

## THE FREQUENCY OF PERITONEAL TUBERCULOSIS USING DIAGNOSTIC LAPAROSCOPY IN CLINICALLY SUSPECTED CASES

Zahira Sattar<sup>1</sup>, Munazza Iqbal<sup>2</sup>, Khalid Masood Gondal<sup>3</sup>

### ABSTRACT:

#### INTRODUCTION:

Diagnostic laparoscopy allows the visual examination and documentation of intra-abdominal organs in order to detect any pathology. It is an important tool for final minimally invasive exploration of patients with abdominal tuberculosis, the diagnosis of which remains uncertain despite employing the requisite laboratory and non-invasive imaging investigations.

#### OBJECTIVE:

To determine the frequency of peritoneal tuberculosis using diagnostic laparoscopy in clinically suspected cases of peritoneal tuberculosis.

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#### Sattar Z<sup>1</sup>

Senior Registrar  
South Surgical Ward  
KEMU/ Mayo Hospital, Lahore.

#### Iqbal M<sup>2</sup>

Assistant Professor  
Dept of Pathology  
Fatima Jinnah Medical College, Lahore.

#### Gondal K M<sup>3</sup>

Professor of Surgery  
KEMU/ Mayo Hospital, Lahore.

#### STUDY DESIGN:

Cross sectional survey.

#### SETTING:

The study was conducted in all the four Surgical Wards on surgical floor of Mayo Hospital Lahore.

#### DURATION OF STUDY WITH DATES:

Six months (1<sup>st</sup> July 2009 to 31<sup>st</sup> December 2009).

#### MATERIAL AND METHODS:

35 patients aged between 13-60 years with clinical suspicion of peritoneal tuberculosis were selected. The patients underwent the procedure accordingly. Per operative diagnosis of peritoneal tuberculosis made on the basis of presence of any or all of the operative (laparoscopic) findings such as multiple peritoneal adhesions, fibrous bands, whitish peritoneal tubercles, omental thickening and ascites. Diagnosis was confirmed with histopathology of peritoneal tissue biopsy. Also the biochemical analysis and culture sensitivity of ascetic fluid was routinely performed if any ascites is present.

#### RESULTS:

Out of 35 patients, 40% were males and 60% females with mean age of 24.91±6.69 years. The laparoscopic findings of peritoneal tuberculosis were whitish peritoneal tubercles (57.2%) peritoneal adhesions (28.6%), ascites

(17.2%), omental thickening (14.3%), fibrous bands (11.4%) and swollen edematous appendix (5.7%). Eighty percent were labeled with diagnosis of peritoneal tuberculosis on basis of diagnostic laparoscopy. These patients were confirmed to have peritoneal tuberculosis on histopathology of tissue biopsy.

### **CONCLUSION:**

Diagnostic laparoscopy is useful in patients with suspected peritoneal tuberculosis. It helps in diagnosis by allowing the direct visualization of gross findings as well as collection of histopathological specimens. It also helps by reducing the number of unnecessary laparotomies and avoiding delays in the diagnosis and treatment.

### **KEY WORDS:**

Frequency, Peritoneal tuberculosis, Diagnostic laparoscopy.

### **INTRODUCTION:**

The history of tuberculosis dates as far back as antiquity<sup>1</sup>. Even today, tuberculosis continues to be a major health problem worldwide with estimated 7-10 million new cases and 6% of deaths worldwide<sup>2</sup>. Tuberculosis has strong associations with social economic factors like poverty, malnutrition, overcrowding, and immunosuppression.<sup>3</sup> Its resurgence has been noticed worldwide and it is evolving as a major infectious disease in developed parts of the world like USA and Europe in the last decade.<sup>4,5</sup> Peritoneal tuberculosis is a variant of abdominal tuberculosis. its common symptoms are fever, weight loss, night sweats, abdominal pain and common signs are pallor, ascites, abdominal tenderness but evident only when disease is advanced.<sup>6,7</sup> Diagnosis is often delayed because of the subtle nature, varied and vague clinical picture of disease and limitation of the available diagnostic methods.<sup>8</sup> Mainstay of tuberculosis treatment is medical treatment i.e., antituberculous chemotherapy<sup>9</sup>. Surgery is occasionally required to treat complications. Thus early and

correct diagnosis can prevent development of complications and hence prevent need of a major surgery reducing mortality and morbidity.<sup>10</sup> Laparoscopy can help to visualize the peritoneal cavity and to observe the macroscopic findings like ascites, adhesions, fibrous bands, tubercles and omental thickening within the peritoneal cavity<sup>11,12</sup>. It also provides a minimally invasive approach to take tissue or fluid for purpose of biopsy or culture & sensitivity which will establish the diagnosis of peritoneal tuberculosis thus allowing early detection and accurate localization of the disease.<sup>13</sup> Our's is a resource poor country with high incidence and prevalence of tuberculosis. The consequences of delayed or missed diagnosis are too much to bear both for the patient and health care system. The unmistakable laparoscopic appearance of peritoneal tuberculosis can easily help to determine the frequency of peritoneal tuberculosis as well as reach an early diagnosis thus allowing the treatment to be commenced early resulting in cure of the patient.

