden deaths due to TB in Baghdad at 1984, in our study TB cases showed to be decreased from 2% at the first year of study to 0.7% at the second year. Hassan and Hanna⁶ also in the same study found that the cavitation was the principle gross pathology in 75% followed by miliary TB as 10% of the cases, while in our study only 19.35% were with cavitation and most of the gross findings were multiple grey- white small nodules and the miliary was forming 15% mainly among prisoners which is more than the study of Hassan. The target organ is the lung but it can affect other organs (extra-pulmonary). A study done by M Garget *al*⁷ shows that 90% of patients had pulmonary TB, 30% had extra-pulmonary and 10% had a miliary TB, which is comparable to our study as 91% shown to be pulmonary and 15% miliary TB. Ganapathyet *al*⁸ noticed a male predominance also Pavicet *al*⁹ recognized the same predilection. The Revised National Tuberculosis Programmin India detects three times more male than female TB patients¹⁰. All these studies are comparable to our study as male predominates over female in our study forming 73.5%, this is of unclear cause but suggestions about less exposure of women in the developing countries to risk of infection due to the pattern of their life style as less working outdoors and in poorly ventilated areas in addition to the consumption of alcohol and tobacco by men. In a study of Lun and Koelmenger¹¹, and Adrionet *al*¹² 70% of the cases were diagnosed only at autopsy, in a study of Mitul M Sangmaet *al*⁵ all the cases were diagnosed at autopsy, while in our study only 3% were previously diagnosed (premortem) and 97% were diagnosed at autopsy which is comparable to Mitul M study. In the study of Mamta Gupta *et al*³ and Das *et al*¹³ necrotizing granuloma was seen in 80% of the cases and 44.7% respectively, while in our present study necrotizing granuloma was observed in 40% which is close to Das *et al*¹³ results.

CONCLUSION

TB is a curable infectious disease but because of the unawareness of this disease people may not seek for medical attention or may took inadequate dose of their treatment. In our field the forensic pathology we are dealing with autopsy, and as most of the cases are without any previous history, so there will be always a danger of transmission to the workers at the autopsy room and the mortuary staff as they are dealing with the deceased (fresh). Precaution should be taken through wearing masks and suits that isolate infection to those people who works as mortuary staff or at the autopsy rooms. The same regarding the prison as the prisoners are in contact with the staff and the visitors. Right diagnosis and good adequate treatment for the prisoners could be helpful.

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