

Pulmonary Aspergilloma; A Case Report

Cokorda Agung Abi Baruna¹, Ni Made Dwita Yaniswari²

¹Intern of Pulmonology and Respiratory Medicine Department in Wangaya Regional Hospital, Denpasar, Bali, Indonesia

²Pulmonologist of Pulmonology and Respiratory Medicine Department in Wangaya Regional Hospital

Abstract: *Infectious diseases are still a major health problem in Indonesia, one of which is fungal infection or pulmonary mycosis. A type of pulmonary mycosis that is often excreted is Aspergillosis. Find out more about Aspergilloma often found in patients after pulmonary tuberculosis. Most studies report pulmonary cavity in Aspergilloma caused by tuberculosis. The clinical manifestations of pulmonary aspergilloma are various, from cases without variation to massive hemoptysis which can be fatal. In this case report, the authors present case from a 76-year-old male, who had been diagnosed as pulmonary Aspergilloma associated by history of Lung Tuberculosis*

Keywords: Aspergilloma, Pulmonary Aspergillosis, Pulmonary mycosis, Tuberculosis, X-ray, CT-scan

1. Introduction

Pulmonary infection has been one of major problem in Indonesia. One of the major infection caused by fungal infection (Pulmonary mycosis). The most common case reported associated by fungal infection is Aspergillosis, which in 95% reported case was caused by *Aspergillus Fumigatus*. Pulmonary aspergilloma is one of the clinical manifestation of Aspergillosis, which is fungal Saprophytes in the form of a colony inside lung cavity that occurs because of many pre-existing lung diseases. This colony will form a tumor-like formation called *fungus ball or mycetoma*. Aspergilloma parts consist of an Aspergillus Hyphae, Fibrin, slimes, and inflammatory cells, and epithelium cells [1].

Aspergilloma most commonly found in patients with history of tuberculosis, whether the patient recently finished the treatment or has been finished the treatment in a long time ago. Most of studies reported that lung cavity in Aspergilloma was caused by tuberculosis [1]. Other than that, the lung cavity also caused by other pre-existing diseases such as: *sarcoidosis, bronchiectasis, cystic fibrotic, lung Cyst, Lung cancer* [2]. The clinical manifestation of Aspergilloma can be varied, from the non-symptomatic until massive hemoptysis which can be fatal. That's why the optimal treatment modalities for Aspergilloma depends on the symptoms that the patients might shown [3]. Surgery is the definitive therapy for Aspergilloma [4].

Patients with mild hemoptysis would be suggested to be put in bed rest, postural drainage, and treat other symptoms. [10] Patients with recurrent hemoptysis or massive hemoptysis would be considered to be treated with surgery treatment, considering the risk / tolerance of the surgery itself. But the consideration usually being held by the lung condition of the patient with Aspergilloma. If surgery was not an option, then clinician should consider embolization or anti-fungal Medicines transthoracic-Intra-cavity [5]

2. Case report

A 76 years old man was Hospitalized at Wangaya Regional Hospital with complaints of pain on his stomach since 1 week ago accompanied by pain while micturating and wet-cough and sore throat for 5 days. There was a history of fever but only for 1 day accompanied with general weakness. There was no shortness of breath, no loss of taste and smell. The patient has a history of Lung Tuberculosis and had finished his treatment 10years ago. Patients has no history of Cardiac diseases, Diabetes melitus, or any metabolic diseases. Patients also has no history of smoking or drinking alcohol. On physical examination, blood pressure 130/80 mmHg, heart rate 80 x/minute, respiratory rate 20x/minute with body temperature 37.0 C, and oxygen saturation 95% at room temperature. On physical examination, no crackles or wheezing were found, lung sounds were still within normal limit, single s1s2 heart sound, and no murmurs or gallops. On ECG examination, sinus rhythm with pulse 90 beats per minute. Laboratory examination found Negative PCR COVID-19 result. The blood test shown normal leukocytes limits, slight decreases on Hemoglobin (12.6). slightly decrease in hematocrit (38.5) and everything else were in normal limit. BUN & creatinine level were increased (52 & 1.5). Chest X-ray examination on 10 January 2022 shown a consolidation on right suprahilarlesion with thickening of upper-right pleural line. Lung sinuses and Diaphragm within normal limit. This resulted in suspicion on Relapsing Tuberculosis and Lung mass (tumor). The patient had undergo Abdominal X-ray by the Urologist and found that few Ureteral stones on the left Renal site. The patients were diagnosed with *Hydronephrosis + Ureterolithiasis S*. the patients consulted to the Pulmonologist due to the thorax X-ray and the long history of tuberculosis of the patient. Pulmonologist suggested to do rapid molecular test (TCM) which bring the negative results on the tuberculosis Bacilli. The patients then undergo surgery for the ureterolithiasis and then being discharged from hospital 2 days after, as the pulmonologist decided to continue the investigation in polyclinic.

