

Research Article

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Frequency and Diagnostic Criteria of Tuberculous Ascites in Port Sudan

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ABSTRACT

Background: Tuberculosis is an infectious caseating granulomatous disease that cause by mycobacterium mainly mycobacterium tuberculosis and mycobacterium bovis, it is a systemic disease that effect any body organ, but mainly affect the lung. EHO classified tuberculosis into pulmonary tuberculosis and extrapulmonary tuberculosis, the latter represent about 25% of tuberculosis cases, but in Port Sudan- eastern Sudan the area of this study extrapulmonary tuberculosis represent more than 50% of detected tuberculous cases. Abdominal tuberculosis is the second type of extrapulmonary tuberculosis in this area and ascites is the commonest presentation of abdominal tuberculosis, despite wide spread still tuberculous ascites in this area diagnosed on clinical suspension and no solid subjective diagnostic tool used in this area because of constrained facilities. In presence of many differential diagnosis and causes of ascites in this area which are facing same diagnostic problems; studies are needed to avoid both delayed or over diagnosis. The aims of this study are to study the features of tuberculous ascites in Port Sudan- eastern Sudan and to elicit specific diagnostic criteria to avoid delayed or over diagnosis.

Objectives: The aims of this study are to study the clinical, radiological and laboratory features of tuberculous ascites in Port Sudan- eastern Sudan and to elicit specific diagnostic criteria to avoid delayed or over diagnosis. Which is done in TB referred clinic in Port Sudan chest hospital in period from January 2023 to June 2023 in which 32 tuberculous ascites patients are enrolled.

Methodology: This is prospective cross section hospital base study.

Result: From 224 patients presented to Tb referred clinic in Port Sudan chest hospital during study period 32 patients (14.3%) was diagnosed as tuberculous ascites. M: F was 3:1. All cases are mild to moderate exudative ascites with normal or slightly elevated liver enzyme and hypoalbuminemia, with no significant variation between immunosuppressive and immunocompetent patients.

Conclusion: Tuberculous ascites a serious presentation of tuberculosis specially if it associated with hypoalbuminemia and it is the commonest presentation of abdominal tuberculosis in Port Sudan – eastern Sudan, and it is the commonest cause of ascites in this area. It is usually occurring as primary tuberculous lesion presented as mild to moderate exudative ascites.

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Introduction

Tuberculosis is a systemic necrotizing granulomatous infectious disease that caused by mycobacterium, mainly mycobacterium tuberculosis. In Port Sudan; eastern Sudan tuberculosis is the commonest infectious cause of death while it is the second infectious cause of death worldwide [1-2]. Over 8 million cases of tuberculosis may occur every year worldwide [3].

In Port Sudan- eastern Sudan Extrapulmonary tuberculosis represents more than 50% of TB cases while globally just 25 % of TB cases are extrapulmonary which is need more studies and investigation to reach and manage the causes and to identify the risk factors for this condition although over diagnosis more likely

as most cases of extrapulmonary TB in this area are diagnosed clinically because of constrained diagnostic facilities [4].

Abdominal tuberculosis is the second type of extrapulmonary tuberculosis in this area after tuberculous lymphadenopathy [4]. Abdominal tuberculosis like other types of extrapulmonary tuberculosis can be caused through blood spread that usually following reactivation of foci from primary focus, or it may occur through contiguous spread from mesenteric lymph node and rare it occurs as primary from ingestion of contaminated food, mainly milk [2].

Abdominal tuberculosis has different presentation such as mesenteric and par aortic lymphadenopathy, intestinal obstruction, psoas abscess and peritonitis, the latter may be dry or ascites which is the commonest presentation of abdominal tuberculosis

in Port Sudan [5]. Peritoneal tuberculosis usually starts as dry peritonitis then wet peritonitis presented as ascites. There are different mechanisms of ascites such as sodium and water retention that occur due to vasodilation and nitric oxide which is occurs in TB infection, or due to hypoalbuminemia which also occurs in tuberculosis secondary to anorexia and malabsorption, or it may occur due to portal hypertension which is unlikely in tuberculosis [6].

