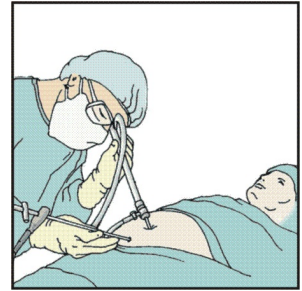


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# PERITONEAL BIOPSY; ITS ROLE IN EXUDATE ASCITES



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**ABSTRACT ...** [asghar\\_anjum@hotmail.com](mailto:asghar_anjum@hotmail.com) The objective of this study was to access the role of peritoneal biopsy in patients with exudative ascities. 30 patients with exudative ascities were studied at Military Hospital Rawalpindi and Combined Military Hospital Rawalpindi. In all patients peritoneal biopsy was done by open method. Biopsy was suggestive in 16 patients. In 9 patients it showed chronic granulomatous inflammation and in 7 patients it was suggestive of abdominal malignancy, in rest of the patients it was nonspecific. In the last group of patients four patients were given a trial of ATT to which they responded. The condition was more common in females (71.4%), and tuberculosis involved women in childbearing age while malignancy mostly in 6th and seventh decade. 100% patients presented with abdominal distention and only 30% with abdominal pain. Other symptoms were loss of appetite, shortness of breath, easy fatiguability and fever. We conclude that peritoneal biopsy is a safe and reliable method of diagnosis for patients with exudative ascities and should be done in every case if the patient's condition permits. Although in very sick patients a trial of ATT can be given and should be continued.

## INTRODUCTION

Ascites is the pathologic accumulation of fluid in the peritoneal cavity. Major subdivisions are those conditions associated with a normal peritoneum and those in which the disease process involves the peritoneum.

The ascitic fluid total protein and lactic dehydrogenase (LDH) concentration, as well as the ascites to serum ratios of protein and LDH, have traditionally been used to classify ascites into exudate and transudate categories. Unfortunately, none of these parameters has been found to be completely discriminating.

The difference between the serum and ascites albumin concentration (albumin gradient or SAAG) is thought to directly reflect the colloid osmotic pressure gradient and, indirectly the degree of portal hypertension. Pare and co-workers suggested that the serum-ascites albumin gradient (SAAG) is a better discriminator of portal hypertension than ascites protein concentration<sup>1,2,3</sup>. Indeed, SAAG is now considered a useful physiological, clinical tool in the work-up of ascites.

Patients with gradients of >1.1 g/dL have portal hypertension while patients with gradients of <1.1 g/dL do not. The accuracy of such determinations is 97%. "High-albumin gradient" (>1.1 g/dL) and "low-albumin

gradient" ( $<1.1$  g/dL) have replaced the terms "transudative" and "exudative" in description of ascites in most of the recent publications.

The causes of Exudative Ascities are tuberculous peritoneum, pancreatic ascities, peritoneal carcinomatosis, biliary ascities, bowel obstruction and connective tissue diseases. In our part of the world peritoneal tuberculosis is the leading cause. Non-invasive tests such as acid fast stain, ascitic fluid culture, are usually insufficient, hence peritoneal biopsy is considered essential<sup>4</sup>.

## MATERIAL AND METHODS

### POPULATION

30 consecutive patients of exudative ascities presented to Military Hospital (MH) Rawalpindi, Combined Military Hospital (CMH) Rawalpindi, Army Medical College Pathology Laboratory and Armed Forces Institute of Pathology (AFIP), were included in the study. These 30 patients presented over a period of 24 months, from September 1999 to September 2001.

Patients of both sexes and ages ranging from 14 to 70 years were included. Due to the military setup, most of the patients had a military background.

### INCLUSION CRITERIA

All patients with (SAAG) less than 1.1  
All patients with (SAAG) greater than 1.1, but increased no of cells ( $>500$ /dl) in ascetic fluid.

