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Case Report

Amoebic Liver Abscess Multifocal With Bilateral Parapneumonic Effusion: A Case Report

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ABSTRACT

Background: A liver abscess is defined as a pus-filled mass in the liver that can develop from injury to the liver or an intraabdominal infection disseminated from the portal circulation. **Objective:** The aim was to discuss about liver abscesses are categorized into pyogenic or amoebic caused by Entamoeba histolytica. **Methods:** This is a case report that reported about pus-filled mass in the liver. **Results:** A male patient, 53 years old, was admitted to Hospital for Upper right abdominal pain, Fever, Cough, Pain in the lower right chest. Chest examination found weakened bronchovesicular breath sounds as high as RIC V, Pleural Friction Rub, wet crackles. Abdominal Examination found supel palpation, liver palpable 2 fingers below the arcus costae and 2 fingers below the process xiphoid, blunt edge, soft consistency, tenderness pain in the dextra hypochondrium. Laboratory report Anti Amoeba : Positive 40,3 unit. The patient was given intravenous metronidazole therapy 3x750 mg for 10 days. **Conclusion:** Complications of amoebic liver abscess is pleuropulmonary involvement. Pulmonary and pleural amebiasis is an uncommon disease, usually occurring on the right side of the lung compared to the left side.

Keywords: amoebic liver abscess, metronidazole, parapneumonic effusion

1. Introduction

A liver abscess is defined as a pus-filled mass in the liver that can develop from injury to the liver or an intraabdominal infection disseminated from the portal circulation. The majority of these abscesses are categorized into pyogenic or amoebic, although a minority is caused by parasites and fungi. Most amoebic infections are caused by Entamoeba histolytica [1]. Complications of amoebic liver abscess is pleuropulmonary involvement, which is reported in 20–30% of patients, is the most frequent complication of amoebic liver abscess. Manifestations include sterile effusions, contiguous spread from the liver, and rupture into the pleural space [2].

2. Case Presentation

A 53 year old male patient was admitted to RSUP Dr. M. Djamil Padang Hospita for Upper right abdominal pain that has been increasing since 5 days ago, pain has been felt since 10 days ago. The pain is continuous and does not radiate. Pain like stabbing, right upper abdominal pain worsens when coughing, breathing deeply and lying to the right. Pain does not decrease with position changes. Fever since 5 days ago, high fever, continuous, accompanied by profuse sweating, not accompanied by chills. Fever since 5 days ago, Cough since

4 days ago, cough with white phlegm, Pain in the lower right chest was felt 3 days ago. The pain is felt continuously, the pain is like being stabbed, the pain does not radiate. Lower right chest pain gets worse when breathing deeply and coughing.

History of disease in the past, there were complaints of diarrhea 1 month before entering the hospital and at this time there were no complaints of diarrhea. Diarrhea for 4 days, consistently watery, no mucus and no blood, frequency of diarrhea 5x a day, volume ± 200cc for each diarrhea. The patient is a lower socioeconomic class. Patients like to consume foods that are not cooked, such as vegetables. Patients rarely wash their hands before eating. History of alcohol consumption for 10 years.

From the physical examination, he was compos mentis. Vital sign results were blood pressure 112/75 mmHg, pulse 95bpm, respiration rate 22x/min, temperature 39 °C, SpO2 97%. Chest examination found weakened bronchovesicular breath sounds as high as RIC V, Pleural Friction Rub (+), wet crackles (+). Abdominal Examination found supel palpation, liver palpable 2 fingers below the arcus costae and 2 fingers below the process xiphoid, blunt edge, soft consistency, tenderness pain in the dextra hypochondrium. Laboratory report were Hb 12,8 g/dl, WBC 23.470 /mm^{3,} platelet 373.000 /mm^3, neutrophil 80%. Bacterial culture sputum and blood no growth. Antiamoeba (Entamoeba histolytica): Positive 40,3 unit.

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a b

Figure 1. Chest ultrasound performed on 19 January 2023, (a) Pleural effusion dextra ; (b) Pleural effusion sinistra). Blue arrow, abscess. Red arrow, pleural effusion.

