Characteristics of Extra Pulmonary TB Cases in the Specialized Center for Chest and Respiratory Disease

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ABSTRACT:

BACKGROUND:

Tuberculosis (TB) is a serious global problem. It remains the number one killer infectious disease in developing countries. The clinical manifestations of TB could be either Pulmonary or Extra pulmonary (EPTB).

Extrapulmonary tuberculosis involves relatively inaccessible sites, and often, because of the vulnerability of the areas involved, much greater damage can be caused by fewer bacilli..In 2007 in the United States, 20% of newly reported cases of tuberculosis involved extrapulmonary sites only In order of frequency, the extrapulmonary sites most commonly involved in TB are the lymph nodes, pleura, genitourinary tract, bones and joints, meninges, peritoneum, and pericardium. However, virtually all organ systems may be affected.

OBJECTIVE:

This study was done to identify the Characteristics of extra pulmonary TB cases.

METHODS *:*

A cross sectional study was done in the specialized center for chest and respiratory disease in Baghdad and respiratory department in the early cancer detection center during the period 9th of January 2011 – 9th of June 2011.

Any patient attending the specialized center for chest and respiratory disease in Baghdad during the study period diagnosed as a new case of extrapulmonary TB was enrolled in this study, also Any patient attending respiratory department in the early cancer detection center during the study period diagnosed as a new case of extrapulmonary TB was enrolled in this study.

A total number of 70 TB patients were enrolled in this study. 35 male TB cases and 35 female TB cases

RESULTS:

In the male group 20 cases (57%) with pleural TB, 2 cases (5.7%) with uveitis-eye TB, 2 cases (5.7%) with pericarditis TB , 2 cases (5.7%) with orchitis TB , 2 cases (5.7%) with meningitis TB , 2 cases (5.7%) with miliray TB , 2 cases (5.7%) with skin TB , 2 cases (5.7%) with LN TB , and 1 case (2.85%) had osteoarticular TB.

In the female group 17 cases (48.5%) had pleural TB , 7 cases (20%) with LN TB , 4 cases (11.4%) with osteoarticular TB , 4 cases (11.4%) had peritonitis TB , 1 case (2.85%) had thyroid TB , 1 case (2.85%) had salpingitis TB , and 1 case (2.85%) with breast TB.

CONCLUSION:

Pleural TB cases consist of more than half the extrapulmonary TB cases , and LN , osteoarticular and peritoneal TB cases consist of about quarter of the extrapulmonary TB cases , while all other cases form the remnant quarter.

KEY WORDS: extrapulmonary,tuberculosis

INTRODUCTION:

Tuberculosis (TB) is a serious global problem. The World Health Organization (WHO) 2010 report on global control of TB stated that there were 9.4million new cases in 2009; of these, 1.7 million people died from TB (4700 deaths a day)[1] .Tuberculosis remains the number one killer infectious disease in developing countries. The clinical manifestations of TB could be either Pulmonary or Extra pulmonary (EPTB), the former being the commonest [2].

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Extrapulmonary tuberculosis presents more of a diagnostic and therapeutic problem than does pulmonary tuberculosis. In part this relates to its being less common and therefore less familiar to most clinicians[3]and Microscopy with the auramine or Ziehl-Neelsen (ZN) stain is frequently negative in cases of extrapulmonary tuberculosis [4].

In addition, extrapulmonary tuberculosis involves relatively inaccessible sites, and often, because of the vulnerability of the areas involved, much greater damage can be caused by fewer bacilli. The combination of small numbers of bacilli in inaccessible sites causes bacteriologic confirmation of a diagnosis to be more difficult, and invasive procedures are frequently necessary to establish a diagnosis. In addition to the need for invasive diagnostic procedures, surgery may be an important component of management. In 2007 in the United States, 20% of newly reported cases of tuberculosis involved extrapulmonary sites only In order of frequency, the extrapulmonary sites most commonly involved in TB are the lymph nodes, pleura, genitourinary tract, bones and joints, meninges, peritoneum, and pericardium. However, virtually all organ systems may be affected. [5]

Lymph Node TB (Tuberculous Lymphadenitis)

The most common presentation of extrapulmonary TB in both HIV-seronegative and HIV-infected . Lymph node TB presents as painless swelling of the lymph nodes, most commonly at posterior cervical and supraclavicular sites (a condition historically referred to as scrofula). Lymph nodes are usually discrete in early disease but develop into a matted non tender mass over time and may result in a fistulous tract draining caseous material. Associated pulmonary disease is present in <50% of cases, and systemic symptoms are uncommon except in HIV-infected patients. The diagnosis is established by fine-needle aspiration biopsy (with a yield of up to 80%) or surgical excision biopsy. Bacteriologic confirmation is achieved in the vast majority of cases, granulomatous lesions with or without visible AFBs are typically seen, and cultures are positive in 70–80% of cases. [6]

Disseminated Tuberculosis

Miliary tuberculosis, although it nearly always involves the lungs, is considered among the extrapulmonary forms of the disease because of the multiplicity of organs affected. In the past, military tuberculosis occurred mainly in young children, as an early consequence of initial infection and bacillemia; currently, however, except among HIV-infected persons, it is more common among older persons, as a result of endogenous reactivation and bloodstream invasion[7,8].

