

TUBERCULOSIS PATTERN ON CHEST X-RAY OF A 16-YEAR-OLD FEMALE WITH DROWNING- RELATED ASPIRATION PNEUMONIA IN ENDEMIC COUNTRY, INDONESIA: A CASE REPORT

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Pendahuluan: Tenggelam adalah salah satu penyebab paling umum pneumonia aspirasi. Pneumonia aspirasi adalah proses infeksi paru-paru yang terjadi setelah masuknya cairan yang tidak normal ke dalam saluran pernapasan bagian bawah. Diagnosis pneumonia aspirasi terkait tenggelam dapat ditegakkan melalui anamnesis, pemeriksaan fisik, dan pemeriksaan penunjang untuk mendapatkan terapi yang tepat. Di sini kami melaporkan sebuah kasus pneumonia aspirasi karena tenggelam yang memiliki tampilan radiologis fibroinfiltrat yang menyerupai TB paru. **Ilustrasi Kasus:** Seorang anak perempuan berusia 16 tahun datang dengan gejala penurunan kesadaran, demam, sesak napas, dan hemoptisis setelah tenggelam di sungai. Pasien didiagnosis dengan pneumonia aspirasi berdasarkan manifestasi klinis, namun pasien dicurigai menderita TB paru dari hasil rontgen dada. Pasien dirawat sesuai dengan penatalaksanaan pneumonia aspirasi dan bukan TB untuk menghindari resistensi pengobatan dan efek samping. **Simpulan:** Laporan ini menunjukkan pentingnya untuk menilai gejala pneumonia aspirasi atau TB pada anak-anak dengan gejala sesak napas dan hemoptisis untuk menghindari terapi yang tidak tepat.

Kata Kunci: Hemoptisis, Pneumonia Aspirasi,
Tenggelam, Tuberkulosis, X-Ray

POLA TUBERKULOSIS PADA RONTGEN DADA SEORANG PEREMPUAN BERUSIA 16 TAHUN DENGAN PNEUMONIA ASPIRASI TERKAIT TENGGELOM DI NEGARA ENDEMIS, INDONESIA: LAPORAN KASUS

ABSTRACT

Background: Drowning is one of the most common causes of aspiration pneumonia. Aspiration pneumonia is a process of lung infection that occurs after abnormal fluid ingress into the lower respiratory tract. The diagnosis of aspiration pneumonia-related drowning can be confirmed through history taking, physical examination, and supporting examination for appropriate therapy. Here we report a case of aspiration pneumonia due to drowning that had a radiological appearance of fibroinfiltrates resembling pulmonary TB.

Case Illustration: A 16-year-old girl presented with symptoms of decreased consciousness, fever, shortness of breath, and haemoptysis after drowning in a river. The patient was diagnosed with aspiration pneumonia based on clinical manifestations, but the patient was suspected of having pulmonary TB from the chest X-ray. The patient was treated according to the management of aspiration pneumonia rather than TB to avoid treatment resistance and side effects.

Conclusion: This report shows the importance to assess the symptoms of aspiration pneumonia or TB in children with symptoms of shortness of breath and haemoptysis to avoid inappropriate therapy.

Keywords: Aspiration Pneumonia, Drowning, Haemoptysis, Tuberculosis, X-Ray

1. INTRODUCTION

Drowning is an accident that still has a high incidence, especially in children and young people.^[1] Drowning is defined as acute respiratory failure due to submersion of the respiratory tract in a liquid medium.^[2] Globally, drowning is estimated to cause 500,000 victims and 360,000 deaths every year, making it an important global health problem.^[1] Drowning patients will usually aspirate and develop aspiration pneumonia with life-threatening consequences. In some cases, radiological findings in aspiration pneumonia-related drowning are non-specific, potentially blurring the diagnosis. On

the other hand, the prognosis of drowning can be poor if not treated promptly.^[2] In this case, we report a young female patient with drowning that mimicked tuberculosis radiologically.

2. CASE ILLUSTRATION

A 16-year-old female was referred from a primary healthcare facility to the tertiary care emergency department with complaints of shortness of breath, coughing up blood, and vomiting blood. Based on information from the patient's mother, the patient drowned in the river because she slipped while washing clothes with her friend. The patient drowned and was trapped in the river whirlpool for approximately 10

minutes before being rescued by his friend. After being rescued and brought to the river bank, the patient's friend tried to pat his back and chest. However, the patient was unconscious and experienced coughing and vomiting blood before finally being taken to the nearest health facility.

Based on the primary survey, the patient's consciousness was GCS 3-5-6, with blood pressure 105/60 mmHg, pulse 135 x/min, respiratory rate 48 x/min, axillary temperature 39°C and oxygen saturation 40% room air, then later to 88% nasal cannula, and 98% after reese jackson 15 lpm. On examination of the patient's physical status, the patient was found to be dyspneu on inspection. On auscultation, there were rales in both lung fields on inspiration and decreased breathing sounds in both lung fields on auscultation. Laboratory examination in the emergency room found that all were within normal limits except the Ratio of Neutrophils and Lymphocytes (RNL), which was slightly elevated, which was 5.08. Blood Gas analysis, liver function, kidney function, and sugar levels were also within normal limits. Chest X-Ray examination results found an extensive fibroinfiltrate pattern in both lung fields, these findings also appear to mimic X-Ray findings in tuberculosis patients, especially active tuberculosis.