### EXCLUSION CRITERIA

All patients of known cirrhosis with transudative ascites.  
All patients with bleeding diathesis. All patients with co-morbid conditions (Septicemia, chronic renal failure, congestive heart failure, Ischemic heart disease, asthma. All patients already diagnosed as a case of some Intra Abdominal Malignancy)

## METHODOLOGY

### CLINICAL EVALUATION / HISTORY

A detailed history was elicited from each patient. Special

reference was given to abdominal swelling and pain, altered bowel habits, upper GI symptoms, breast surgery, past history of tuberculosis, family history of tuberculosis, weight loss, evening pyrexia, productive cough, and haemoptysis, past history of jaundice, haematemesis, obstetrical and gynecological history.

### CLINICAL EXAMINATION

A thorough physical examination was done in each case and the positive and relevant negative findings were recorded. Special emphasis was on, ascites, hepatosplenomegaly, jaundice, anemia, clubbing, bruises, palmer erythema, testicular atrophy, spider angiomas, lymph node enlargement, lump in the breast. A proper examination of cardiovascular system, respiratory system, gastrointestinal system and gynecological system was also performed.

### LAB INVESTIGATIONS

Following investigations done in all cases;

Blood Complete picture, Bleeding profile, Liver function tests, Renal function tests, HBsAg, Anti HCV, Ultrasound abdomen, Serum albumin, Blood sugar, Chest X-Ray, Ascitic fluid, (Albumin, Sugar, Total protein, LDH and Specific gravity).

Microscopic examination for acid fast bacilli, malignant cells was also done, Ascitic fluid culture and peritoneal biopsy.

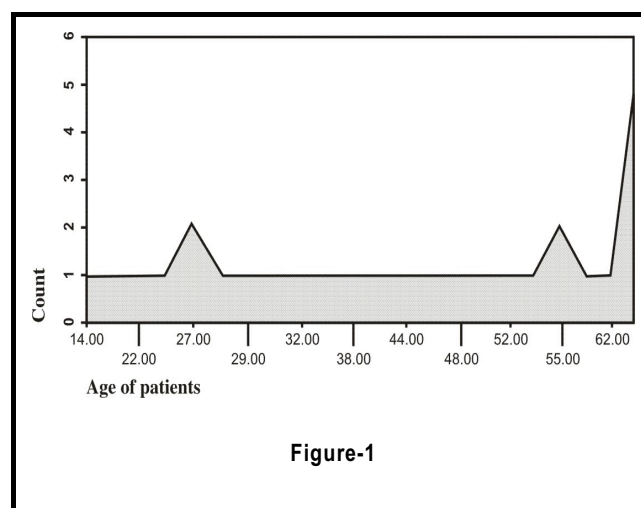


Figure-1

**DATA ANALYSIS**

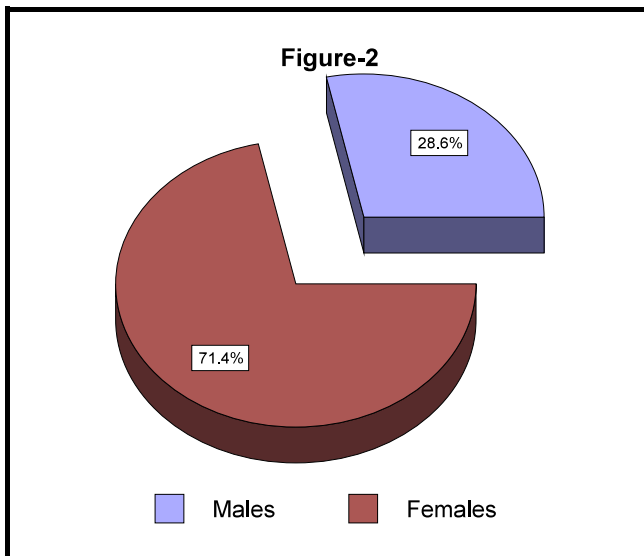
**AGE DISTRIBUTION**

Patients range from 14 to 65 years of age. One patient each of 14, 17, 22, 24, 28, 29, 30, 31, 32, 36, 38, 40, 44, 46, 48, 50, 52, 54, 60 and 62, years. Two patients each of 27 and 55 years. Five patients of 65 years No patient was in the first decade, two patients were in the 2<sup>nd</sup> decade, six patients in the 3<sup>rd</sup>, five in the 4<sup>th</sup>, four in the 5<sup>th</sup>, five in the 6<sup>th</sup>, and six in the 7<sup>th</sup>..