### **OBJECTIVE:**

The objective of this study was to determine the frequency of peritoneal tuberculosis using diagnostic laparoscopy in clinically suspected cases of peritoneal tuberculosis.

### **MATERIAL AND METHODS:**

The study was conducted on 35 patients in all the four Surgical Wards of Mayo Hospital Lahore over a duration of six months from 1<sup>st</sup> July 2009 to 31<sup>st</sup> December 2009. It was a cross sectional study using non-probability purposive technique with the calculated sample size of 35 cases with 14% margin of error, 95% confidence level, taking expected percentage of peritoneal tuberculosis detected on diagnostic laparoscopy i.e., 80%. The patients aged between 13-60 years of any gender with clinical suspicion of peritoneal tuberculosis (presenting with non-specific features of abdominal pain, fever, night

sweats, weight loss and anorexia, ascites) were selected. After getting the demographic data, relevant history and examination was performed. Routine investigations were sent. Informed consent was taken from patients for laparoscopy and to use their data in this research. Once the patient was found to be fit for diagnostic laparoscopy, procedure was performed accordingly. Per operative diagnosis of peritoneal tuberculosis made on the basis of presence of any or all of the operative (laparoscopic) findings such as multiple adhesions, fibrous bands, multiple whitish peritoneal tubercles, omental thickening and ascites. Diagnosis was confirmed with histopathology of peritoneal tissue biopsy. Also the biochemical analysis and culture sensitivity of ascitic fluid was routinely performed if any ascites was present.

All the collected information was entered and analyzed in SPSS version 12. The quantitative variable like age was presented by calculating mean and standard deviation. The qualitative variables like gender frequency and findings of diagnostic laparoscopy were presented by calculating frequency and percentage. Presence and absence of peritoneal tuberculosis on diagnostic laparoscopy were confirmed on histopathology and ascitic fluid culture and analysis was presented by frequency and percentage.

**RESULTS:**

This study included a total of 35 patients with clinical suspicion of peritoneal tuberculosis. These patients were selected from Surgical Outdoor, Mayo Hospital, Lahore. There were 14 males (40%) and 21 females (60%). Male to female ratio was 1:1.5. The patients were divided into three age groups. The first group had patients aged 16 to 25 years (n = 23) 65.7%, In second group, patients aged 26 to 35 years (n = 9) 25.7% and in the third group, patients aged 36 to 45 years (n = 3) 8.6% were placed. The mean±SD of the ages was found to be 24.91±6.69 years. The presence of single or multiple findings of peritoneal tuberculosis

were identified on the diagnostic laparoscopy as follows: whitish peritoneal tubercles in 20 patient (57.2%), peritoneal adhesions in 12 patients (34.3%), ascites in 6 patients (17.2%), omental thickening in 5 patients (14.3%), fibrous bands in 4 patients (11.4%), 2 patients (5.7%) were found to have swollen edematous appendix (Table 1). Out of 35 patients having histopathology of peritoneal tissue biopsy, 28 (80%) were diagnosed with peritoneal tuberculosis, 2 (5.7%) with acute appendicitis. One patient each (2.9%) was diagnosed with intestinal tuberculosis, metastatic carcinoma, adenocarcinoma right colon, left ovarian cyst and amoebic liver abscess each separately (Table 2). Out of 35 patients, 28 (80%) were confirmed and finally labeled with diagnosis of peritoneal tuberculosis while 7 (20%) patients were found to have other diseases (Table 3).

**Table 1: Distribution of subjects among laparoscopic findings**

(n = 35)

| Laparoscopic finding                       | Frequency | Percentage |
|--|-----------|------------|
| Whitish peritoneal tubercles               | 20        | 57.2       |
| Peritoneal adhesions                       | 12        | 34.3       |
| Ascites                                    | 6         | 17.2       |
| Omental thickening                         | 5         | 14.3       |
| Fibrous bands                              | 4         | 11.4       |
| Swollen, edematous appendix                | 2         | 5.7        |
| Ileocecal mass                             | 1         | 2.9        |
| Peritoneal adhesions with cocoon formation | 1         | 2.9        |
| Metastatic deposits in liver               | 1         | 2.9        |
| Mass ascending colon                       | 1         | 2.9        |
| Lt. Ovarian cyst                           | 1         | 2.9        |
| Liver abscess                              | 1         | 2.9        |

