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Case Report

"A Case Report of Multiorgan Tuberculosis"

Dr. R. Monika[1], Dr. Syedha Fariheen Fathima[2*], Dr. Kalaichezhian[3], Dr. Prabakaran[4]

[1]Post Graduate Resident, Department of Radio-diagnosis Sree Balaji Medical College and Hospital Works Road, Chromepet Chennai, Tamilnadu, India
[2]Post Graduate Resident, Department of Radio-diagnosis Sree Balaji Medical College and Hospital Works Road, Chromepet Chennai, Tamilnadu, India
[3]Consultant, Department of Radio-diagnosis Sree Balaji Medical College and Hospital 7 Works Road, Chromepet Chennai, Tamilnadu India
[4]Head of Department, Department of Radio-diagnosis Sree Balaji Medical College and Hospital Works Road, Chromepet Chennai, Tamilnadu, India

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Abstract: Tuberculosis is a widespread chronic infectious disease caused by Mycobacterium tuberculosis. Tuberculosis is an uncommon infectious disease because of the latent period between the infection and the appearance of the disease may be prolonged for many weeks, months, or years as it is in case of the secondary tuberculosis [1]. Extrapulmonary tuberculosis represents approximately 15% of all TB infections [2]. Radiologists must be aware of the imaging findings of extrapulmonary TB to identify the condition even in the absence of active pulmonary infection. Here we present a known case of pulmonary tuberculosis on ATT who later complains of abdominal pain and is found to have multiorgan manifestations due to the sequelae of the same.

Keywords: Tuberculosis, Extrapulmonary, Mycobacterium, Multiorgan, Imaging, Disseminated.

INTRODUCTION

Tuberculosis (TB) is a serious disease with a growing prevalence in the world in recent years. Adults are usually infected due to poor immunity or as a secondary infection due to either pulmonary or extrapulmonary tuberculosis lesions in the affected vessels. This leads to hematogenous disseminated tuberculosis which is a severe and an acute type of tuberculosis [3]. Hematogenous disseminated pulmonary tuberculosis is usually accompanied with multiple organ tuberculosis [4]. Women, Black people and immunosuppressed individuals are more susceptible to Extrapulmonary TB [5]. This is due to the travel of Mycobacterium tuberculosis to the extrapulmonary organs, such as the liver, spleen and kidneys [5].

A 26 year old female; known case of pulmonary tuberculosis on Antitubercular treatment presented with complaints of diffuse abdominal pain and discomfort.

METHODS

On physical examination she was found to be thin with mild abdominal distention. She was diagnosed with tuberculosis with the help of chest radiograph 5 months ago, hence was started on ATT. She now presented with complaints of abdominal pain for which computed tomogram of chest and abdomen were done after administration of intravenous contrast. It showed patchy areas of collapse consolidation with air bronchogram in right upper, anterior segment of right lower and apicoposterior segments of left upper lobe. Trachea and mediastinum were noted to be shifted to left side. Multiple enlarged heterogeneously enhancing necrosed nodes were observed in right pre/para tracheal, hilar, subcarinal and aortopulmonary window regions. Centrilobular nodules in random distribution were also noted in right lung and left upper lobe. Linear atelectasis in right upper, lateral segment of right middle and posterior basal segments of bilateral lower lobe. Bilateral minimal pleural effusion was present *(Figure 1).*

***Corresponding Author:** Dr. Syedha Fariheen Fathima

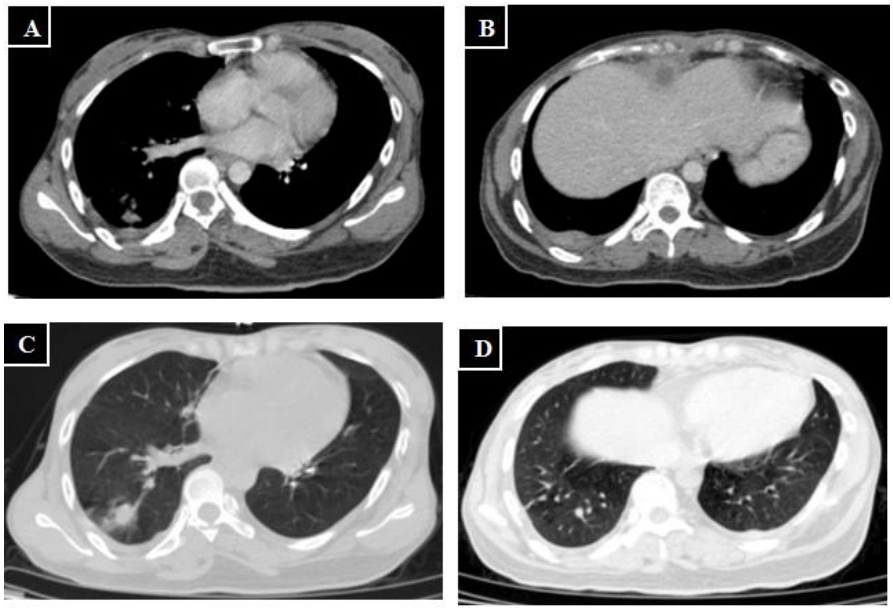

Fig-1: Linear atelectasis in the right lung; bilateral minimal pleural effusion and a small empyema in posterior basal segment of right lower lobe

