

Original article:

Study of biochemical, pathological & radiological correlation of various types of abdominal tuberculosis

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Abstract:

Introduction: In various series, extrapulmonary tuberculosis alone or in association with pulmonary disease has been documented in 40-60% of all cases with HIV co-infected individuals.

Methodology: It was Descriptive and Cross sectional study. The present study was done in the department of Medicine and OPD at Dr. D.Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune. Approval was taken from the Institutional Ethical Committee before commencing the study. Written and Informed Consent was obtained from all patients. The patients were informed regarding the purpose, procedures, risks and benefits of the study in their own vernacular language.

Results: In the present study, USG (A+B) and CT(A+B)P+C were done in 28 (93.3%) patients. Biopsy, ELISA Ig, BMFT, Colonoscopy were done in 15 (50%), 10 (33.3%), 8 (26.7%) and 5 (16.7%) patients respectively. In CT(A+B)P+C done all 28 (100%) patient had some positive feature. All 15 (100%) biopsy done patients had tuberculosis in biopsy report. Out of 95 USG(A+B) patients 23 (82.1%) patients had some positive features. In BMFT done patients, 5 out of 8 (62.5%) patients had some positive features. 4 (80%) patients had positive finding out of 5 patients in colonoscopy test.

Conclusion: In the present study, 21 (70%) patients had low haemoglobin. ESR was raised in 20 (66.7%) patients while Lymphocyte count predominance was found in 10 (33.3%) patients. Mantoux test was positive in 8 (6.7%) patients whereas Liver function test and Renal function test was found deranged in 5 (16.7%) and 3 (10%) patients respectively.

Introduction:

In various series, extrapulmonary tuberculosis alone or in association with pulmonary disease has been documented in 40-60% of all cases with HIV co-infected individuals. The pattern of presentation of abdominal tuberculosis has dramatically changed with increasing incidence of HIV coexistence, making the diagnosis of extrapulmonary tuberculosis in HIVinfected persons difficult. Abdominal tuberculosis can mimic a variety of other abdominal conditions/diseases and only a high degree of suspicion can help in the diagnosis otherwise it is likely to be missed or delayed resulting in high morbidity and mortality.¹

Tuberculosis (TB) can involve any part of the gastrointestinal tract from mouth to anus, the peritoneum and the pancreatobiliary system. It can have a varied presentation, frequently mimicking other common and rare diseases.⁴The clinician must look for tuberculosis, and confirm or exclude this treatable malady in any patient who presents with gastrointestinal disease.²

Methodology:

It was Descriptive and Cross sectional study. The present study was done in the department of Medicine and OPD at Dr. D.Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune. Approval was taken from the Institutional Ethical Committee before commencing the study. Written and Informed Consent was obtained from all patients. The patients were informed regarding the purpose, procedures, risks and benefits of the study in their own vernacular language. Sample size was calculated using the formula:

$$n = [z^2 p(1-p)] / d^2$$

Where: Z = table value of alpha error from Standard Normal Distribution table (1.96)

Power (p) = 80%

Precision error of estimation (d) = 0.07

$$n = [1.96 \times 1.96 \times 0.8 (0.2)] / 0.7 \times 0.7 = 29.46$$

Hence the sample size for our study was taken as 30.

Inclusion Criteria:

- Age more than 12 years.
- Patients having ascites with ADA positive.
- All diagnosed cases of various types of abdominal tuberculosis.
- Immunocompromised status due to any cause.

Exclusion Criteria:

- Age less than 12 years.
- Pregnant women.
- Liver cirrhosis.
- Sepsis.
- Critically ill.

Each patient was assessed as per the proforma. Detailed clinical history of illness and physical examination including detailed Chest examination of each patient were recorded.

Results:

In the present study, USG (A+B) and CT(A+B)P+C were done in 28 (93.3%) patients. Biopsy, ELISA Ig, BMFT, Colonoscopy were done in 15 (50%), 10 (33.3%), 8 (26.7%) and 5 (16.7%) patients respectively. In CT(A+B)P+C done all 28 (100%) patient had some positive feature. All 15 (100%) biopsy done patients had tuberculosis in biopsy report. Out of 95 USG(A+B) patients 23 (82.1%) patients had some positive features. In BMFT done patients, 5 out of 8 (62.5%) patients had some positive features. 4 (80%) patients had positive finding out of 5 patients in colonoscopy test.

CT(A+B)P+C, USG(A+B), Biopsy, ELISA Ig, BMFT and Colonoscopy were not done in 2 (6.7%), 2 (6.7%), 15 (50%), 20 (66.7%), 22 (73.3%) and 25 (83.3%) patients respectively.

