

(CASE REPORT)



## Sinonasal carcinoma with lung metastases

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### Abstract

Background: Sinonasal carcinoma is a group of heterogeneous malignancies that originate from various types of cells that are histopathologically different in the nasal cavity and paranasal sinuses. The percentage of sinonasal carcinoma is very low, only around 1% compared to other types of malignancy and only 3% of the total malignancy which arises from the head and neck. Malignancy originating from the head and neck is a type of malignancy that often metastasizes to the lungs, but the incidence of lung metastases originating from sinonasal carcinoma is a rare case. We reported a female patient who had been diagnosed with sinonasal carcinoma previously with pulmonary metastasis confirmed by thoracic CT scan. The immunosuppressive state of the patient during the treatment for sinonasal carcinoma in this case also caused bilateral pneumonia even up to sepsis shock but with adequate antibiotics and other supportive treatments, the patient showed improvement after 6 days of treatment.

**Keywords:** Sinonasal carcinoma; Lung metastases; Female; Malignancy

### 1. Introduction

Sinonasal carcinoma is a group of heterogeneous malignancies that originate from various types of cells that are histopathologically different in the nasal cavity and the paranasal sinuses.<sup>1</sup> The most common types of sinonasal carcinoma include sinonasal squamous cell carcinoma (SNSCC), followed by intestinal type adenocarcinoma (ITAC) and other rare subtypes such as Olfactory neuroblastoma, sinonasal neuroendocrine carcinoma (SNEC), sinonasal undifferentiated carcinoma (SNUC) and sinonasal melanoma.<sup>1,2</sup>

The overall incidence of sinonasal carcinoma is about 0.83 per 100,000 individuals.<sup>3</sup> In Indonesia, a study conducted at the Dr. Sardjito General Hospital in Jogjakarta found that the prevalence of sinonasal carcinoma was highest in men compared to women. The type of sinonasal carcinoma based on the most frequent histopathological findings in several studies is *squamous cell carcinoma*.<sup>3,4</sup> The risk factors for this malignancy are often associated with smoking, exposure to various substances such as wood chips, dust from the manufacture of leather-based objects, arsenic and organic solvents. Some cases of sinonasal carcinoma are also associated with *human papilloma virus* (HPV) infection or due to radiotherapy complications for hereditary retinoblastoma.<sup>1,3,4</sup>

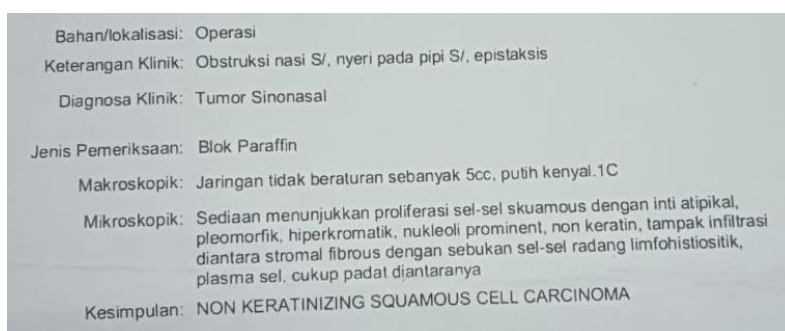
Malignancy originating from the head and neck is a type of malignancy that often metastasizes to the lungs, but the incidence of lung metastases originating from sinonasal carcinoma is a rare case. This case report aims to discuss a woman suffering from sinonasal carcinoma with lung metastases.<sup>5,6</sup>

### 2. Case description

A 54-year-old female patient came with a complaint of coughing up blood 1 day before being admitted to the hospital. Complaints are accompanied by tightness and chest pain when inhaling. The patient had previously been diagnosed

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with sinonasal carcinoma and was undergoing chemotherapy. The patient's vital signs showed alert, severe general state with blood pressure of 116/91 mmHg, respiratory rate of 27 times per minute, pulse rate of 103 times per minute with body temperature showing hyperthermia reaching the level of 39.3°C. Physical examination showed the presence of anemic conjunctiva, on thoracic examination, from auscultation there was a sound of rhonchi in both pulmonary fields, in the abdomen, from the auscultation, it was found that it had normal bowel sound and on examination of the extremities there were no edema. Laboratory tests on the first day found leukopenia 1000/ $\mu$ L, anemia with a hemoglobin level of 8 gr/dL and a total of erythrocytes 2.58 million/ $\mu$ L, in addition to thrombocytopenia 56 thousand/ $\mu$ L. Blood electrolyte levels were also checked, the results showed hyponatremia with a sodium level of 129 mmol/L. Histopathological examination shows of non-keratinizing squamous cell carcinoma. CT scan of the thoracic cavity with contrast showed the impression of bilateral pneumonia, mild left pleural effusion and the presence of a solitary nodule in the right lung. CT scan of the head shows no intracranial metastases. Based on anamnesis, physical examination and supporting examination, patients are diagnosed with sinonasal carcinoma with pulmonary metastases, bilateral pneumonia, pulmonary edema, left pleural effusion and hyponatremia. Patients were given treatment in the form of nasal *canule* oxygen 2-3 liters per minute, NaCl 0.9% liquid: NaCl 3% 1:1, 20 drops per minute, codeine 10 mg three times a day, omeprazole 20 mg twice a day, sucralfate suspension three times 15 ml per day and had been given 1 gram of Meropenem antibiotic injection per 8 hours.



