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## Abdominal Tuberculosis in Chingola-Zambia: Pattern of Presentation.

**D.D. Mugala**, Consultant General Surgeon.

*Correspondence To:* Dr. Duncan D Mugala, Nchanga South Hospital, P/B Kcm 2000© Chingola Zambia. E-Mail [Duncan.Mugala@kcm.co.zm](mailto:Duncan.Mugala@kcm.co.zm)

**Background:** Before the advent of the HIV pandemic abdominal tuberculosis was seen rarely but it is now being seen with increasing frequency in the surgical departments. The HIV has, also to a large extent, altered its presentation. This study was aimed at determining the pattern of presentation of abdominal tuberculosis seen at Nchanga hospitals in Chingola district on the Copperbelt province of Zambia

**Methods:** This was a prospective study of all the patients who presented to the surgical department at Nchanga North and South with tuberculosis of the abdomen between April 1994 and March 1999. The patients' symptoms, physical findings, investigations, treatment and follow up findings were recorded and analyzed.

**Results:** During 5-year period, 35 patients presented to the hospitals' department of surgery with abdominal Tuberculosis. There were 19 males and 16 females. Their ages ranged from 7 to 75 years with a mean age of 32 years. Abdominal pain (91.4%), weight loss (71.4%) and fever (63.0%) were the commonest symptoms. Physical examination revealed abdominal tenderness in all the patients and abdominal masses in 62.9% of the patients. Of the 35 patients, 31 (88.6%) were found to be HIV positive. Ultra sound scan was performed on 28 patients and ascites of varying amounts was found in all but one patient. Diagnostic Laparotomy was done in 17 patients and apart from one patient, the rest had tuberculous peritonitis. There were 12 patients who had extra abdominal TB; 11 had tuberculous lymphadenitis one had pulmonary tuberculosis. All the patients were started on anti-Tb treatment. Twenty six (74.3%) had a good response in that they subjectively felt well within two weeks of starting treatment and 14 of these patients returned to work or normal life by the end of two months of treatment. The other 12 took longer than two months to return to normal life. However 14.3% of the patients had a prolonged hospital stay and 11.4% died. Of those who initially responded well, five died six months to one year later of other effects of AIDS.

**Conclusion:** Abdominal tuberculosis is HIV related the majority of our patients. It responds well to treatment in most of the patients.

### Introduction

Since the advent of the HIV pandemic, abdominal tuberculosis which was rarely seen before is being seen with increasing frequency in the surgical departments. The HIV has, also to a large extent, altered its presentation in that the severity and incidence have risen<sup>1</sup>. Traditionally Tuberculosis of the abdomen was known to affect Ileocaecal region of the bowel where it caused circumferential ulcers with multiple strictures and sometimes with Ileocaecal granulomas in the lymph nodes. It also presented as tuberculous peritonitis- this was a secondary infection of the peritoneum arising from infected mesenteric nodes and was sometimes seen in the miliary TB phenomenon.

In general it was a condition seen in female than in males of ages between 20 and 40 years and usually these were people of poor nutritional status and alcoholics<sup>2</sup>. Clinically it was divided into moist and dry abdominal TB.

Moist tuberculosis presented with fever, ascites weight loss, and abdominal pain. The pain was often vague and mild. Sometimes pain did not feature at all. It is said that in West Africa ascites was the main feature. In the dry variety, the systemic symptoms were the similar to the moist variety, but ascites was absent and the most prominent feature was the presence of matted lymph nodes presenting as abdominal masses. There was also the encysted variety, which was a combination of moist and dry varieties. In Africa, about 70% of patients with abdominal tuberculosis present with ascites; in India only about 10% of them do. In Zambia tuberculosis is responsible for 20% of all cases of ascites<sup>3</sup>.

The aim of this study was to determine the pattern of presentation of abdominal tuberculosis seen at Nchanga hospitals in Chingola district on the Copperbelt province of Zambia. Chingola is an urban area with a population of over 200,000 people. The medical

services are provided by Nchanga South Mine Hospital and Nchanga North Government Hospital which were not long ago both mine hospitals.