The patient was diagnosed with respiratory failure and haemoptysis with suspected aspiration pneumonia or tuberculosis. The patient was fitted with a nasogastric tube and urinary catheter. Oxygen was administered via Jackson Reese at 15 litres/minute. The patient was also inserted with intravenous

access and 1000 cc lactated i.v. ringer was given to maintain hydration. To prevent severe infection and sepsis, the patient was also given i.v cefotaxime 1gr/12 hours. Supportive therapy for fever, vomiting blood, and shortness of breath was i.v paracetamol 500mg/8 hours, i.v tranexamic acid 500 mg, i.v ondansetron 8mg/8 hours, i.v omeprazole 40mg/12 hours, and nebulised ipratropium bromide and salbutamol sulfate every 8 hours. The chest x-ray results shown by Figure 1.



Figure 1. AP photograph showing massive fibroinfiltrates in both lung fields mimicking the typical pattern of TB.

3. DISCUSSION

Drowning is one of the most common causes of death in children.^[1,4] Death from drowning occurs due to hypoxia.^[5] Drowning patients have a high risk of aspiration pneumonia. Aspiration pneumonia is a process of lung infection following abnormal fluid entry into the lower respiratory tract.^[6] Uncontrolled drowning can trigger an attempt to hold the breath, accompanied by panic and difficulty returning to the surface of the water. The lack of oxygen causes the patient to open the

airway or mouth and swallow water. Breath-holding is compensated by gasping for air, which can accidentally lead to aspiration and laryngospasm. Thus, the aspiration condition can cause a progressive decrease in blood saturation until the patient loses consciousness due to hypoxia.^[7] In general, the key in the diagnosis of aspiration pneumonia is to assess the clinical manifestations of sudden dyspnea, fever, and hypoxemia. On physical examination, there will be rhonchi sounds on lung auscultation, especially in the lower lobes when the patient is upright, and the superior lobes when the patient is supine. The radiological imaging will show infiltrates bilaterally.^[6]

In this report, we found a case of aspiration pneumonia due to drowning that had radiological features mimicking pulmonary tuberculosis. The radiological imaging of the thorax showed massive fibroinfiltrates in both lung fields, almost resembling to miliary appearance, which strongly suggested pulmonary tuberculosis radiologically. The type of TB that is similar to aspiration pneumonia is active TB. A tuberculoma represents a focal mass lesion of uncertain tuberculous infective activity. On a chest x-ray of active TB, a cloudy or nodular shadow will be found in the apical and posterior segments of the

lung lobes. Cavity with a cloudy shadow will be found. On the other hand, pneumonia can also be caused by *Mycobacterium tuberculosis*, so it is common for the lesions to appear on chest x-rays for both diseases to be similar. This caused confusion in the patient's diagnosis. Clinically, the patient presented with symptoms such as decreased consciousness, fever, shortness of breath, and haemoptysis. This is quite similar to the symptoms of pulmonary TB.

However, there were some unknown symptoms of pulmonary TB, such as weight loss and night sweats. However, evaluation TB score from the Indonesian Pediatrician Association-Respirology Units shows that the patient had no direct contact with TB patients, no weight loss, no enlarged lymph nodes, or joint swelling.^[8] In addition, the patient's Mantoux test was negative. Based on the history, the patient had no history of TB treatment. These findings led us to provide therapy according to the diagnosis of aspiration pneumonia. However, patients with aspiration pneumonia due to drowning and patients with tuberculosis have differences in terms of symptoms, physical examination, and radiological examination Table 1.

Table 1. Key Differences Between Aspiration Pneumonia and Tuberculosis

Diagnostic Feature	Pneumonia Aspiration – Drowning	Tuberculosis
Signs and Symptoms	Dyspnea, fever, hypoxemia, haemoptysis	Chronic cough, haemoptysis, weight loss, fever, night sweats.
Physical Examination	Inspection: Normal chest movement Palpation: Increased tactile fremitus Percussion: Normal or dull Auscultation: Rhonchi	Inspection: normal or lagging chest movement Palpation: Increased tactile fremitus Percussion: Dull Auscultation: Bronchovesicular or bronchial breath sounds and wet rhonchi

Specific Examination	Whole blood: leucocytosis. Culture	Acid Resistant Bacterial Sputum, Molecular rapid test, Mantoux test
Radiology Examination	Billiary infiltrates	Perihilar infiltrates, fibroinfiltrates, cavities, and pleural thickening Miliary nodule

4. CONCLUSION

On radiological examination, various respiratory diseases including aspiration pneumonia due to drowning may mimic tuberculosis. Due to the high rate of Tuberculosis in Indonesia, health facilities should suspect TB disease as one of the differential diagnoses of illnesses with complaints of breathlessness and haemoptysis. However, various other instruments such as history taking, physical examination, and supporting bacterial markers should still be taken into consideration for patient management. The management of aspiration pneumonia due to drowning using anti-tuberculosis agents will lead to unnecessary side effects and resistance.

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