**RESULTS**

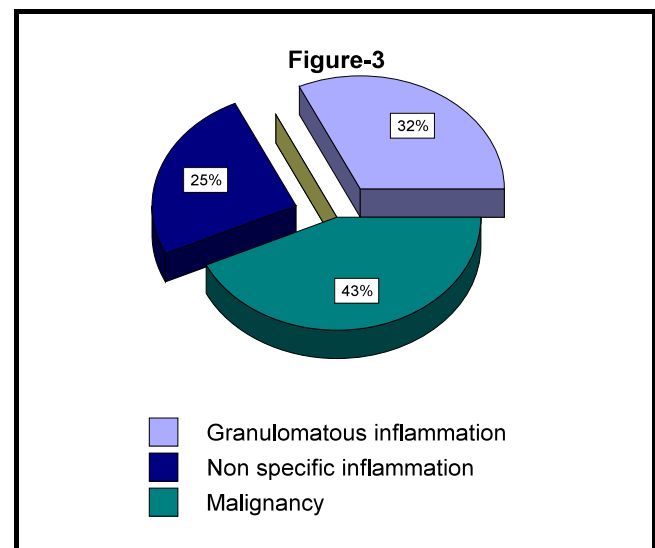
**CHRONIC NON-SPECIFIC INFLAMMATION**

Peritoneal biopsy showed chronic non specific changes in fourteen patients, four of these patients presented with gradual weight loss, low grade pyrexia and abdominal distention and X-Ray chest was suggestive of pulmonary tuberculosis in two out of four of these patients, they were given a trial of anti tuberculosis drugs and all of them improved symptomatically and radiologically (X-Ray chest).



A 65 years old lady presented with 2 months history of evening rise in temp weight loss and abdominal swelling, she was pale, ill looking her JVP was raised, there was bilateral pedal edema, mild wheeze in her chest and ascites. Ascitic fluid was a lymphocytic exudate, her

montoux was significantly positive, ESR was 70 mm, and She was diagnosed as a case of constrictive pericarditis clinically. X-Ray chest and CT scan chest were both normal, echocardiography was also normal. She was given a trial Of ATT, but she did not respond cardiac catheterization studies were performed and they were suggestive of constrictive pericarditis. She responded to surgery. ATT was also continued for 6 months.



Four of these 12 patients were known cirrhotic admitted with massive abdominal distention, all were anti HCV positive, but presented with low-grade pyrexia and exudative ascites. They were given a trial of anti tuberculosis treatment for one month but they did not show any response. Later they were managed conservatively and responded to diuretics, cause of exudative ascites could not be reached.

Two of these 12 patients were known cases of chronic renal failure both were montoux negative and were on maintenance hemodialysis admitted with exudative ascites. In both of these patients biopsy was not suggestive of tuberculosis.

One female 29 years old admitted with three years history of joint pains, 3 abortions, hair loss, apthous

ulcers and butter fly rash over her cheeks and two months history of abdominal distention. Her ESR was 28, ANA was positive, montoux was negative, Pleural fluid was a lymphocytic exudate. Her peritoneal biopsy

revealed chronic none specific inflammation, diagnosis of SLE was made and she was treated with steroids, to which she responded.

Table I.

Biopsy report	No of pts	Sex	Final diagnosis
Chronic non-specific inflammation	Fourteen	11 females 3 males	2 patients with CRF, 4 patients with cirrhosis liver, one patient with CCF, one patient with nephrotic syndrome, one patient with SLE, 4 patients with abdominal tuberculosis, 1 patient with constrictive pericarditis.
Chronic granulomatous inflammation	Nine	6 females 3 males	Abdominal tuberculosis
Malignancy	Seven	4 females 3 males	5 with adenocarcinoma, 2 with undifferentiated tumor.