Table 1: Special Investigation Findings of patients

Test	Investigation		Positive Results	
	Not Done	Done	N	%
ELISA Ig	20 (66.7%)	10 (33.3%)	8	80%
Ultrasound of (Abdomen + Pelvis) USG (A+B)	2 (6.7%)	28 (93.3%)	23	82.1%
Barium Meal Follow Through (BMFT)	22 (73.3%)	8 (26.7%)	5	62.5%
Computed Tomography of Abdomen + Pelvis plain and Contrast CT (A+B) P+C	2 (6.7%)	28 (93.3%)	28	100%
Colonoscopy	25 (83.3%)	5 (16.7%)	4	80%
Biopsy	15 (50%)	15 (50%)	15	100%

Kapoor VK et al⁶⁰ studied 70 cases of abdominal tuberculosis and found evidence of active or healed lesions on chest X-ray in 22 (46%). X-rays were more likely to be positive in patients with acute complications (80%). Prakash A¹⁰⁰ studied 300 patients, none had active pulmonary tuberculosis but 39 per cent had evidence of healed tuberculosis. In the study of Tandon RK et al¹⁰¹ on Ulcero-constrictive tuberculosis of the bowel, the authors found chest X-ray to be positive in only 25 per cent of their patients. Hence, about 75 per cent cases do not have evidence of concomitant pulmonary disease.

Discussion:

In the present study, USG (A+B) and CT(A+B)P+C were done in 28 (93.3%) patients. Biopsy, ELISA Ig, BMFT, Colonoscopy were done in 15 (50%), 10 (33.3%), 8 (26.7%) and 5 (16.7%) patients respectively. In CT(A+B)P+C done all 28 (100%) patient had some positive feature. All 15 (100%) biopsy done patients had tuberculosis in biopsy report. Out of 95 USG(A+B) patients 23 (82.1%) patients had some positive features. In BMFT done patients, 5 out of 8 (62.5%) patients had some positive features. 4 (80%) patients had positive finding out of 5 patients in colonoscopy test.³

CT(A+B)P+C, USG(A+B), Biopsy, ELISA Ig, BMFT and Colonoscopy were not done in 2 (6.7%), 2 (6.7%), 15 (50%), 20 (66.7%), 22 (73.3%) and 25 (83.3%) patients respectively. CT(A+B)P+C and Biopsy had 100% sensitivity while Colonoscopy, USG(A+B), ELISA Ig and BMFT had sensitivity of 94.12%, 83.16%, 77.14% and 65.52% respectively.

Charokar K et al⁴ in a descriptive retrospective study on Surgical management of abdominal tuberculosis found Abdominal Sonography in 59 cases (82%), which reported thickening of the small bowel and caecum in 32 patients (44.4%) and mesenteric lymphadenopathy in 11 (15.27%). Enteroclyss was done in 10 cases (14%) with findings of cicatrized ileo-caecal junction and pulled up caecum seen in 9, and small bowel stricture in 6 cases. CT scan abdomen was done for 6 cases, which reported cocoon formation in 4, and mesenteric thickening in 4 cases. Histopathological examination was suggestive of abdominal tuberculosis in 59 of the patients (82%). In the

remaining cases clinical features and operative findings were suggestive of tuberculosis and all of them responded positively to the anti-tubercular therapy. Diagnostic laparoscopy and adhesiolysis was done in 6 patients (8.3%). 66 patients (91.7%) had undergone laparotomy with surgical procedures. 58% of the cases required emergency surgery. Complication rate was 33.3% (n=24). Surgical site infection (SSI) was the most common complication, with occurrence rate of 29.1% (n=21). No patient had anastomotic leak (fistula) following primary intestinal repair.

Bhargava DK et al⁵ studied 87 patients with high protein ascites, of which 38 were diagnosed as having tuberculosis.³³ They found visual appearances to be more helpful (95% accurate) than histology, culture or guinea pig inoculation (82.3 and 37.5% sensitivity respectively).

Chawla TC et al⁶ reported that an optical density (OD) of 0.81 on ELISA and fluorescent coefficient of 2.56 on soluble antigen fluorescent antibody (SAFA) as cut-off gave positivity of 92 and 83 per cent, respectively, with 12 and 8 per cent false positives respectively. Bhargava DK et al⁵⁴ used competitive ELISA with monoclonal antibody against 38 Kd protein and found a sensitivity of 81 per cent, specificity of 88 per cent and diagnostic accuracy of 84 per cent. Kapoor VK et al⁷ observed ELISA remains positive even after therapy, the response to mycobacteria is variable and its reproducibility is poor. Hence the value of immunological tests remains undefined in clinical practice.

Sharma YR⁷ investigated Barium meal and follow through x-ray in 18 patients and 8 (32%) patients revealed suggestive lesions of tuberculosis as having ulceration, narrowing or deformity in Intestine. Laparoscopy was performed in selected 14 patients, out of them, tubercles were visualized morphologically, in 6 patients and histopathology revealed caseating granuloma in 13 patients. CT Scan of Abdomen was done in selected 10 patients, out of them 6 patients revealed abdominal lymphadenopathy and 4 patients showed mass lesions in abdomen.

USG, ELISA Ig, BMFT were having sensivity of 94.12%, 83.16%, 77.14%, 65.52% respectively. According to NIaz MAK⁸ maximum sensitive tests was Biopsy, which was 97% sensitive. Next sensitive test was ELISA Ig which was 80% sensitive. According to Khan R et al⁹ reported maximum sensitive tests was Biopsy, which was 100% sensitive. Next sensitive test was USG (A+B) which was 88% sensitive.

Conclusion:

In the present study, 21 (70%) patients had low haemoglobin. ESR was raised in 20 (66.7%) patients while Lymphocyte count predominance was found in 10 (33.3%) patients. Mantoux test was positive in 8 (6.7%) patients whereas Liver function test and Renal function test was found deranged in 5 (16.7%) and 3 (10%) patients respectively.

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