A small empyema was noted in posterior basal segment of right lower lobe. A large thick walled multiloculated dense fluid collection measuring about 12.5 x 6.5 cm was noted in the anterior abdominal wall involving the intramuscular plane and seen extending into the abdominal cavity, causing significant mass effect over the segment IV and left lobe of liver*(Figure 2A).* Liver and spleen were found to be enlarged in size and measured ~ 16 cm and 14 cm respectively. Periportal and superior mesenteric group of lymph nodes were found to be enlarged. Spleen also showed multiple small hypodense lesions, largest measuring ~ 20 x 13 mm with few of the lesions demonstrating calcifications within *(Figure 2B).* Both the ovaries could not be separately visualised. Large dense multi loculated hypodense lesions were noted in left and right adnexa measuring ~ 7.9 x 4.7 cm and ~ 4.8 x 4.1 cm respectively. Similar hypodense lesions were also noted in POD- features suggestive of tubo-ovarian abscess *(Figure 3).* All the above mentioned features are the sequelae of tuberculosis.

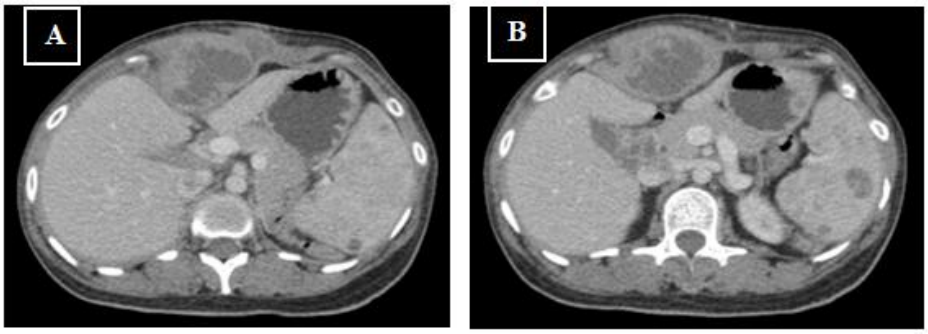

Fig-2: (A) Dense fluid collection in the anterior abdominal wall involving the intramuscular plane and seen extending into the abdominal cavity , causing significant mass effect over the segment IV and left lobe of liver; (B)Multiple small hypodense lesions within the spleen

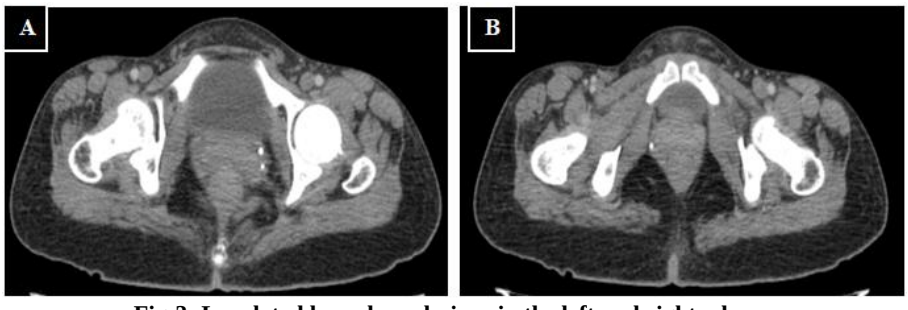

Fig-3: Loculated hypodense lesions in the left and right adnexa

DISCUSSION

The increase in tuberculosis is not only witnessed in Africa and Asia but also in European countries. Therefore, tuberculosis remains an important cause in morbidity and mortality worldwide [6, 7]. The diagnosis of non-pulmonary TB poses a particular challenge for clinicians because of the erratic ways in which the disease presents [8]. It is due to the result of Mycobacterium tuberculosis travelling to extrapulmonary organs, such as the liver, spleen and kidneys [9]. Even though it is known that the bacteria spread from the pulmonary system to the lymphatic system and ultimately the blood stream, the mechanism by which this occurs is not well identified [10].

One suggested pathophysiology is that tuberculous infection in the lungs results in erosion of the epithelial layer of alveolar cells and then circulate into a pulmonary vein [10, 11]. Once the bacteria get to the left side of the heart and enter the systemic circulation, they may proliferate and eventually infect extrapulmonary organs [11].

Radiological investigations play a crucial role in the early diagnosis of extrapulmonary tuberculosis. Imaging modalities of choice are computed tomography and magnetic resonance imaging.

Extrapulmonary tuberculosis occurred in organs other than lung, such as lymphatic, urogenital, central nervous system, abdominal, musculoskeletal, as well as tuberculosis of other organs such as skin, pericardium and endocrine glands.