### CHRONIC GRANULOMATOUS INFLAMMATION

In 9 patients peritoneal biopsy revealed chronic granulomatous inflammation. In one out of these 9 patients chest X-Ray was suggestive of tuberculosis and montoux was positive in 5 patients. Biopsy revealed chronic granulomatous inflammation in 8 and caseating inflammation in one patient.

One of these 9 patients presented with weight loss, vague abdominal pain, distention, and loose stools for 3 months. He was pale, emaciated with hepatosplenomegaly, enlarged palpable aortic lymph nodes (abdomen was palpated after paracentesis) and bilateral crepitation in his chest. X-Ray chest was suggestive of bilateral tuberculosis; peritoneal biopsy revealed caseating granulomatous inflammation, he responded to 4 drugs anti tuberculous treatment.

### MALIGNANCY

In seven of our cases peritoneal biopsy was suggestive of underlying malignant process, Four were females and three were males, all of them presented with gradual weight loss, anorexia, easy fatiguability and abdominal distention, two of them also had history of altered bowel habits, in four of them biopsy was suggestive of Adeno carcinoma and in rest of the other it was undifferentiated, In two of them diagnosis was confirmed on colonoscopy

(malignancy of colon).

### DISCUSSION

Exudative ascites is not a disease but occur in many disease conditions and in our part of the world abdominal tuberculosis is still the major cause of this condition but not the only cause. Extra pulmonary tuberculosis is a major diagnostic problem here in Pakistan and every patient with exudative ascites is usually considered as abdominal tuberculosis. This has resulted in the appearance of multi-drug resistant strains and a number of missed diagnoses. We have attempted to draw a protocol for these patients and to understand the role of peritoneal biopsy in the diagnosis in a tertiary care hospital. Previously most of the studies concentrated on the role of peritoneal biopsy in the diagnosis of tuberculosis, we studied its role in missed diagnoses as well as in abdominal tuberculosis.

30 consecutive adult patients with exudative ascites were included in this study. All patients were hospitalized. The results have shown that a variety of disorders can lead to exudative ascities. The diseases and conditions causing exudative ascities comprise a list. However few common etiologies are found in most of the patients. In our study the peritoneal biopsy was suggestive in 16 patients. Tuberculous abdomen was

the most common definite diagnosis (9 patients, (32%). Malignant ascites 7 patients, (25%) were the second common etiology, 2 patients had exudative ascities due to chronic renal failure, and 4 patients were with chronic liver disease. In one patient with granulomatous disease of peritoneum, X-Ray chest was suggestive of pulmonary tuberculosis, and one had exudative pleural effusion. These findings were consistent with the findings by Nafeh MA et al<sup>5</sup>. Who studied 200 patients with undiagnosed ascites and diagnosed 91 patients with tuberculous ascites. Although he found pleural effusion in 15% of patients a little higher as compared to our study.

In our study we found the disorder occurring more in females (71.4%) as compared to males (28.6%). Most patients were seen in the 3<sup>rd</sup>, 4<sup>th</sup>, 6<sup>th</sup> and 7<sup>th</sup> decade. In patients with abdominal tuberculosis mostly were females (66.6%) and majority of them being of child bearing age, this was again consistent with Nafeh and Sandikci MU<sup>6</sup>, in comparison male predominance has been reported by Naseer Baloach et al<sup>7</sup>, in a local study at Sheikh Zayed Hospital, and Mr Khan, I. R Khan at Agha Khan hospital Karachi<sup>8</sup>.