Symptoms of tuberculous ascites are varying, it may present with constitutional symptoms as fever, malaise and anorexia, or presented just with abdominal pain if it is small amount or abdominal distention and abdominal pain when it is moderate to massive, and rarely diarrhea may occur [3].

There are many causes of ascites that mimic tuberculous ascites in its presentation that make difficulty in diagnosis of tuberculous ascites and it became a real problem in areas of constrained facilities as in Port Sudan.

Tuberculous ascites is an exudative ascites that showed SAAG> 11g/dl and ADA > 33 u/l, with hypoalbuminemia and normal or slightly elevated liver enzyme with ultrasonoc feature that shows septation. Peritoneal biopsy been the definite confirmative diagnostic procedure but it is an invasive procedure that may be unaffordable in poor areas as in Port Sudan, eastern Sudan; therefore, this study done to identify affordable diagnostic criteria of tuberculous ascites.

Objectives

General Objective

The aims of this study are to study the features of tuberculous ascites in Port Sudan- eastern Sudan and to elicit specific diagnostic criteria to avoid delayed or over diagnosis.

Specific Objectives

- 1. Clarify the risk factors of tuberculous ascites.
- 2. Identify the symptomatic presentation of tuberculous ascites.
- 3. Elicit the main laboratory findings in tuberculous ascites.
- 4. Know the ultrasonological manifestation of tuberculous ascites.
- 5. Stablish local applicable and affordable diagnostic criteria for tuberculous ascites.

Methodology

Study Design

This is prospective cross section hospital base study.

Study Area

This study done in Port Sudan chest hospital which is the only chest hospital in Port Sudan the capital of red sea state- eastern Sudan, in which the only TB referred clinic stablished.

Study Duration

This study done in period from January 2023 to June 2023, the period that cover the first and second quarter in TB control Program.

Study Population

All patient of 18 years old and above who presented to TB referred clinic in Port Sudan chest hospital and diagnosed as tuberculous ascites without risk for other cause of ascites and agree to enrolled in the study.

Excluding Criteria

Those with cardiac, liver and renal diseases and those with malabsorption and malignancy were excluded.

Materials Data Collection

Data was collected through modified designated questionnaire that filled during interview and history taken, all study population were examined clinically, and laboratory tests were done including CBC, ESR, liver profile. CXR and abdominal ultrasound done for all patients, all patients who diagnosed as tuberculous ascites received six months of antituberculosis according to TB control program protocol, no diuretics added, and those patients followed for six months until they declared cure. then collected data analyzed.

Result

From 224 patients presented to Tb referred clinic in Port Sudan chest hospital during study period, 32 patients (14.3%) were diagnosed as tuberculous ascites who were enrolled in this study. In those patients of ascites M: F was 3:1.

There symptomatic presentation was cough in 28 patients (87.5 %), abdominal pain in 20 patients (62.5%), fever in 20 patients (62.5%),SOB in 12 patients (37.5%), abdominal distention in 8 patients (25%) and diarrhea in 4 patients (12.5%).

Comorbidities as risk factors were DM in 8 patients (25%)ESRD in 4 patients (12.5%), and HIV in 4 patients (12.5%) while history of TB appear in 4 patients (12.5%).

CXR was normal in 16 patients (50%) and shows pleural effusion in 8 patients (25%), cystic changes in 4 patients (12.5%) and fibrotic changes in 4 patients (12.5%). Abdominal ultrasound shows moderate ascites in 20 patients (62.5%) and mild ascites in 8 patients (37.5%), mural thickening in24 patients (75%) and enlarged mesenteric and paraaortic in 24 patients (75%) while hepatomegaly appears in 20 patients (62.5%) and splenomegaly in 8 patients (25%).

16 patients (50%) show hypochromic microcytic anemia, 8 patients (25%) hypochromic macrocytic anemia. In 20 patients (62.5%) leucocyte count was normal, 8 patients (25%) show leukocytosis and 4 patients (12.5%) shows leucopenia, thrombocytosis occur in 18 patients (56.3%) and thrombocytopenia in 2 patients (6.3%).

Serum albumin was markedly reduced in all patient (100%) while liver enzymes was normal in 24 patients (75%) and slightly elevated in 8 patients (25%).

