

ORIGINAL ARTICLE

Unusual Presentations of Extrapulmonary Tuberculosis

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ABSTRACT

Objective: To describe the unusual sites of extra-pulmonary tuberculosis (EPTB) cases in a tertiary care hospital in a high burden tuberculosis country.

Methodology: A cross sectional study of 100 cases was conducted at Gulab Devi Chest Hospital. All cases diagnosed and treated as EPTB (on the basis of histopathology & culture sensitivity) between January 2013 & December 2013 were included. Data was retrieved from medical records on demographics, clinical, laboratory and treatment outcome status.

Results: A total of 100 patients being treated were included in the study. Mean age was 38.8 years. An overall male predominance was observed. Most common unusual presentations of EPTB by number of cases were of multiple abscesses following sinusitis and epididymitis.

Conclusion: In conclusion, cutaneous tuberculosis should be included in the differential diagnosis of patients with cutaneous abscesses. Further, this study is a reminder to clinicians that extrapulmonary manifestations may serve as the initial clues to the diagnosis of M.tuberculosis infection. More population based studies should be considered to develop consensus regarding unusual presentations of EPTB.

Keywords: Mycobacteria, Multiple Abscess, Abdominal T.B, Genitourinary T.B, Prognosis.

INTRODUCTION

Mycobacterium tuberculosis is a multi-systemic infection. While it is considered primarily a pulmonary disease, but it has the potential to affect any organ of the body. A resurgence of cases of M.tuberculosis infection and extrapulmonary involvement has occurred in parallel with the HIV epidemic.^{1,2} In extrapulmonary tuberculosis (EPTB) highly vascular areas such as lymph nodes, meninges, kidney, spine and growing ends of the bones are commonly affected in response to the spread of mycobacteria in these site. The other sites are pleura, pericardium, peritoneum, liver, gastro-intestinal tract, genitor-urinary tract and skin.³ When the World Health Organization (WHO) declared TB a global health emergency in 1992, it was prevalent in almost all countries of the world.⁴ Based on the high incident cases of T.B in 2007 globally, WHO ranked Pakistan eighth in the list of high burden countries.⁵ Addressing the global threat of TB, the Millennium Development Goals (MDGs) include halving the prevalence of TB disease and deaths by 2015.⁶ In Pakistan, WHO estimates that 34,000 (15%) of newly reported cases in 2007 were extra-pulmonary.⁷ The clinical manifestations are often non specific and insidious, and the diagnosis may be delayed. Case finding of EPTB depends on an alert practitioner considering

its possibility in high risk populations.⁸ This study reviews the unusual spectrum of cases diagnosed with EPTB as very limited data is available in this regard.

MATERIALS & METHODS

Design & Setting: It was a cross sectional observational study of 100 cases carried out in Gulab Devi chest hospital, Lahore between January 2013 & December 2013.

Sample selection & Data collection: All EPTB cases of uncommon & unusual sites, directly reported or referred by DOTS centre &/or private clinics were included in the study. Those cases that were having concomitant pulmonary TB or incomplete record were excluded. Data were obtained from medical records, TB 07, Lab reports and radiology reports. Including basic demographic details, clinical findings and diagnostic facilities all the data were recorded in a short structured proforma.

Statistical Analysis: Statistical analyses were done in Statistical Package for Social Sciences (SPSS) version 20.0 and Microsoft Excel 2007. Qualitative data was presented in form of f(%) and graphs while quantitative data was presented in form of frequency distribution.

RESULTS

A total of 100 patients were included in this study. Basic demographic details of our patient are summarized in Table-1. Mean age of our patient was 33.84 years with minimum and maximum age of 2 and 72 years respectively. The overall M:F ratio in our series is 1.4:1 (58 vs. 42). Most common age group affected with EPTB was of 15-45 years.