Chest ultrasound examination was taken which showed pleural effusion bilateral minimum (Figure 1). Chest X-ray examination was taken which showed pleuropneumonia dextra (Figure 2). Abdominal ultrasound examination was taken which showed liver abscess (Multifocal) right lobe segment VII, VIII (Figure 3). The patient was diagnosed with amoebic liver abscess multifocal with bilateral parapneumonic effusion ec amoebic.

Figure 2. Chest X-ray performed on 18 January 2023 showed pleuropneumonia dextra.

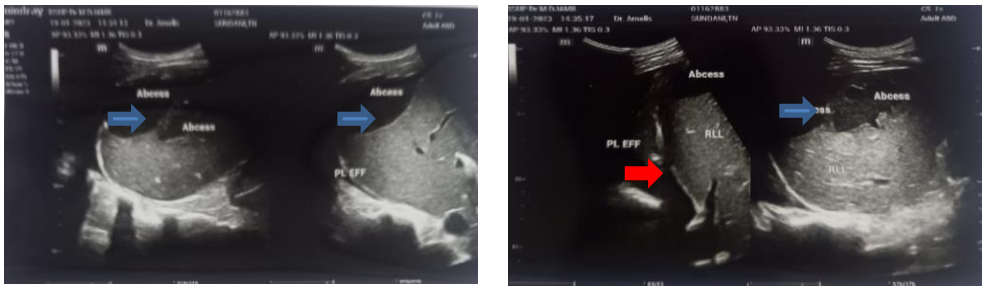

Figure 3. Abdominal ultrasound performed on 19 January 2023 showed liver abscess (Multifocal) right lobe segment VII, VIII. Blue arrow, abscess. Red arrow, pleural effusion.

The patient had medication with metronidazole 3 x 750 mg intravenous for ten days and continued 3 x 500 mg orally for 5 days, paracetamol 3x1000mg orally and asetilsistein 3x200mg orally. The patient had good response from medical therapy. Evaluation of chest X-ray and abdominal ultrasound after medical therapy (Figure 4).

a b

Figure 4. (a) Abdominal ultrasound taken on 15 March 2023 showed significant improvement of the liver; (b) Chest X-ray taken on 16 March 2023 showed significant improvement of the lungs

3. Discussion

In this patient has been diagnosed as an amoeba liver abscess with parapneumonia effusion ec amoeba. From the intestine, the amoeba reaches the lungs by trophozoites enter the portal circulation and travel to the liver via the portal vein. Liver abscesses may form by the lytic activity of the parasite. Abscess progression may involve the diaphragm and pleuropulmonary complications may occur immediately. As the liver abscess enlarges upwards, adhesions form between the surface of the liver and diaphragm. A perforation in the pleural space causes an amoebic empyema, in which rupture into the lung can produce an abscess, consolidation or hepatobronchial fistula. Most of the pleuropulmonary complications are caused by the direct expansion of an amoebic liver abscess. Hematogenous spread occasionally occurs via the portal system, hepatic veins and inferior vena cava to reach the lungs and pleura. In rare cases, the route is via lymphatics locally (from the lymphatics to the inferior vena cava) or via the thoracic duct and then to the superior vena cava, resulting in pulmonary lesions [3, 4].

Pleural effusions arise by two mechanisms in association with amoebic liver abscess. The first occurs when an amoebic abscess produces diaphragmatic irritation and a sympathetic pleural effusion in a manner analogous to that seen with pyogenic liver abscesses. Amoebic liver abscesses also produce pleural effusions when the abscess ruptures through the diaphragm into the pleural space [5].

The Occurrence of Effusion Parapneumonia according to Sahn, et al. 2007 The focus of lung parenchymal infection is an increase production of proinflammatory cytokines such as interleukin 8 (IL-8) and tumor necrosis factor-a (TNF-a) which will result in an increase in lung interstitial fluid and an increase in capillary permeability. This condition results in fluid shifts and fluid accumulation in the pleural cavity. Characteristics of the fluid in the pleural cavity at this stage is exudative. At this stage the effusion can heal spontaneously if the underlying disease is treated [6].