Patients with exudative ascities often presented with symptoms of ascities (abdominal distention (30%), abdominal discomfort (36%), difficulty in breathing (40%), along with weight loss (63%), anorexia (66%), low grade fever (46%), evening rise in temperature. Patients with abdominal tuberculosis presented with symptoms of abdominal pain 50%, abdominal distention 100%, fever 58%, weight loss 50%, loss of appetite 58%, easy fatigability 1%, shortness of breath 25%, these findings were consistent with the findings of Nafeh<sup>5</sup>, Demir<sup>9</sup>, Manohar. In comparison Naseer baloach at Shaikh Zayed Hospital reported only 66% patients with abdominal distention and 100% patients with abdominal pain because he studied exclusively cases with surgical abdomen and in our study inclusion criteria was exudative ascities.

Four out of 14 of our patients in whom biopsy showed chronic non-specific inflammation, were considered

cases of abdominal tuberculosis on clinical grounds. These patients were given a trial of ATT to which they responded; this shows limitation of open peritoneal biopsy under local anesthesia and importance of laparoscopic procedure.

Most of our patients with malignant ascities were in 6<sup>th</sup> and 7<sup>th</sup> decade and their chief complaint was abdominal swelling because any patient with clear cut history of malignancy was not included in the study and was investigated by other means.

Patients with chronic renal failure and chronic liver disease are more prone to tuberculosis, but at the same time they can have exudative ascities by the disease itself. In our study in these 6 patients neither peritoneal biopsy wasn't suggestive of tuberculosis nor the patients with chronic liver disease responded to a trial of ATT. This shows importance of peritoneal biopsy in these patients.

In thirty of these patients partial wound dehiscence occurred in only one patient, which was managed accordingly and in one patient localized peritonitis occurred which responded to a course of broad spectrum antibiotics within two days.

## CONCLUSION

Peritoneal biopsy is the most reliable and safe method for the diagnosis of exudative ascities. Although there are no of patients where it might not help.

Tuberculosis is not the only cause of exudative ascites, but other conditions like malignancies, chronic renal failure, cirrhosis liver, connective tissue diseases, Vasculitis and at times congestive heart failure can lead to exudative ascities.

Abdominal tuberculosis is more common in women with childbearing age in our part of the world. Abdominal malignancies are more common in 6<sup>th</sup> and seventh decade of life.

Clinical presentations of Ascites may vary with the underlying conditions but predominant symptoms are abdominal swelling abdominal discomfort, fever and weight loss.

## REFERENCES

1. PARE, P, TALBOT J, Hoefs jc. **Serum-ascites albumin Gradient** (Gastroentology; 1983; 85; 240-4)
2. Runyon BA. **Care of patients with ascites.** N Engl J Med 1994; 330:337-342
3. Guarner C, Runyon BA. **Spontaneous bacterial peritonitis: pathogenesis, diagnosis, and treatment.** The Gastroenterologist 1995; 3:311-328.
4. Lebrec D, Giuily N, Hadengue A, Vilgrain V, Moreau R, Poynard T, Gadano A, et al. **Transjugular intrahepatic portosystemic shunts: comparison with paracentesis in patients with cirrhosis and refractory ascites: a randomized trial.** J Hepatol 1996; 25:135-144.
5. Nafeh MA, Medhat A, Abdulhameed AG, Ahmad YA, Rashwa NM, AMJ Trop Med Hyg.,1992. 47(4): 470-477.
6. Sandici MU, Colacoglu S, Ergun Y, Aakiz H: **P r e s e n t a t i o n and role of peritoneoscopy in tuberculous peritonitis.** J Gastroenterol Hepatol 1992;b 7 (3): 298-30.
7. Naseer Baluch, M Tufail, K Durrani, Mehmood Ahmad, **Abdominal tuberculosis a varied presentation,** Pakistan Journal of Medical Research, 1993; 32(4)
8. M R Khan , IR Khan , MI Pal. **Diagnostic issues in abdominal tuberculosis.** J Pak .Med. Assoc. April 2001 Vol 51.No.4.
9. Demir K, Okten A, Kaymakoglu S, Dincer D, Bessisik F, Cevikbs F, Eur J. Gastroenterol Hepatol 2001 May; 13(5): 581-5.

**Be Strong;  
You will win**

**Shuja Tahir**