**Figure 1** Histopathological Examination Result



**Figure 2** CT Scan Thorax

Four days after the treatment, the patient's condition weakened, vital signs showed blood pressure of 95/64; pulse 108 times per minute; respiration rate of 28 times per minute and a fever of 39.1°C. The results of the complete blood count showed the presence of leukocytosis with leukocyte levels reaching 38.8 thousand/ $\mu$ L, thrombocytopenia 51

thousand/ $\mu\text{L}$ , *neutrophil to lymphocytes count* showing a high number of 17.56. Based on the examinations that have been done, the patient showed the presence of septic shock. Patients receive additional supportive therapy in the form of morphine, norepinephrine and furosemide which were given intravenously.

Six days after treatment, the results of a complete blood count showed improvement, leukocytes had begun to decline with a level of 19.6 thousand/ $\mu\text{L}$ . The number of platelets increased compared to previous result to 76 thousand/ $\mu\text{L}$ . After that, the patient was allowed to be treated on an outpatient care and continue chemotherapy."

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### 3. Discussion

Carcinoma originating from the paranasal sinuses and nasal cavity has a low percentage, which is only around 1% compared to other types of malignancy and only 3% of the total malignancy originates from the head and neck. Symptoms caused by sinonasal carcinoma include nasal congestion, discharge from the nasal cavity, epistaxis, pain or swelling of the face, anosmia, diplopia and proptosis.<sup>3,4</sup> The diagnosis of this malignancy is confirmed through *CT scan* and *MRI* examination, which is then followed by a biopsy for histopathology to determine the type of tumor cells.<sup>6</sup> Based on the study that has been conducted before, the most common cell type for sinonasal carcinoma is *squamous cell carcinoma*.<sup>6</sup> Sinonasal carcinoma is often diagnosed late because the initial symptoms are often non-specific and often overlooked. The patient in this case has previously been confirmed to have sinonasal carcinoma and is undergoing chemotherapy for the disease.<sup>4,6</sup>

Research data that discusses metastases from sinonasal carcinoma is still very scarce considering the type of primary malignancy which also has a low percentage. In this case, the sinonasal carcinoma metastasized to the lungs which can be seen from the signs and symptoms shown by the patient and can be seen from the thoracic CT scan which was found that there was a solitary nodule in the right lung accompanied by bilateral pneumonia and left pleural effusion. The lungs are the most common location for metastases originating from other malignancies, where metastases in the lungs can be found in 20 – 54% of malignancies originating from outside the thoracic cavity (extrathoracic).<sup>5-7</sup>

The malignancy experienced by patients, especially with the involvement of the lungs as the location of the spread of the tumor and the immunosuppressive effects of the chemotherapy being undertaken, increases the risk of infection, including pneumonia and even septic shock as in this case.<sup>8,9,10</sup> Pneumonia causes symptoms of cough, shortness of breath, fever, lack of appetite, weakness and chest pain that worsens when coughing or breathing and even mucus containing blood in some cases.<sup>11</sup> The patient in this case complained of fever, shortness of breath and coughing up blood 1 day before being admitted to the hospital but with the administration of the antibiotic meropenem, the patient began to show improvement which was characterized by leukocytes that began to decline on the sixth day of treatment.

In sinonasal carcinoma, surgery per endoscopy or open surgery can be performed, but it is necessary to consider the location and expansion of the tumor. The prognosis of sinonasal carcinoma assessed based on *5 year overall survival* in a study is around 50%. Poor prognostic factors are associated with male sex, the presence of local or distant metastases and older age. In this case, the negative prognostic factor of sinonasal carcinoma found in the patient is the presence of lung metastases.<sup>12</sup>

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### 4. Conclusion

Sinonasal carcinoma is a rare case of malignancy. The incidence of pulmonary metastases from these malignancies is very poorly reported. This case report discusses a 59-year-old woman who suffers from sinonasal carcinoma and has undergone chemotherapy before, based on information from the history of the disease obtained such as cough, tightness and chest pain, and physical examinations obtained such as fever and ringing in both lungs as well as supporting confirmations such as a thoracic CT scan where a picture of a solitary nodule of the right lung is obtained. The patient was diagnosed with sinonasal carcinoma with lung metastases as well as bilateral pneumonia. The poor prognosis factor of sinonasal carcinoma found in this case report is the presence of metastases deep into the lungs. The infection in this case was successfully treated, as seen from the leukocytes that began to decline after the administration of antibiotics on the sixth day of treatment, and the patient was discharged for outpatient care to continue chemotherapy.

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### Compliance with ethical standards

#### *Disclosure of conflict of interest*

There was no conflict of interest related to this case report.

### *Statement of informed consent*

The author has obtained the patient's consent prior to the preparation of this case report.

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