Table 1 : Shows Symptomatological Presentation

Symptom	No of patients	%
Cough	28	87.5
Fever	20	62.5
Abdominal pain	20	62.5
SOB	12	37.5
Abdominal distension	8	25
Diarrhea	4	12.5

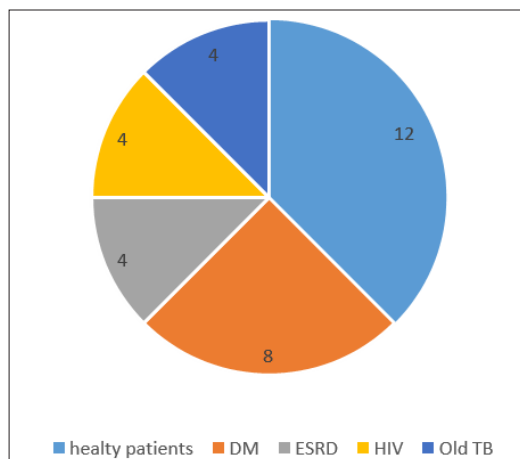


Figure 1: Shows risk factors

Discussion

Tuberculous ascites is second commonest cause of ascites in red sea state – eastern Sudan after liver diseases and it is the commonest presentation of abdominal of abdominal tuberculosis in this area [5].

The diagnosis of diagnosis of tuberculous ascites in this area of constrained facilities mainly depend on clinical suspension despite wide spread of this medical problem and no any study done in this field in Port Sudan the capital of red sea state, so studies are needed to clarify specific diagnostic approach to avoid both delayed and over diagnosis.

In this study tuberculous ascites shows high incidence (14.3%) among tuberculous patients which is near to that mentioned by K. Gaurav et al. under ascetic fluid testing for peritoneal tuberculosis [7]. Just 12.5% of study population shows history of old tuberculosis and those who showed CXR abnormalities were not specific to tuberculosis the thing that support the hypothesis that tuberculous ascites is primary tuberculous lesion and this may have explained by nutritional habits in study area as they use to take row milk from traditional equipment in which the sellers use to blow before filling it with milk in addition to eat soluble food in a loopy.

50% of patients shows immunodeficiency state (DM, HIV, ESRD) while other 50% are immunocompetent which is suggest that immunosuppression is not differ than immunocompetent in developing tuberculous ascites in this area while in several other studies extrapulmonary tuberculosis occur more in immunosuppressant patients as those with cirrhosis, HIV, diabetic, those on ambulatory peritoneal dialysis and those on long term immunosuppressive drugs [8-9].

As in literature all cases were exudative ascites as other causes of infectious ascites [10]. Hypoalbuminemia may occur secondary to peritoneal infection, malabsorption due to bowel involvement or due to low dietary intake and it has prognostic values in many studies as in Kyoko Okamura et el. study which conclude that hypoalbuminemia and lymphocytopenia are predictive risk factor for in hospital mortality and represent direct cause of death by TB while in this study despite that hypoalbuminemia occur in all patient but still survival rate in study population is 100% despite no action done to correct hypoalbuminemia a part from TB drugs [11].

All types of anemia occur in tuberculous patients because of several causes such as low dietary intake, malabsorption in

gastrointestinal tuberculosis, hepcidin reduction due to increased lymphocytosis and bone marrow involvement. In this study both microcytic hypochromic anemia and macrocytic hypochromic anemia occur which are return to low intake, malabsorption and effect of hepcidin in iron transportation.

Conclusion

Tuberculous ascites a serious presentation of tuberculosis specially if it associated with hypoalbuminemia and it is the commonest presentation of abdominal tuberculosis in Port Sudan – eastern Sudan, and it is the commonest cause of ascites in this area. It is usually occurring as primary tuberculous lesion presented as mild to moderate exudative ascites. Tuberculous ascites in this area occur in both immunocompetent and immunosuppressive patients in same ratio. Tuberculous ascites in this area associated with both microcytic hypochromic anemia and macrocytic hypochromic anemia and it respond to six months' anti tuberculous therapy that contain rifampicin, isoniazid, pyrazinamide and ethambutol for two months followed by two months of rifampicin and isoniazid, and usually no need for diuretics.

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