Original Article

Diagnostic Yield of Ultrasonography in the Evaluation of Abdominal Tuberculosis

Abdominal Tuberculosis

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ABSTRACT

Objective: To determine the diagnostic value of ultrasonography in detection of abdominal tuberculosis.
Study Design: Descriptive study.
Place and duration of study: This study was conducted in the department of diagnostic radiology, Bolan Medical Complex Hospital, Quetta during the year march 2014 to Feb 2015.
Materials and Methods: 206 patients were selected from Bolan medical complex hospital both from outdoor and indoor departments. Patients presented with clinical signs and symptoms and ultrasonography findings suggestive of abdominal tuberculosis excluding genitourinary TB. Doppler ultrasonography was used to conduct the study for the evaluation of abdominal tuberculosis. These findings were confirmed by ascitic fluid cytology, fine needle aspiration and response to response to anti TB drugs. Ultrasound was repeated in 1 month and second month.
Results: The 206 patients were included in this study which comprises 103(50 %) male and 103(50 %) female with male to female ratio was (1:1) the mean age of patient was 35year. Low grade fever was present in 115(80%), weight loss 120 (58.53%), diarrhea 58 (31.70%) altered bowel habit 25 (12.19%) and abdominal pain and distension 176 (85.85%). Ultrasound findings include ascites 120 (58.53%), lymphadenopathy 78 (38.04%) bowel wall thickening 43 (20.97%), omental/peritoneal thickening 28 (13.65%), hepatomegaly 5 (2.43%) and splenomegaly 3 (1.46%)
Conclusion: ultrasonography is non-invasive diagnostic tool, easily available and cost effective. Ultrasound would be effective tool in the diagnosis of abdominal tuberculosis. Where the other imaging modalities are expensive and not easily available

Key Words: **Ultrasonography, Evaluation, Abdominal Tuberculosis**

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INTRODUCTION

Tuberculosis bacteria reach the gastrointestinal tract via hematogeneous spread, ingestion of infected sputum or direct spread from infected contiguous lymph nodes.[1] Tuberculosis can involve any part of gastrointestinal tract. Tuberculosis is one of the common diseases in the developing countries. It primarily involves the lungs followed by abdomen. It involves the peritoneum, gastrointestinal tract, lymph nodes, mesentery and omentum. It may also involve the solid organs like liver, pancreas and spleen.

Abdomen is the fourth commonest site of involvement of extra pulmonary tuberculosis after the lymph nodes, skeletal system and genitourinary tract.[2]

Tuberculosis is more common in immuno compromised patients. HIV infection not only increases the risk of progression of latent infection of active tuberculosis, it also increases chances of new TB infections.[3]

Tuberculosis is not uncommon is not uncommon in the western world due to immuno deficiency states like HIV/AIDS and immigrants population. Abdominal tuberculosis is a common disease in Pakistan and other tropical countries. Tuberculosis is a universal public health concern resulting in an estimated 8-10 million new cases and 2-3 million deaths yearly.[4]

Abdominal tuberculosis may occur due to swallowing of infected sputum, hematogeneous spread or dissemination of primary pulmonary tuberculosis.

Clinical manifestation of abdominal disease are nonspecific and depend on organ involved. it often course with abdominal pain and distension, low grade fever, anorexia and weight loss. Diarrhea is usually present when gastrointestinal tract is affected.[5]

Presence of more than one finding was considered as extensive abdominal involvement.[6]

Patients presented to us with clinical signs and symptoms suggestive of abdominal tuberculosis were examined by ultrasonography. Patients were having abdominal pain, low grade fever, diarrhea, altered bowel habits. Ultrasonography main findings were ascites, lymphadenopathy, bowel wall thickening/mass especially along the ileocecal region. Intra-abdominal fluid, which may be free or loculated and clear or complex (with debris and septa) is commonly seen.[7] The nodes are seen as conglomerate mass and or as scattered enlarged nodes with hypoechoic center because of necrosis.[8] The mesenteric thickness in healthy individuals ranged from 5 to 14mm.

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sonographic findings in all patients with abdominal tuberculosis included an echogenic thickened mesentery (more than or equal to 15mm) with mesenteric lymphadenopathy.

Ultrasonography was selected as a imaging tool because it is cost effective, easily available and noninvasive in the evaluation of disease. This study was conducted in the province of Balochistan, where the socio economic condition of the people is poor and more people are prone to tuberculosis.