### Materials and Methods

This was a prospective study of all the patients who presented to the surgical department at Nchanga North and South with tuberculosis of the abdomen. The author kept the patients' records of symptoms, physical findings, investigations, treatment and follow up. The study commenced in April 1994 and ended in March 1999. - A period of five years. The Chi square was used in statistical analysis of data.

On ultrasonography the following features were looked for as being diagnostic or suggestive of TB:

1. Enlarged conglomerate nodal mass which is heterogeneous and predominantly hypoechoic.
2. Increased through transmission of sound by the abdominal nodal mass suggests caseating necrosis and is highly suggestive though not specific of tubercular lymphadenitis.
3. Calcifications may in the lymph nodes.
4. The other features associated with abdominal tuberculosis looked for included bowel wall thickening [especially in the ileo-cecal junction], peritoneal nodules, mesenteric thickening and clear or complex ascites. Visceral involvement may be seen as organomegaly or as multiple small abscesses in the organs.

### Results

There were 19 males and 16 females (P=0.95). Fourteen of the 19 males were over 30 years old compared to the 10 of the 16 females were below 30 years of age. The peak age range for the males was the 41-50-age range and that for the females was the 21-30-age range. The mean age for both groups was 32 years and the ages ranged from 7 years to 75 years (Table 1).

The predominant symptoms that the patients presented with are shown in Table 2. The

abdominal pain was described by the patients as severe, moderate or mild/just a discomfort. See Table 3. The physical findings on examination were as shown in Table 4. Abdominal tenderness, a palpable abdominal mass and extra-abdominal lymph nodes were the commonest findings. Twelve patients (34.2%) had extra-abdominal disease in addition to having abdominal TB. This group comprised of 11(31.4%) patients who had TB lymphadenitis and one patient with pulmonary TB.

Three patients declined all investigations. The rest had several investigations done. The HIV was requested for in all the patients. Two children aged 7 and 13 and one 75 years old man were HIV negative, one man declined the test and the remaining 31 patients tested positive for HIV. Ultra sound scan was done in 28 patients. The results are shown in Table 5.

Abdominal surgery in form of mini laparotomies was done in 17 patients mostly for the purpose of making a diagnosis. Three patients who had encysted abscesses had full laparotomies in order to drain the abscesses. The findings are shown in Table 6.

A good response was defined as the quick clearing of symptoms and signs weight gain and return to work or normal activity. A poor response was defined as delayed clearing of symptoms and signs, no appreciable gain in weight for a long time and therefore delayed return to normal activity. Table 8 shows the patients response to treatment. The good response patients subjectively started feeling well as follows:

- Six patients started feeling well after one week of treatment, 13 patients after two weeks and seven after three weeks.
- Eight patients returned to work after one month, six patients returned to work after two months and four patients returned to work after four months. In eight patients it was not known when they returned to normal life.
- Of those who initially responded well, died of other effects of AIDS one six months later and four one year later. The others were lost to follow up after a while.

**Table 1.** Age and Sex Distribution

| Age range | 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71+ |
|-----------|------|-------|-------|-------|-------|-------|-------|-----|
| Male      | 0    | 0     | 5     | 6     | 7     | 0     | 0     | 1   |
| Female    | 2    | 2     | 6     | 4     | 2     | 0     | 0     | 0   |
| Total     | 2    | 2     | 11    | 10    | 9     | 0     | 0     | 0   |

**Table 2.** Symptoms

| Symptom          | Number of Patients | Percentage |
|------------------|--------------------|------------|
| Abdominal pain   | 32                 | 91.4       |
| Weight loss      | 25                 | 71.4       |
| Fever            | 22                 | 63.0       |
| Swelling abdomen | 10                 | 28.6       |
| Night sweats     | 9                  | 25.7       |
| Skin disease     | 5                  | 16.7       |
| Diarrhea         | 4                  | 11.4       |
| Cough            | 3                  | 8.6        |
| Chest pain       | 1                  | 2.9        |

**Table 3.** Description of Abdominal pain

| Pain Description | No. of Pts | %    |
|------------------|------------|------|
| Severe           | 19         | 54.3 |
| Moderate         | 9          | 25.7 |
| Mild/discomfort  | 7          | 20.0 |
| Total            | 32         | 100  |