Table 1: Basic Demographic Distribution

		N = 100	Relative Frequency
GENDER	Males	58	0.58
	Females	42	0.42
AGE GROUPS	< 15 years	14	0.14
	15-45 years	69	0.69
	> 45 years	17	0.17

Table 2: Clinical Findings & Diagnostics

		N = 100	Relative Frequency
CLINICAL FINDINGS	Constitutional Symptoms	99	0.99
	H/O Contact	42	0.42
	H/O ATT	11	0.11
DIAGNOSTIC CRITERIA	Biochemistry	47	0.47
	Histopathology	72	0.72
	Radiology	80	0.80
	Microbiology	58	0.58
	Others	44	0.44

Table-2 shows descriptives of clinical and diagnostic features of our patients. Almost all of our patients were presented with constitutional symptoms like fatigue, lethargy, loss of appetite, weight loss and other specific symptoms. 42 patients had a history of contact with T.B patients and only 11 patients were having a history of ATT. All possible diagnostic modalities including specialized investigations, from other hospitals, were carried out. Patients were diagnosed on the basis of biochemistry (47%), on histopathology (72%), on radiology (80%) and on microbiology (58%). Other specified tests included fundoscopy,

thyroid scan and HIV. None of our patient was found HIV positive.

FIG.01 shows the unusual presentations of EPTB by no. of cases. One case each of T.B of pancreas, orbital bone, brain, inguinal hernia, frontal bone, sublingual ranula, salpingo-oophoritis, penile, parotid, index finger & foot ulcer, arthritis. Two cases each of splenitis, appendicitis, lips, gastritis, forehead, choroid, ovary, mass thigh, skin, neck. Three cases each of laryngitis, cheeks, mastitis, gall bladder, eye, endometrium, intestine, cystitis, prostate and perineum. Four cases each involving mandible, pericarditis, nephritis. Six cases each involving sinuses and epididymis. Seven cases each involving abdomen and multiple abscesses.

DISCUSSION

This was an observational review of 100 EPTB patients over a 12 months period. Our study showed an overall male predominance (58 vs. 42) in a M: F ratio of 1.4:1, a ratio contrary with other studies.^{9,10} The reason for male preponderance is not clearly understood in our study but biological factors are probable. Moreover increase exposure to unhealthy working conditions in males seems to be elucidative. Regarding the frequency of EPTB in different age groups there are differences in various studies.^{11,12} In this study 69% of the cases are in age group 15-45 years and the remaining cases are distributed in other age groups. Such unexplained dynamic distribution of the disease is in accordance with some other studies also.¹³

As described earlier that primarily beginning from the lungs T.B may spread to any unusual site. Clinical manifestations depend upon the site and burden of infection and host response. In our study most common unusual manifestations of EPTB by number of cases were of multiple abscess on skin and abdominal T.B (including transverse and descending colon while excluding lymph nodes, peritoneum) following sinusitis and epididymitis. Cutaneous tuberculosis can arise from direct inoculation from exogenous source, contiguous, or hematogenous spread from an endogenous focus. According to the literature cutaneous tuberculosis accounts for only 0.14% of all cases of tuberculosis.¹⁴ But in our study multiple abscess of skin were one of the most common presentation of EPTB. In a recent series of 820 patients with tuberculosis reported from Saudi Arabia,¹⁵ 16% had abdominal involvement. Abdominal tuberculosis continues to be common in various

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parts of the world.¹⁶⁻¹⁹ These results are comparable to our study. Tuberculosis of the genitourinary tract accounts for about 9% of all cases of EPTB.²⁰ When the genital organs are involved, the epididymis is the most common site in males²¹ as in our study. Epididymal involvement is rare but may be the initial location for disease manifestation. Dissemination is thought to result primarily from infection descending downstream from the kidneys, but hematogenous spread has

also been suggested as a possible pathway of infection to the epididymis.^{22,23,24}

Disagreement in different studies regarding variations in the frequency of EPTB in different anatomic sites is difficult to explain. However, these differences suggest that the dynamics of EPTB epidemiology may be specific to geographic location and population; more population based studies in different geographic regions are needed.