MATERIALS AND METHODS

This is a descriptive study which included 206 patients. The study was conducted in the department of radiology Bolan medical complex hospital Quetta during the year march 2014 to February 2015. The patients were selected from out patients and in patients departments. The patients were sent to us by referring physicians with clinical signs and symptoms suggestive of abdominal tuberculosis.

The study was conducted by ultrasonography with 3.5MHZ curvilinear transducer and 5-10 MHZ linear transducer supplemented by doppler imaging where needed.

Patient was asked to come with nothing per orally for at least six hours and with full bladder to overcome the abdominal gases and to rule out pelvic lymphadenopathy.

The abdominal tuberculosis is difficult to diagnose because of its clinical presentation and laboratory finding are nonspecific. Peritoneal tuberculosis like ascites is the most common presentation of abdominal tuberculosis. The ileo cecal region is the most commonly involved site in the gastrointestinal tract tuberculosis due to presence of numerous lymphoid tissues.The nodal involvement is mainly mesenteric or retroperitoneal, which may shows caseation or calcification

RESULTS

Out of 206patients 103(50 %) were male and 102 (50 %) were female. Male to female ratio was (1.1). The mean age was 35 years.

Table No. 1: Distribution of patients according to Age

Age	No of patients	%
0 -10	7	3.41
10-20	50	24.39
20-30	65	31.70
30-40	43	27.97
40-50	25	12.19
50+	5	2.43

Table No. 2: Distribution of patients according to gender

Gender	No of patients	%
Male	103	50%
female	103	50%

Table No.3: Distribution according to signs and symptoms

Signs and symptoms	Number of patients	%
Abdominal pain/distension	176	85.85
fever	115	56
Weight loss	120	58.53
Altered bowel habit	25	12.19
Abdominal tenderness	62	30.24

Table No.4 Distribution of ultrasonography findings

Ultrasound findings	Number of patients	%
Ascites	164	80
Lymphadenopathy	78	38.04
Bowel wall thickening/mass	58	28.29
Omental/peritoneal thickening	28	13.65
Hepatomegaly	5	2.43
splenomegaly	3	1.46

DISCUSSION

Ultrasound is safe and non-invasive diagnostic tool in the evaluation of early detection of abdominal tuberculosis. Abdominal tuberculosis mainly involve the peritoneum, omentum, lymph nodes and peyer's patches of the terminal ileum. The clinical presentation tends to be non-specific with abdominal pain and general complaints and the differential diagnosis will often include inflammatory bowel disease, malignancy and other infections.[9]

Associated pulmonary disease in abdominal tuberculosis has been observed in literature.[10] It has been declared a global emergency by the world health organization (WHO) and is the most important communicable disease worldwide.

In our study it showed abdominal tuberculosis affects young population, which corresponds to study conducted by Dipti Agarwal et al. other study conducted by Aruhima Mukhopadhyay showed increased incidence of female patients with female to male ratio(5 : 3)[10] It has been declared a global emergency by the world health organization (WHO) and is the most important communicable disease worldwide.[3] The surgical treatment of abdominal tuberculosis is reserved for complications such as obstruction, perforation, fistula or a mass which does not resolve with medical therapy. [11]

In a study conducted by M P Sharma et. Al showed equal incidence of gender, however in our study male weIt has been declared a global emergency by the world health organization (WHO) and is the most important communicable disease worldwide.[12] 50% and female were 50%. Ascites was the most common presentation in our study 80%, which corresponds to

study conducted by Ming- Luen Hu et al from Taiwan showed peritoneal tuberculosis was the most common presentation.[13] In our study ileocecal involvement was most common site of involvement, which corresponds to study conducted by Muhammad Saaiq et al.[14] study conducted by Atta ullah Arif et al. abdominal mass by 30.76% however in our study abdominal wall thickening/mass was 28.28% In a study conducted in Uganda by Harriet Nalubega et al. showing hepatomegaly in 2.9% and splenomegaly in 17.7%, However in our study both hepatomegaly and splenomegaly were in lower percentage i.e. 2.43% and 1.46%. Abdominal pain and distension was seen in 85.85%, although study in Bangladesh showing higher incidence 80-95%

CONCLUSION

Ultrasonography is a safe and effective diagnostic tool in the evaluation of abdominal tuberculosis.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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