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Clinical Presentation of Abdominal Tuberculosis

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Abstract

Introduction. Nowadays, tuberculosis remains an issue of global. It may have affected all gastrointestinal organs, including peritoneum. Thus, diagnostic approach of this abdominal tuberculosis remains challenging as it may present non-specific features and mimics other abdominal pathologies. A study focused on clinical and laboratory findings, imaging and evaluation of management of those diagnosed as abdominal tuberculosis was required.

Method. A cross-sectional study proceeded retrospectively aimed for an evaluation. All abdominal tuberculosis managed in dr Cipto Mangunkusumo General Hospital, Jakarta and Fatmawati General Hospital, Jakarta during January 2011 to December 2013 were enrolled. Data collected from data registration, subject's characteristic, clinical findings, laboratory findings, and imaging were variables subjected to analysis.

Results. There were forty-eight subjects recorded. The most symptoms found were abdominal pain (81.25%), abdominal distention (72.9%), fever (68.75%) and weight loss (68.75%). While as most laboratory findings were leukocytosis (52%) and elevated erythrocyte sedimentation rate, ESR (72.9%). And up to 50% subject showed normal chest x-ray while as other showed non-specific features for pulmonary tuberculosis.

Conclusion. Clinical presentations showed to be diverse. Laboratory finding, and imaging maybe valuable to diagnose abdominal tuberculosis, although chest x-ray represents non-specific features for pulmonary tuberculosis. Evaluation of these clinical findings and lead to accurate diagnostic approach; which was determine the characteristics associated with abdominal tuberculosis diagnostics value..

Keywords: *Abdominal Tuberculosis; Laboratory Test; Symptoms*

Introduction

Indonesia places the 4th nation of the highest incidence of tuberculosis worldwide with 331.424 cases in 2012,¹ and found to be increased in 2016.² Tuberculosis may have involved in all gastrointestinal organ in the abdominal cavity, including peritoneum. To date, the problem encountered lead to a more absurd in the last decade as the incidence and morbidity of abdominal tuberculosis as well as the morbidity increased paralleled to the high incidence of HIV infections and other immunocompromised conditions.

Those with abdominal tuberculosis tend to present non-specific symptoms, both acute and chronic, such as abdominal pain, abdominal distention, fever, diarrhea, hematochezia and weight loss. There were studies focused on symptoms associated abdominal tuberculosis found that 81% subjects have presented abdominal pain.³ While as Lambrianides and colleagues reported their findings that abdominal pain found in 63% subjects. Other symptoms were fever, bowel obstruction and weight loss. Most of these symptoms have been perceived by the patients for 6 months to 2 years.⁴

Diagnostic approach of abdominal tuberculosis remains challenging as the symptoms may mimics other abdominal pathologies. Most case were delay presented or misdiagnosis because there is a concept that those treated as abdominal tuberculosis are only those who show high suspicion. Das and Shukla reported the accuracy of diagnosis is about 50%.⁵ The gold standard in diagnosis was growth of

Mycobacterium tuberculosis in culture media of specimen taken from infected organ.⁶⁻⁸

In abdominal tuberculosis there may develop complications such as intestinal obstruction and perforation that require surgical intervention. Any delay to proceed surgical intervention to treat complications may lead to mortality. Such a condition leading to the necessity to find out clinical presentations, laboratory exams, and imaging in diagnosis. Evaluation of management of abdominal tuberculosis was also addressed.

Method

A cross-sectional study run enrolling those diagnosed as abdominal tuberculosis managed during January 2011 to December 2013 in dr. Cipto Mangunkusumo General Hospital, Jakarta (RSCM) and Fatmawati General Hospital, Jakarta (RSF). Data were collected from registration with total sampling method. Those with insufficient data were excluded. Clinical findings (abdominal pain, abdominal distention, fever, diarrhea, vomit, weight loss), laboratory findings and imaging (chest x-ray) were the variables analyzed.

Results

There were total of 48 subjects diagnosed as abdominal tuberculosis with sufficient data enrolled in the study. Out of 48 subjects, a total of 35 subjects managed in RSCM and other 13 subjects managed in RSF. Age distributed widely, ranged of 1 to 85 years old. Mostly

were in productive age population ranged of 25–44 years old. Ratio between males to females was 1:1.4. (see table 1).

All subjects were presenting more than a symptom with abdominal pain was the most frequent symptom (81.25%), abdominal distension (72.91%), fever (68.75%) and weight loss (68.75%) as shown in table 2. These symptoms found for 2 to 180 days period. Chest x-ray found were in a great vary from normal to thickening pleura, and pleural effusion (see table 3). Out of these imaging, 50% subjects showed normal radiological finding; and those showing characteristics of pulmonary tuberculosis was found in 31.25% subjects.

There were three parameters of laboratory exams, i.e. hemoglobin content, leukocyte counts, and estimated sedimentation rate (ESR). Mostly presented with hemoglobin content more than 10 gr% (77%) and elevated ESR (72.9%). Leukocyte counts have may presenting either elevated count (leukocytosis) or normal ranged (see table 4). Affected organ mostly was peritoneum (26%), ileum (20%), colon (20%) and appendix vermicularis (10%) see table 5.