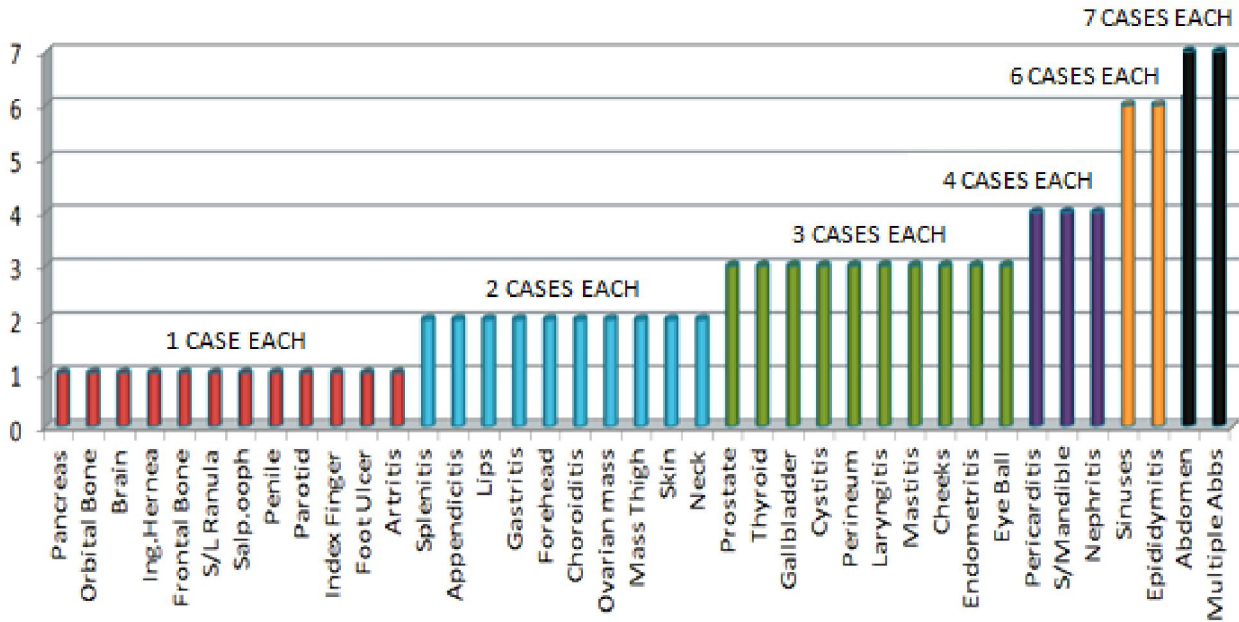


FIG.01- UNUSUAL SITES OF EPTB BY NUMBER OF CASES

CONCLUSION

Although TB is a systemic disease transmitted by droplet spray from the cough of a person with infectious pulmonary TB, it may spread hematogenously to any organ system and may also spread by direct contact in case of cutaneous involvement. EPTB manifestations may serve as the initial clues to the diagnosis and treatment of Mycobacterium tuberculosis so case finding depends on an alert practitioner who is well aware of EPTB usual and unusual sites.

REFERENCES

1. Golden MP. Extrapulmonary Tuberculosis: An Overview. *Am Fam Physician* 2005; 72: 1761-8.
2. Elder NC. Extrapulmonary tuberculosis: a review. *Archives of family medicine.* 1992;1(1):91.
3. Agarwal S, Chauhan L. Tuberculosis control in India: Directorate General of Health Services, Ministry of Health and Family Welfare; 2005.
4. World Health Organization: Highlights of activities from 1989 to1998. *World Health Forum*1988; 9: 441-56.
5. Chandir S, Hussain H, Salahuddin N, Amir M, Ali F, Lotia I, et al. Extrapulmonary tuberculosis: a retrospective review of 194 cases at a tertiary care hospital in Karachi, Pakistan. *JPMA The Journal of the Pakistan Medical Association.* 2010;60(2):105.
6. UNDP.org [homepage on the Internet]. Millennium Development Goals. New York: United Nations Development Program; c2006 [Online] 2009 [Cited 2009 Jan 18]. Available from URL: <http://www.undp.org/mdg/>.
7. Eastern Mediterranean Regional Office (World Health Organization) [homepage on