Tuberculous effusions can follow postprimary, chronic pulmonary or even miliary tuberculosis. Pleural tuberculosis often is an acute illness with cough, dyspnea, pleuritic chest pain or fever. Computed tomography of the chest may show lymphadenopathy, pulmonary infiltrates, or cavitation which was not obvious on chest radiography. Pleural thickening of more than 1 cm is most commonly seen [12]. Hepatosplenic tuberculosis may present as military or macronodular involvement. The lesions are hypoattenuating on CT and may show peripheral post contrast enhancement. Tuberculous peritonitis results from reactivation of latent foci in the peritoneum. Patients may present with insidious onset of ascites, abdominal pain or only fever. In more than 95 percent of patients, laparoscopy or mini-laparotomy guided peritoneal biopsy can be diagnostic and hence should be strongly considered [13]. Genital tuberculosis in females begins in the endosalpinx and can spread to the ovaries, cervix, vagina, endometrium and peritoneum [14]. Patients may present with complaints of pelvic pain, infertility, and vaginal bleeding. Ultrasound through transabdominal and transvaginal routes is very helpful in making the diagnosis, as well as assessing the extent. Response to chemotherapy is excellent for all forms of genital tuberculosis; surgery in women is necessary for large tubo-ovarian abscesses [15].

The exclusion of tuberculosis from the differential diagnosis of patients with vague manifestations and the relatively insensitive bacteriological methods for detecting Mycobacterium tuberculosis elevate the complexity of the problem. Hence high index of suspicion is required in order to avoid delays in diagnosis which may influence treatment outcome.

CONCLUSION

Tuberculosis can involve any organ system of the body and there is a broad range of imaging features. Whereas diagnosis continues to require a high index of clinical suspicion, imaging has very important role to play in both the diagnosis and management of tuberculosis. This case indicated the importance of obtaining contrast enhanced CT routinely on patients with suspected hematogenous disseminated pulmonary tuberculosis, in order to identify whether patient is having multiple organ tuberculosis, which has significant importance for adequate treatment. Hence radiological investigations still continue to play a very important role in the evaluation of various manifestations, sites of involvement in tuberculosis, especially extrapulmonary tb, bearing in mind that it can imitate a number of other disease entities.

REFERENCES

1. Đokić, M., Bojić, I., Mikić, D., Mladenović, L., Begović, V., Kuprešanin, S., & Dimitrijević, J. (2002). Multiorgan tuberculosis. *Vojnosanitetski pregled*, *59*(3), 317-324.
2. Rodriguez-Takeuchi, S. Y., Renjifo, M. E., & Medina, F. J. (2019). Extrapulmonary tuberculosis: pathophysiology and imaging findings. *RadioGraphics*, *39*(7), 2023-2037.
3. Shuai, X., & Liu, T. (2012). Pulmonary lymphoma with hematogenous disseminated pulmonary tuberculosis: a case report. *Chinese Journal of Hematology*, *33*(10), 860-860.
4. Martineau, A. R., Jolliffe, D. A., & Demaret, J. (2018). Vitamin D and tuberculosis. In *Vitamin D* (pp. 915-935). Academic Press.
5. Mazza-Stalder, J., Nicod, L., & Janssens, J. P. (2012). Extrapulmonary tuberculosis. *Revue des maladies respiratoires*, *29*(4), 566-578.
6. Alrajhi, A. A., & Al-Barrak, A. M. (2002). Extrapulmonary tuberculosis, epidemiology and patterns in Saudi Arabia. *Saudi Med J*, *23*(5), 503-508.
7. Zumla, A. (2010). The white plague returns to London--with a vengeance. *Lancet (London, England)*, *377*(9759), 10-11.
8. Carrol, E. D., Clark, J. E., & Cant, A. J. (2001). Non-pulmonary tuberculosis. *Paediatric Respiratory Reviews*, *2*(2), 113-119.

9. Sharma, S. K., Mohan, A., Sharma, A., & Mitra, D. K. (2005). Miliary tuberculosis: new insights into an old disease. *The Lancet infectious diseases*, *5*(7), 415-430.
10. Krishnan, N., Robertson, B. D., & Thwaites, G. (2010). The mechanisms and consequences of the extra-pulmonary dissemination of Mycobacterium tuberculosis. *Tuberculosis*, *90*(6), 361-366.
11. Kumar, V., Abbas, A. K., Fausto, N., & Aster, J. C. (2014). *Robbins and Cotran pathologic basis of disease, professional edition e-book*. Elsevier health sciences.
12. Yilmaz, M. U., Kumcuoglu, Z., Utkaner, G., Yalniz, Ö., & Erkmen, G. (1998). Computed tomography findings of tuberculous pleurisy. *The International Journal of Tuberculosis and Lung Disease*, *2*(2), 164-167.
13. Marshall, J. B. (1990). Tuberculosis of the gastrointestinal tract and peritoneum. *Am J Gastroenterol*, *85*, 1123-1125?
14. Simon, H. B., Weinstein, A. J., Pasternak, M. S., Swartz, M. N., & Kunz, L. J. (1977). Genitourinary tuberculosis: clinical features in a general hospital population. *The American journal of medicine*, *63*(3), 410-420.
15. American Thoracic Society. (2003). CDC; Infectious Diseases Society of America: Treatment of tuberculosis. *MMWR*, *52*(11), 1-77.

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