**Table 4.** Physical findings

| Physical sign                  | Number of Patients | Percentage |
|--------------------------------|--------------------|------------|
| Tender abdomen                 | 32                 | 91.4       |
| Abdominal mass                 | 22                 | 62.9       |
| Extra abdominal lymph nodes    | 11                 | 31.4       |
| Partial intestinal obstruction | 7                  | 20.0       |
| Skin rash                      | 6                  | 17.1       |
| Large (clinical) ascites       | 5                  | 14.3       |
| Genital Ulcers                 | 2                  | 2.9        |
| Finger clubbing                | 1                  | 2.9        |
| Crepitations in chest          | 1                  | 2.9        |

**Table 5.** Ultra Sound Scan results

| Findings                | Number of Patients | Percentage |
|-------------------------|--------------------|------------|
| Ascites                 | 27                 | 96.4       |
| Para aortic lymph nodes | 13                 | 46.2       |
| Mesenteric nodes        | 6                  | 21.4       |
| Cystic masses (abscess) | 3                  | 10.7       |
| Solid masses            | 3                  | 10.7       |
| Right iliac fossa mass  | 2                  | 7.1        |
| Splenomegaly            | 1                  | 3.6        |

**Table 6.** Laparotomy Findings

| Finding                | No. of Pts | %    |
|------------------------|------------|------|
| Tubercular peritonitis | 16         | 94.1 |
| Caseating nodes        | 12         | 70.6 |
| Encysted Abscess       | 4          | 23.5 |
| Omental mass           | 3          | 17.6 |
| Caecal mass            | 2          | 11.8 |

**Table 7.** Summary of investigations.

| Investigation         | Positive | Negative | Declined | Total |
|-----------------------|----------|----------|----------|-------|
| HIV Test              | 31       | 3        | 1        | 35    |
| U/Sound scanning only | 15       | 0        | 0        | 15    |
| U/Scan + Laparotomy   | 13       | 0        | 0        | 13    |
| Total U/Sound scanned | 28       | 0        | 0        | 28    |
| Laparotomy only       | 4        | 0        | 0        | 4     |
| Diagnosed Clinically  | 0        | 0        | 3        | 3     |

**Table 8.** Response to Treatment.

| Response                           | No. of Patients | %    |
|------------------------------------|-----------------|------|
| *Good Response                     | 26              | 74.3 |
| Poor Response                      | 5               | 14.3 |
| *Good initial response, died later | 5               | 14.3 |
| Died while on initial treatment    | 4               | 11.4 |

## Discussion

The existence of many good reviews on TB abdomen is acknowledged. It is also acknowledged by other researchers that the Pattern of presentation and severity of this malady which commonly affects the low social economic people are changing and the incidence is rising<sup>1,4,5,6</sup>.

A literature search of this condition revealed that it affects females more than males and that the age range most affected is the 20 to 40 age range<sup>7,8</sup>. Tariq et al in a study done in Kuwait found a Male preponderance and so did Sharma in Khathmandu<sup>5,9</sup>.

In this study the mean age was 32 years at presentation. and the male to female ratio was almost the same There more males than females but the difference was not statistically significant. In patients who were above 30 years old, there were more males affected than females. The reverse was true for those patients who were below 30 years of age. This seems to suggest that females are affected at an earlier age than males. [

The diagnosis of abdominal TB can be difficult often, in view of its protean manifestations and mimicry of other diseases. The clinical features of abdominal TB are vague and non-specific this often delays the diagnosis<sup>8,10,11</sup>. Although pain is said not to be a significant feature of abdominal TB<sup>7,12</sup> and indeed Ramanathan et al found a low pain presentation percentage of 41.6% in Singapore and so did Cengiz Bolukbas et al in Turkey. However Sharma in Khathmandu found pain as the most common symptom found in 80% of the patients studied<sup>4,6,9</sup>. The findings from this study show that the majority of the patients (91%) presented with abdominal pain and more than half (54%) of the patients with abdominal pain had severe pain. The other prominent symptoms were weight loss(71%). fever(63%). In Kuwait they found a similar presentation but in Singapore fever was the most prevalent finding<sup>4,5,11</sup> where as Unzokoy<sup>8</sup> in Beijing found weight loss to be the most prevalent symptom.