Table 1. Subjects characteristics: age and gender distribution

Age (years old)	Male	Female	Total	%
0–4	–	1	1	2.1
5–14	1	–	1	2.1
15–24	7	7	14	29.2
25–44	8	15	23	47.9
45–64	3	5	8	16.7
>65	1	–	1	2.1
Total	20	28	48	100

Table 2 Signs and symptoms found in abdominal tuberculosis

Signs and symptoms	Total	%
Abdominal pain	39	81.25
Abdominal distention	35	72.91
Constipation	11	22.91
Fever	33	68.75
Diarrhea	8	16.67
Vomit	1	2.10
Weight loss	33	68.75
Enterocutaneous fistula	2	4.20

Table 3 Radiological findings in abdominal tuberculosis

Chest X-ray findings	Total	%
Normal heart and lung	24	50.00
Pulmonary TB	15	31.25
Pneumonia	4	8.30
Pleural effusion	6	12.50
Pulmonary fibrosis	1	2.10
Pleural thickening (<i>Schwarte</i>)	1	2.10

Table 4 Laboratory tests in abdominal tuberculosis patients

Examination	Total	%
Hemoglobin content: <10 g%	11	22.9
>10 g%	37	77.0
Leukocyte count: <10,000 cells/mm ³	23	47.9
>10,000 cells/mm ³	25	52.0
ESR: <40 mm	13	27.9
>40 mm	35	72.9

ESR: Erythrocyte sedimentation rate

Table 5 Affected organ in abdominal tuberculosis

Location	Total	%
Colon	3	10
Ileo-caecal	6	20
Ileum	6	20
Jejunum	1	3
Pancreas	1	3
Liver	1	3
Gall bladder	1	3
Common bile duct	1	3
Peritoneum	8	26
Appendix vermicularis	3	10

Discussion

Abdominal tuberculosis can be hard to diagnose due to its non-specific symptoms. The disease could happen in all ages and our study enrolled patients diagnosed with abdominal tuberculosis between 1 year old to 85 years old, with majority were those on productive age between 25–44 years old (47.9%). Study of Kapoor and colleagues reported predominance of young adult in average of 30–40 years old.⁹

Study of Das and Shukla emphasizing the diagnostic approach which is quite difficult with accuracy 50%.⁵ In the study it found that clinical findings were presented in a great vary, with abdominal pain as the most symptoms (81.25%). This finding is in accordance with study of Addison (81%); whereas Lambrianides reported 63%.^{3,4} Despite abdominal pain, other symptoms might be found were abdominal distention, fever, and weight loss. In the study, these symptoms last for 2 days to 6 months. It was noticed that this variation is closely related to intraabdominal organ involved. Gastric and duodenal tuberculosis may mimic dyspepsia, whereas ileo-caecal tuberculosis may present like any other abdominal pain, nausea, vomit, and malabsorption. Other frequent signs and symptoms noticed were fever, weight loss, diarrhea, and constipation.

Despite abdominal tuberculosis, those diagnosed as pulmonary tuberculosis with pathologic chest x-ray noted in the study was 15 subjects (31.25%); like the study of Addison (32%).³ Das and Shukla reported a lower incidence i.e. 15%.⁵ The former believed that abdominal tuberculosis is associated with pulmonary tuberculosis. It may, but in contrast it may not. It is not used to be a connection. Should pulmonary tuberculosis be a primary infection, then Mycobacteria may spread out to gastrointestinal tract in different mechanisms. Firstly, hematogenic spread as the basic pathophysiology where Mycobacteria may spread through blood circulation.¹⁰ Secondly, lymphatic spread of an infected area resorbed to lymphatic drainage and entrapped in lymph nodes may lead to direct infection to surrounding tissues and organ.^{10–12} The lymphatic spread theory recently accepted as the most theory precisely explains the pathophysiology of spreading infection. However, it should be noted that abdominal tuberculosis may be found as primary infection with no pulmonary tuberculosis.^{13,14}

In the study it was found that peritoneum, ileo-caecal, and ileum were the most infected sites. It is known that ileo-caecal and peritoneum were the site commonly affected, and manifested as granuloma, caseation, mucous ulceration, and fibrosis as there are various contributing factors like stasis, presence of abundant lymphoid tissue, increased rate of absorption at this site and closer contact of the bacilli with the mucosa of ileum.¹⁵

We also noted laboratory findings in out of 48 subjects enrolled, there were 11 subjects (22.9%) with anemia, 25 subjects (52%) with leukocytosis, and 35 subjects (72.9%) with elevated ESR. It was paralleled to the features of chronic inflammatory response to a specific infection.

Imaging, such as abdominal x-ray, barium enema, follow-through, abdominal CT-scan, ultrasound, and visualization such as endoscopy, and colonoscopy in many occasions were used to find out abdominal pathologies in abdominal tuberculosis. CT-scan a modality of most effective in this case, since it may represent abdominal pathology like thickening peritoneum, enlarging lymph nodes, bowel obstruction, and ascites.¹⁶ Endoscopy in abdominal tuberculosis represent visualization of ulcers, ulcer hypertrophic, and

hypertrophic, deformed ileo-caecal valve, stricture, polypoid lesion, and fibrous band as reported by Alvares.¹⁷ His study also found that more 50% subjects showed more than a single affected site.

Histopathology findings referred to definitive parameter in abdominal tuberculosis. It may show the characteristics of a chronic inflammatory response i.e. Datia cells of Langerhans, epithelioid cells, and caseous necrosis. Level of adenosine deaminases (ADA) activity which is found 36 unit/L in ascites showed a diagnostic value for abdominal tuberculosis. With ADA level of >54 U/L, the sensitivity is 100% and the specificity 96%.^{6,18,19}

All subjects in the study were treated using triple anti-tuberculosis, i.e. tuberculostatic drugs consists of rifampicin, ethambutol, and isoniazid (INH) for 18 months period with good outcome good, and there was no mortality during treatment.

Conclusion

Diagnosis of abdominal tuberculosis is challenging as it may manifest non-specific clinical presentations. Evaluation of clinical findings and clinical examinations of the characteristics is quite important for accurate diagnosis.

Conflict of interest

Author disclose there was no conflict of interest.

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