- the Internet]. Cairo: STOP TB: TB situation in region - Country Profile Pakistan; [Online] 2008 [Cited 2009 Jan 18]. Available from URL: <http://www.emro.who.int/STB/TBSituation-CountryProfile.htm>.
8. Weir MR, Thornton GF. Experience of a Extrapulmonary tuberculosis: community hospital and review of the literature. *Am J Med.* 1985;79:467–478.
 9. Sreeramareddy CT, Panduru KV, Verma SC, Joshi HS, Bates MN. Comparison of pulmonary and extrapulmonary tuberculosis in Nepal- a hospital-based retrospective study. *BMC Infect Dis* 2008; 8:8.
 10. Lowieke A.M. te Beek, Marieke J. van der Werf, Clemens Richter, and Martien W. Borgdorff Extrapulmonary Tuberculosis by Nationality, the Netherlands. *Emerging Infectious Diseases.* [Online] 2009. Cited April 10, 2009. Available from URL: www.cdc.gov/eid.
 11. Harries AD, Parry C, Nyongonya Mbewe L, Graham SM, Daley HM, Maher D, *et al.* The pattern of tuberculosis in Queen Elizabeth Central Hospital, Blantyre, Malawi: 1986–1995. *Int J Tuberc Lung Dis.* 1997;1(4):346–51.
 12. Forssbohm M, Zwahlen M, Loddenkemper R, Rieder HL. Demographic characteristics of patients with extrapulmonary tuberculosis in Germany. *Eur Respir J.* 2008;31:99–105.
 13. Ullah S, Shah SH, Rehman A, Kamal A, Begum N, Khan G. Extrapulmonary tuberculosis in Lady Reading Hospital Peshawar, NWFP, Pakistan: survey of biopsy results. *J Ayub Med Coll Abbottabad.* 2008;20(2):43-6.
 14. High, WA, Evans CC, Hoang MP. Cutaneous miliary tuberculosis in two patients with HIV infection. *J A M A CAD Dermatol* 2004; 50: 1-5.
 15. Al-Karawi MA, Mohamed AE, Yasawy MI, *et al.* Protean manifestations of gastrointestinal tuberculosis. *J Clin Gastroenterol* 1995;20:225-32.
 16. Fica A, Belletti J, Cruzat C, Rojas D, Montalva M. Intestinal tuberculosis: analysis of clinical cases and autopsy. *Rev Med Chile* 1991;119:1153-9.
 17. Bhansali SK. Abdominal tuberculosis. Experiences with 300 cases. *Am J Gastroenterol* 1977;67:324-37.
 18. Prakash A. Ulcero-constrictive tuberculosis of the bowel. *Int Surg* 1978;63:23-9.
 19. Vij JC, Malhotra V, Choudhary V, *et al.* A clinicopathological study of abdominal tuberculosis. *Indian J Tubercul* 1992;39:213-20.
 20. US Dept of Health and Human Services. 1989 Tuberculosis Statistics in the United States. Ga: US Dept of Health and Human Public Health *gust Service*, 1991. DHHS Centers for Disease publication 1991; Atlanta, Services, Control; CDC 91-8322
 21. Alvarez S, McCabe WR. Extrapulmonary tuberculosis revisited: a review of experience at Boston City and other hospitals, *Medicine.* 1984;63:25-55
 22. Porter MP, Eubank WB, and Krieger JN: Genitourinary tuberculosis: a focused update for the practicing urologist. *Contemp Urol* 2001;13: 34–48.
 23. Petersen L, Mommsen S, and Pallisgaard G: Male genitourinary tuberculosis: report of 12 cases and review of the literature. *Scand J Urol Nephrol* 27: 425–428, 1993.
 24. Chung J, Kim M, Lee T, *et al*: Sonographic findings in tuberculosis epididymitis and epididymo-orchitis. *J Clin Ultrasound* 1997; 25:390–4.