In our study the major findings on physical examination were; abdominal tenderness (91%) and abdominal masses (62.9%). In Khathmandu abdominal tenderness only found in 48% of the cases<sup>11</sup>. In West Africa and Turkey massive

ascites was a significant finding<sup>6,12</sup>. In this study only five patients presented with massive ascites. Seven other patients had large abdomens due to gaseous distention as a result of partial bowel obstruction.

It was also noted that 31.4% patients had extra abdominal lymph adenitis only one patient had pulmonary involvement, Sharma reports 25 % Pulmonary involvement in India and so does the Nepalese study but Uzunkoy in China reports only one patient out of his series of 11 with chest TB<sup>1,8,9</sup>.

The investigation of these patients can be costly and time consuming Suggested investigations include small bowel Barium meal, Barium enemas colonoscopy Ultrasonography, PCR of ascetic fluid Laparoscopy and mini Laparotomy<sup>1,8,9</sup>. Other workers have found the CT scan to be very effective in diagnosing abdominal TB<sup>5</sup>. The use of Chest radiographs, Mantoux test, and ascetic fluid examinations produce non specific results<sup>4</sup>. We found Ultrasonography to be a very useful tool in investigating these patients and so did Uzonkoy<sup>8</sup> In Beijing. It revealed that all but one of the 28 patients scanned had ascites, showing that 96.4% of our patients had Peritoneal involvement, this finding agrees with the findings of Cengiz Bolukbas et al<sup>6</sup> in Turkey of 70% peritoneal involvement. In the majority of these patients the ascites could not be elicited on physical examination. Scanning also demonstrated that the majority (67.6%) of the masses were Para-aortic and mesenteric lymph nodes.

We did HIV test on our patients after pre test counseling. The fact that 88.6% of the patients had a positive HIV test result means that this is an HIV related problem<sup>1</sup>. With the HIV pandemic on course we find this to be an important investigation in the management of patients with suspected abdominal TB. Open surgery in these patient should be avoided as most of the may be immune compromised we suggest ultrasonography as the main feature of investigating these patients it is a cheap investigation and can be found in many centres in third world countries.. Only in doubtful cases should they under go surgery In fact Ramanathan et al<sup>4</sup> suggest trial of anti TB therapy in any patient where the index of suspicion points to TB. On the other hand some workers advocate early

Laparotomy/laparoscopy for both diagnosis and treatment<sup>13</sup>. Seventeen of our patients had Laparotomy for diagnostic purposes; all but one had tubercular peritonitis.

Comparing the sensitivity of the Ultrasound scan and Laparotomy in picking up intra abdominal pathology, it was noted that where as Ultrasound scan could pick up 67.6% of the patients with enlarged intra abdominal nodes, Laparotomy picked 70%. This difference was statistically significant ( $P= 0.01$ ). This means that Laparotomy is the surest way of making a diagnosis. Fourteen of these laparotomies were mini laparotomies and only three were full laparotomies done to drain the encysted intra abdominal abscesses. In the author's view, patients should first have an Ultrasound scan and if there is a doubt about the diagnosis then a mini Laparotomy or Laparoscopy where available should be performed to make the diagnosis. Other studies seem to point in this direction<sup>8,9</sup>.

All the patients were treated according to the Ministry of Health protocol for the treatment of extra pulmonary TB and the patient with pulmonary TB was treated as such. There was a good response in 26 of the patients, a poor response in five and there was an initial mortality of 11.4% later five patients died after an initial good response one after six months and four after one year. They all died of other effects of AIDS. What can be said about this condition? In the present form it is a HIV related condition, whose presentation is significantly different from the traditional non-HIV related disease. Physical examination and Ultrasound scanning can lead to the diagnosis in the majority of the patients; however, in doubtful cases Laparotomy will clinch the diagnosis. The majority of the patients will respond to treatment and return to normal life hence the need to start treatment early<sup>8,9</sup>.

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