Chronic alcohol consumption causes some metabolic or immune changes in the liver, which facilitate the invasion and colonization of the liver by the amoeba. the increased liver iron due to regular alcohol

consumption, that increases the susceptibility to Amoebic Liver Abscess in alcoholics by providing an ideal breeding ground for the growth of E. histolytica. Iron-hypothesis was based on the observation that E. histolytica fails to grow without the addition of exogenous iron to the culture medium, despite the presence of enough endogenous iron in the medium. The virulence of E. histolytica in-vivo is enhanced by oral or parenteral administration of iron. Another observation which was a basis of our assumption was that Yersinia enterocolitica, a gram-negative bacillus that requires iron for its growth similar to E. histolytica, causes severe infection in the form of multiple liver abscesses in patients such as hemochromatosis who have high iron load in their liver [7, 8].

Therapy in this patient was given Metronidazole 750mg infusion three times a day for 10 days, in accordance Loscalzo J, et al.2022, Metronidazole 750mg infusion three times a day for 10 days is medication for abscess liver amoebic. According to Light RW, et al.2013 the treatment of choice for pulmonary amoebiasis is metronidazole, 500 to 750 mg three times a day orally for 10 days [2, 9]. The patient eventually got better after 6 days of treatment, fever and cough had subsided, and upper right abdominal pain with chest pain had significantly reduced. In the other case the patient was diagnosed with pulmonary amoebiasis and was admitted for therapy using combination of 500 mg metronidazol infusion three times a day and 750 mg levofloxacin infusion once a day. The patient eventually got better after 10 days of treatment, fever and cough had subsided, and the breathlessness had significantly reduced. from thesecase, we can conclusion 750 mg metronidazol infusion three times a day more effective for clinical improvement [10].

For amoebic liver abscesses, the prognosis is excellent. Amoebic liver abscesses are very sensitive to amoebicidal agent's medical therapy. Only complicated cases require drainage for resolution. In one cross-sectional study of hospital admissions with amoebic liver abscesses, the mean hospital stay was 7-10 days and the patients were on amoebicidal agents for average of 11 days. Because of the effectiveness of medical treatment of amoebic liver abscesses, the mortality is as low as 1% to 3% [11].

Complications of amoebic liver abscess is pleuropulmonary involvement, which is reported in 20–30% of patients, is the most frequent complication of amoebic liver abscess. usually occurring on the right side of the lung compared to the left side, involvement of both lungs makes this case is rare. The mortality rate of amebic pericarditis and pulmonary amebiasis exceeds 20%. As a result, disseminated amebiasis has signifcantly increased mortality. Here, we reported a very rare case of a patient with extraintestinal amoebic lesions involving multiple organs [2].

4. Conclusion

Complications of amoebic liver abscess is pleuropulmonary involvement, which is reported in 20–30% of patients, is the most frequent complication of amoebic liver abscess. Pulmonary and pleural amebiasis is an uncommon disease, usually occurring on the right side of the lung compared to the left side. Pulmonary amebiasis is a life-threatening, but treatable condition. Therapy of amoebic liver abscess with pleuropulmonary involvement using 750 mg metronidazol infusion three times a day more effective for clinical improvement.

5. Data Availability Statement

The datasets generated and analyzed during the current study are not publicly available due to privacy and ethical considerations but are available from the corresponding author upon reasonable request.

6. Ethical Statement

Sumatera Medical Journal (SUMEJ) is a peer-reviewed electronic internationaljournal. This statement below clarifies ethical behavior of all parties involved in the act of publishing an article in Sumatera Medical Journal (SUMEJ), including the authors, the chief editor, the Editorial Board, the peer-reviewer and the publisher (TALENTA Publisher UniversitasSumatera Utara). This statement is based on COPE's Best Practice Guidelines for Journal Editors.

7. Author Contributions

The author contributed to the design and implementation of the case report finalizing the manuscript.

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10. Conflict of Interest

Authors declares no conflict of interest.

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