Because of the multisystem involvement in disseminated tuberculosis ,the clinical manifestations are protean. Initial screening laboratory studies are not particularly helpful either. The chest film, however, is abnormal in most but not all patients with disseminated tuberculosis .Autopsy series have shown the liver, lungs, bone marrow, kidneys, adrenal glands, and spleen to be the organs most frequently involved in military tuberculosis, but any organ can be the site of disease [9] .

Pleural Tuberculosis

Although the pleural space is within the thorax, it is considered an extrapulmonary site of tuberculosis. Tuberculous pleuritis accounts for 17% of the extrapulmonary cases in the United States [5]. The diagnosis of pleural tuberculosis is generally established by analysis of pleural fluid and pleural biopsy. [11] .

Adenosine deaminase has been shown to have high sensitivity, except in HIV-infected patients, but variable specificity, for diagnosing tuberculous pleural effusion(12). Interferon-γ has been reported to have both high sensitivity (0.99) and high specificity (0.98) and to be equally reliable in HIV-infected and -uninfected patients[13,14]. Because few organisms are present in the pleural space, acid-fast smears of pleural fluid are rarely positive, and M. tuberculosisis isolated by culture in only 20% to 40% of patients with proven tuberculous pleuritis[15].

Treatment of the hypersensitivity variety of tuberculous pleural effusion consists of standard antituberculosis drug regimens The use of corticosteroids may increase the rate of resolution and decrease the residual fluid, but such treatment is rarely indicated[16].Tuberculous empyema is usually associated with evident pulmonary parenchymal disease on chest films.

In addition to standard antituberculosis chemotherapy, surgical drainage with an ordinary thoracostomy tube is often necessary and may be required for a prolonged period of time[17].

Genitourinary TB

Genitourinary TB, which accounts for10–15% of all extrapulmonary cases may involve any portion of the genitourinary tract. [18]. The pathogenesis appears to be one of seeding of the kidney at the time of the initial infection and bacillemia[19]. In patients with genitourinary tuberculosis, local symptoms predominate and systemic symptoms are less common and up to 75% of patients have chest radiographic abnormalities suggesting previous or concomitant pulmonary disease[20].

Skeletal Tuberculosis

Skeletal tuberculosis most often involves the spine, followed by tuberculous arthritis in weight-bearing joints and extra spinaltuberculous osteomyelitis. Spinal tuberculosis (Pott's disease) most commonly involves the thoracic spine. Paraspinal and psoas abscesses can develop, with extensions to the surface or adjacent tissues .Patients present with local pain, constitutional symptoms, or paraplegia secondary to cord compression. Systemic symptoms usually are absent[21].

Chest radiography shows pulmonary disease in one half of patients with osteoarticular tuberculosis, but active pulmonary disease is uncommon. Arthrocentesis with mycobacterial cultures of synovial fluid yields positive results in up to 80 percent of patients with tuberculous arthritis. Synovial biopsy also may be diagnostic (caseating granulomas on histology or positive mycobacterial culture). Bone biopsy for culture and histology is required for diagnosis of tuberculous osteomyelitis[22].In the absence of neurologic impairment, unstable spine, or spinal cord compression, medical therapy alone should result in an excellent response[23].

Central Nervous System Tuberculosis

Central nervous system tuberculosis includes tuberculous meningitis (the most common presentation), intracranial tuberculomas, and spinal tuberculous arachnoiditis. Meningitis results from intense inflammation following rupture of a subependymal tubercle into the subarachnoid space .An initial phase of malaise, headache, fever, or personality change is

followed in two to three weeks by protracted headache, meningismus, vomiting, confusion, and focal neurologic findings. If untreated, mental status deteriorates into stupor or coma . AFB smears on CSF are positive in 10 to 90 percent of patients. CSF culture for M. tuberculosis is positive in 45 to 90 percent of cases but takes four to six weeks. CSF PCR for M. tuberculosis has a sensitivity of 56 percent and a specificity of 98 percent, and therefore should not be used to exclude tuberculous meningitis[24,25].