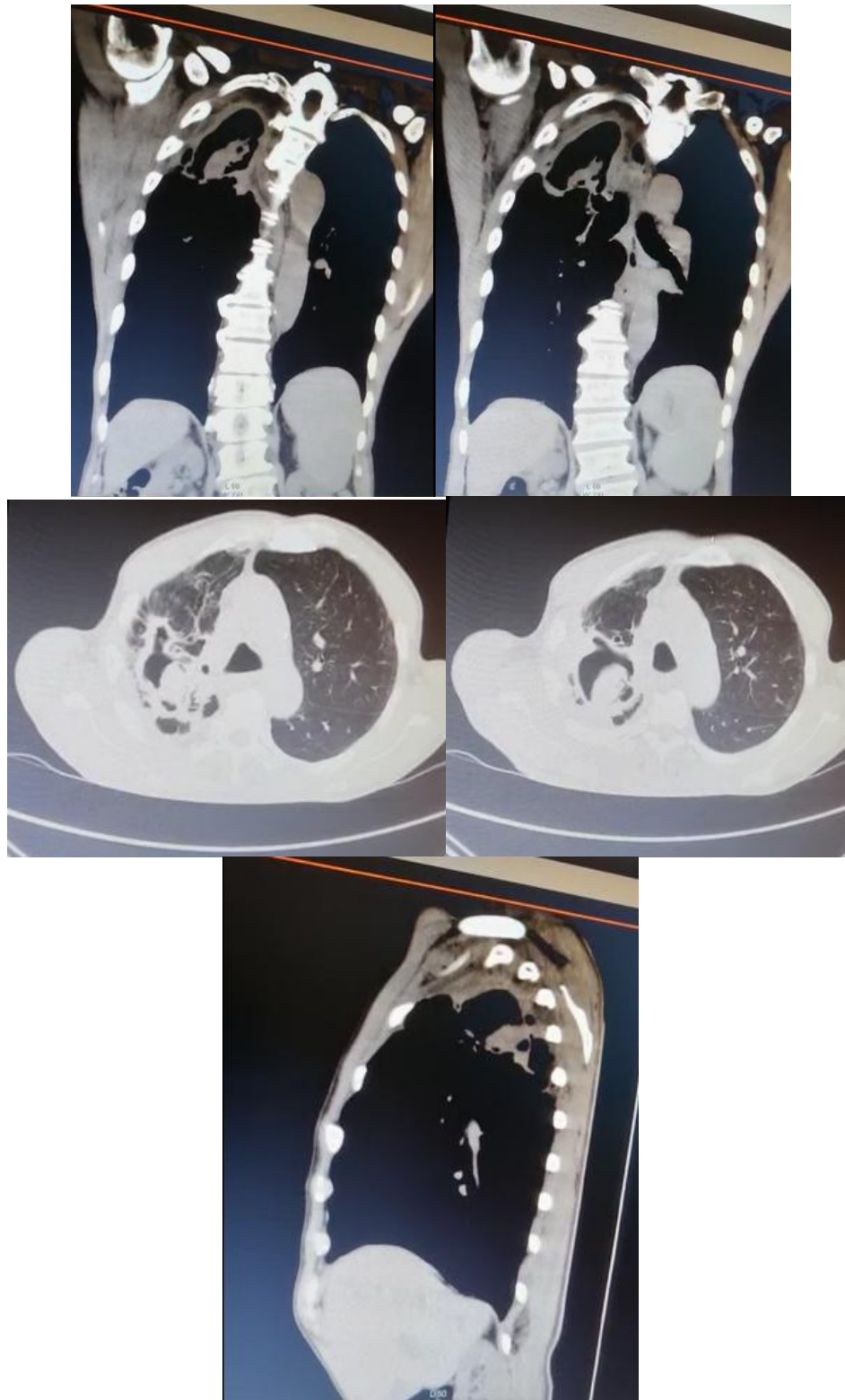


Figure 1: Thorax CT-scan

The patient, in polyclinic had undergo CT-scan by the pulmonologist and result in: Cavity with thick Lining (+/- 4.4x7.4x7.2 cm) with a solid component intra-cavity at the apico-posterior of right superior lobe of the lung. Fibrosis on the anterior segment of the right superior lobe of the lung, dilatation of Bronchus at the anterior segment of the right superior lobe of the lung with a *Tram-track Line* Appearance and *signet ring* appearance. Thickening on the upper right Pleura line. Trachea seems pulled to the right side (airway seems patent). Main Bronchus left and right seems normal,