**Table 2: Distribution of subjects according to histopathology of peritoneal tissue biopsy**

(n = 35)

| Histopathology of peritoneal tissue biopsy | Frequency | Percentage |
|--|-----------|------------|
| Peritoneal tuberculosis                    | 28        | 80.0       |
| Acute appendicitis                         | 2         | 5.7        |
| Intestinal tuberculosis                    | 1         | 2.9        |
| Metastatic carcinoma                       | 1         | 2.9        |
| Adenocarcinoma right colon                 | 1         | 2.9        |
| Lt. ovarian cyst                           | 1         | 2.9        |
| Amoebic liver abscess                      | 1         | 2.9        |

**Table 3: Distribution of subjects according to diagnosis of peritoneal tuberculosis**

(n = 35)

| Diagnosis of peritoneal tuberculosis | Frequency | Percentage |
|--------------------------------------|-----------|------------|
| Confirmed                            | 28        | 80.0       |
| Negative                             | 7         | 20.0       |

**DISCUSSION:**

The present study aims to determine the frequency of peritoneal tuberculosis using diagnostic laparoscopy and hence evaluating whether laparoscopy can be established as a part of diagnostic protocol for patients with peritoneal tuberculosis so that their diagnosis is neither missed nor delayed.

Vogel et al<sup>16</sup> found in their study that 67% of patients affected with peritoneal tuberculosis were females. In their study females were found to be more commonly affected than males. The age range of the patients with peritoneal tuberculosis was from 12 to 55 years for both genders. In another study

conducted by Khan et al<sup>17</sup> also reported age group for patients diagnosed with peritoneal tuberculosis from 15-65 years and 68.4% of these patients were found to be females. . In present study age group ranges from 13 to 60 years and both genders were selected; 60% of these patients were females. So the results of aforementioned studies are comparable to present study. The female preponderance of peritoneal tuberculosis was reported also in local Pakistani literature<sup>18</sup>. Ermolov et al<sup>19</sup> reported that use of laparoscopy as a diagnostic tool reduced the need for laparotomies and hence the associated complications. Saeed et al<sup>20</sup> also performed diagnostic laparoscopy in 31 patients. Diagnostic laparoscopy yielded that 21 patients out of 31 patients had no reason for a further exploratory procedure, thus preventing the morbidity or mortality that might occur after unnecessary laparotomy. They proved that diagnostic laparoscopy benefits patients by avoiding unnecessary surgery avoiding unnecessary delay in diagnosis and treatment and shortening the operative and hospitalized period. In the study under consideration, diagnostic laparoscopy was performed in 35 patients. Out of these, whitish milliray nodules or tubercles were found in 20 patient (57.2%), peritoneal adhesions in 10 patients (28.6%), ascites in 6 patients (17.2%), omental thickening in 5 patients (14.3%), fibrous bands in 4 patients (11.4%), 2 patients (5.7%) were found to have swollen and edematous appendix (Table 3). Târcoveanu et al<sup>12</sup> reported white military nodules followed by fibrous bands as the commonest laparoscopic findings which was also consistent with our study. Safarpor et al<sup>14</sup> also reported various laparoscopic findings of peritoneal tuberculosis with peritoneal tubercles or nodules the most common findings present in almost all patients followed by ascites and peritoneal adhesions being the other commonest findings. These findings are also comparable to our study. Histopathology was the basis of diagnosis in 28/35 patients (80%)

in the present study. In a study by Khan R et al, Diagnostic yield of laparoscopic biopsy was found to be 100% in 35/35 patients who underwent this procedure<sup>21</sup>. Similarly in another study the frequency was again found to be 80% where 17 out of 21 clinically suspected cases were found to have this disease using diagnostic laparoscopy<sup>14</sup> Which is comparable to our study. Diagnostic laparoscopy has an important role in diagnosing peritoneal tuberculosis. Advantages of diagnostic laparoscopy (shorter hospital stay, rapid postoperative recovery and faster return to social activities) emerge from the present study and are confirmed by the literature<sup>20</sup>. Laparoscopic approach avoids unnecessary open surgical intervention thus reducing the mortality and morbidity associated with other invasive surgical procedures, shortening the hospital stay, decreasing the rate of postoperative complications. When performed in carefully selected haemodynamically stable patients, laparoscopy is safe efficient and technically feasible approach to determine presence or absence of peritoneal tuberculosis in suspected cases due to the advent of direct visualization of abdominal cavity and peritoneal tissue biopsy. Based on these advents it has become a part of efficient diagnostic approach in most parts of the world.

## CONCLUSION

Laparoscopy is a safe diagnostic modality, useful to determine the frequency of peritoneal tuberculosis. It can help the surgeon to establish or exclude the diagnosis of peritoneal tuberculosis in clinically suspected cases without increasing the morbidity or mortality and without causing delays or subjecting patient to unnecessary interventions. Moreover tissue can be taken for histopathology for confirmation of the diagnosis. Laparoscopy alongwith peritoneal tissue biopsy can help in accurate and early diagnosis of this subtle, fatal but treatable

disease in carefully selected and clinically suspected cases.

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