GASTROINTESTINAL TUBERCULOSIS

Tuberculous enteritis can result from swallowing of infected sputum, ingestion of contaminated food, hematogenous spread, and direct extension from adjacent organs. The intestinal lesions can be ulcerative (most common), hypertrophic, or ulcero-hypertrophic. Symptoms include abdominal pain, diarrhea, weight loss, and fever. Melena, rectal bleeding, and abdominal tenderness also can be present. A mass in the right lower quadrant is palpable in 25 to 50 percent of patients. Theileocecal area and jejunoileum are the most common sites of involvement. [26].

TUBERCULOUS PERITONITIS

The risk of tuberculous peritonitis is greater in patients with HIV infection or cirrhosis and in those undergoing continuous ambulatory peritoneal dialysis. Tuberculous peritonitis results from reactivation of latent foci in the peritoneum. Patients present with the insidious onset of ascites, abdominal pain, and fever. Peritoneal fluid is exudative, with a serumascites albumin gradient of less than 1.1 g per dL (11 g per L). Peritoneal biopsy guided by laparoscopy or mini-laparotomy can be diagnostic in more than 95 percent of patients and should be strongly considered[27].

TUBERCULOUS PERICARDITIS

Tuberculous pericarditis develops secondary to contiguous spread from mediastinal nodes, lungs, spine, or sternum, or during miliary dissemination. The onset may be abrupt or insidious with symptoms such as chest pain, dyspnea, and ankle edema. Cardiomegaly, tachycardia, fever, pericardial rub, pulsus paradoxus, or distended neck veins may be found on examination. Pericardial biopsy yields a definitive diagnosis more often than pericardial fluid alone[28].

Aim of the study:

To identify the Characteristics of extra pulmonary TB cases

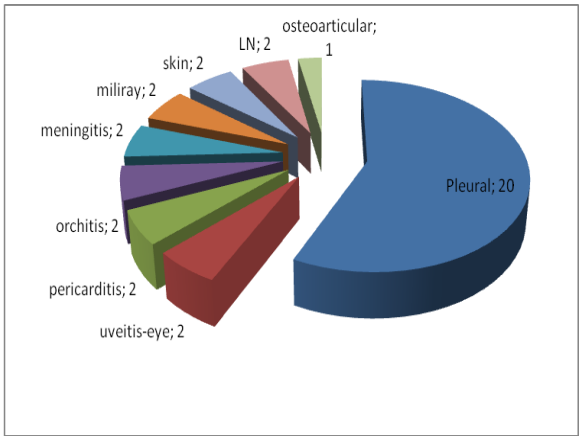
PATIENTS AND METHODS:

A cross sectional study was done in the specialized center for chest and respiratory disease in Baghdad and respiratory department

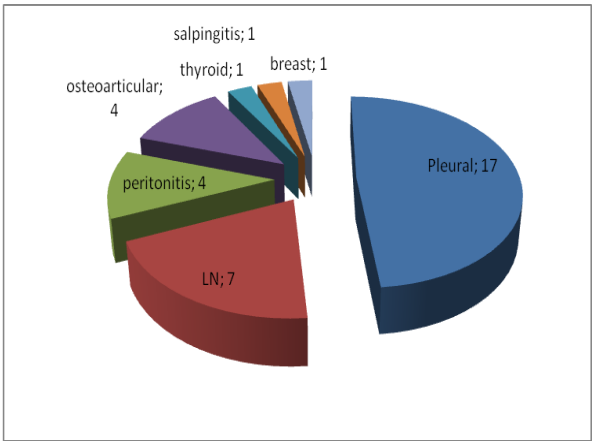
in the early cancer detection center during the period 9th of January 2011 – 9th of June 2011.
Any patient attending the specialized center for chest and respiratory disease in Baghdad during the study period diagnosed as a new case of extrapulmonary TB was enrolled in this study, also Any patient attending respiratory department in the early cancer detection center during the study period diagnosed as a new case of extrapulmonary TB was enrolled in this study
A total number of 70 TB patients were enrolled in this study. 35 male TB cases and 35 female TB cases
A full medical history and physical examination was done for each patient with chest radiological exam .
(all cases were confirmed as a case of extrapulmonary TB by either or identification of acid-fast bacilli by microscopy in specimens from these sites or by culture , and If tissue biopsy material is obtained, diagnosis of TB may be suggested by histopathologic demonstration of granulomatous lesions then by follow up the patient to detect improvement in his condition on antituberculosis medications , only in cases of military TB , the diagnosis was depended on radiological exam and response to
antituberculosis treatment and in cases of eye involvement the diagnosis was depended on tuberculin skin test with ophthalmologist
decision and also response to antituberculosis treatment) .
Any cases presented as both pulmonary and extrapulmonary TB , did not enrolled in the study .