Heart seems within normal limit. there were calcification of arcus aorta, everything else seems normal. With the Result of the CT-scan expertise highly suggested an Aspergilloma at the apex-posterior of the right superior lobe of the lung, destruction of "Post-Tuberculosis" infection, Bronchiectasis at the anterior segment of right superior lobe of the lung, and aorto sclerosis. The patient then being referred to the higher level hospital for further investigation and treatments. Patient had been given fluconazole 1x150mg while being referred to another hospital.

3. Discussion

Aspergilloma of the lung is one of the fungal infection caused by Saprophytes, one of the most common aspergillus genus in the world. Aspergilloma forms a colony in the lung within a cavity that can be formed or constructed by pre-existing disease the patient has. This colonization formed a mass-like thing called fungus ball or *mycetoma*. Aspergilloma parts consist of an Aspergillus Hyphae, Fibrin, slimes, and inflammatory cells, and epithelium cells [1]. Aspergillus fumigatus is the most common cause of Aspergilloma, the other common cause are *Zygomycetes* and *fusarium* [1]. Even though the cases isn't as much as Aspergillus Fumigatus.

In this patient there were a history of Tuberculosis infection that occurs 10-11 years ago and had finished his treatment. The patient never showing any symptoms related to the tuberculosis ever since. It has been known that Aspergilloma commonly found in patient with long history of tuberculosis, whether the patient recently finished treatment or had finished it in a long time [1]. A study by Demir et. al reported that 13%-89% of lung cavity with aspergilloma happens in patient with history of tuberculosis infection [4].

The infection rate of Aspergilloma depends on the host immunity. Patient with immunocompetent condition, the elimination of the Aspergillus can be done effectively. There are 2 group of individual that have high risk on developing Aspergilloma, first is immunosuppressed individual, and second is individual with chronic diseases or *destroyed lung*, in this patient the author present, the patient has a long history of tuberculosis infection with parts of the lung already starting to deteriorated. As for the symptoms, aspergilloma has various symptoms from asymptomatic to massively hemoptysis. As in this patients, aside from his initial symptoms of reterolithiasis, the patients complain about wet cough, sore throat, and general weakness. There was no hemoptysis or dyspneuhistory of the patient.

Diagnosis of aspergilloma can be done with clinical manifestation, medical history of chronic lung diseases, radiology examination (X-ray & CT-scan), serology antibody or microbiology of Aspergillus spp. In this patient, clinical manifestation may be vary due to various diseases outside of the Lung region, but there are few symptoms accompanied by history of lung disease that can be a point of interest to diagnose the patient. Patient has history of Pulmonarytuberculosis and had done the therapy 10 years ago, accompanied by present clinical manifestation such as wet cough, sore throat, fever, also general weaknesses. In aspergilloma cases, X-ray will show a mass inside a cavity, that commonly found on the upper lobe of the lung. In this cases the X-ray examination weren't that clear to show both cavity and the fungus ball. CT-scan can also help if the X-ray were not clear to show Aspergilloma, CT-scan usually shown a gas bubbles with fungus ball inside it. In this patient, CT-scan founded cavity due to old tuberculosis infection with fibrotic and a mass-like fungus ball inside the cavity, highly suggesting an Aspergilloma. Another examination that could help diagnose the patient with aspergilloma is microbiology or serology fungal, which cannot be done in our facility, so we refer the patient to higher level facility to

do the examination and further treatment. Patients had been given fluconazole 1x150mg while being referred.

4. Conclusion

In this case study, the author had given data of a 76 years old Male patient that has been diagnosed with pulmonary Aspergillosis. With the symptoms of wet-cough, fever, sore throat, history of lung tuberculosis, also with highly suggestive of aspergilloma in radiology finding, after ruling out another Relapsing tuberculosis with Rapid Molecular test {TCM}. Patient being given anti-fungal (fluconazole 1x150mg) while being referred to higher level hospital for further examination and treatment.

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