RESULT:

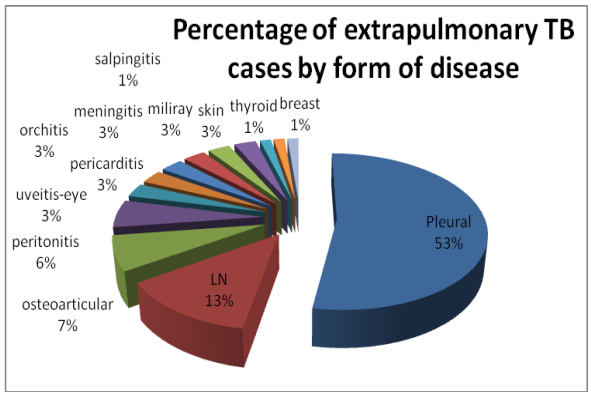
Seventy patients enrolled in this study, 35 male TB cases and 35 female TB cases. Age range in male group was (2 -65), while in female group was (7-73), and in all cases was (2 – 73).
Age median for male group was 33.08 while for female group was 40.51, and in all cases was 36.80.
In the male group we had 20(57%) cases pleural TB, 2(5.7%) cases uveitis-eye TB, 2(5.7%) cases pericarditis TB , 2(5.7%) cases orchitis TB , 2(5.7%) cases meningitis TB , 2(5.7%) cases miliray TB , 2(5.7%) cases skin TB , 2(5.7%) cases LN TB , and 1(2.85%) case osteoarticular TB
In the female group we had 17(48.5%) cases pleural TB , 7(20%) cases LN TB , 4(11.4%) cases osteoarticular TB , 4(11.4%) cases peritonitis TB , 1(2.85%) cases thyroid TB , 1(2.85%) case salpingitis TB , and 1(2.85%) case breast TB.Overall pleural TB cases was more than half the extrapulmonary TB cases , and LN , osteoarticular and peritoneal TB cases consist of about quarter of the extrapulmonary TB cases , while all other cases form the remnant quarter.



Type of Extrapulmonary TB cases in male



Type of Extrapulmonary TB cases in female



DISCUSSION:

The clinical manifestations of TB could be either Pulmonary or Extra pulmonary (EPTB), this study try to identify the Characteristics of extra pulmonary TB cases In this study the commonest extrapulmonary TB in male group was pleural TB(57%) while in the female group the commonest extrapulmonary TB was pleural(48.5) and lymph nodes TB(20%) . Our observation of the differential distribution of a given type of EPTB between male and female may suggest the possibility that gender differentials in EPTB exist in our patients.

In a Turkish study meningeal and bone and/or joint TB were more commonly observed among the male patients than among the female patients. In contrast, lymphatic, genitourinary, and peritoneal TB cases were predominant among females. Furthermore, the distribution of different forms of EPTB has varied among studies conducted in different populations, including different regions of Turkey. Genitourinary and meningeal TB was commonly seen EPTB types including 27.2% and 19.4% of the EPTB cases, respectively. In contrast, in several earlier studies conducted in other regions of Turkey, the most frequently seen forms of EPTB were pleural TB , lymphatic TB , and central nerves system TB , respectively (29).

Another study that was done by Ilgazli A(30) had been showed The most common form of EPTB was observed to be lymph node tuberculosis (56.3%); The second most frequent extrapulmonary form was pleural tuberculosis (31.1%).The possible reasons for the reported variations in the distribution of different forms of EPTB across different studies ,may be explained by Methodological differences, such as the difference in the inclusion criteria that can show such difference .Overall in our study pleural TB cases was more than half the extrapulmonary TB cases , and LN , osteoarticular and peritoneal TB cases consist of about quarter of the extrapulmonary TB cases , while all other cases form the remnant quarter.

While In 2007 in the United States, 20% of newly reported cases of tuberculosis involved extrapulmonary sites only in order of frequency, the extrapulmonary sites most commonly involved in TB are the lymph nodes, pleura, genitourinary tract, bones and joints, meninges, peritoneum, and pericardium. (5)A study involving a larger number of patients and for longer duration may give results of significant value and find observations similar to the other studies.

CONCLUSION:

Pleural TB cases represent more than half the extrapulmonary TB cases , while LN , osteoarticular and peritoneal TB cases form about quarter of the extrapulmonary TB cases , and all other cases form the remnant quarter.

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