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Case Study

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CASE STUDY ON SQUAMOUS CELL CARCINOMA OF THE LUNG

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Abstract

Lung cancer is one of the leading causes of cancer-related mortality worldwide, with smoking being the primary risk factor. Squamous cell carcinoma is a common histological subtype of non-small cell lung cancer, frequently associated with chronic tobacco use. This case study reports a 70-year-old male patient with a long history of smoking who presented with progressive respiratory symptoms, hemoptysis, chest pain, weight loss, and generalized weakness. Diagnostic investigations, including imaging, bronchoscopy, biopsy, and tumor marker analysis, confirmed grade 3A squamous cell carcinoma of the right middle lobe of the lung. The patient was managed with concurrent chemotherapy and radiotherapy using cisplatin and paclitaxel, along with supportive and symptomatic treatment. This report highlights the clinical presentation, diagnostic approach, treatment strategy, and the importance of early detection and multidisciplinary management in lung cancer.

Keywords: *Lung cancer, Squamous cell carcinoma, Non-small cell lung cancer, Chemoradiotherapy, Case study.*

INTRODUCTION

Lung cancer is the most frequently diagnosed cancer and the leading cause of cancer-related deaths globally [1]. Non-small cell lung cancer (NSCLC) accounts for approximately 85% of all lung cancer cases, with squamous cell carcinoma being a major subtype [2]. Chronic tobacco smoking remains the most significant risk factor, contributing to both disease initiation and progression [3]. Squamous cell carcinoma typically arises in the central bronchi and often presents with symptoms such as cough, hemoptysis, chest pain, and dyspnea. This manuscript presents a detailed case study of squamous cell carcinoma of the lung in an elderly male patient with a long history of smoking.

CASE STUDY

A 70-year-old male patient weighing 50 kg and measuring 5.3 feet in height was admitted to the Radiation Oncology Department with complaints of shortness of breath on mild exertion for one month, persistent dry cough for three months, right-sided chest pain, and hemoptysis for two days. He also reported intermittent fever, burning sensation and watering of both eyes, decreased appetite, generalized weakness for the past 20 days, and unexplained weight loss. The patient had a long history of chronic cough with occasional blood-streaked sputum and was a chronic smoker (chutta) for nearly 50 years, smoking approximately four chuttas per day, with occasional alcohol consumption. He was a known case of type 2 diabetes mellitus for three months and was on metformin 500 mg twice daily. There was no history of tuberculosis or family history of malignancy. Hematological investigations revealed severe anemia (hemoglobin 7.8 g/dL), reduced RBC count, low packed cell volume, and leukocytosis (14,500 cells/cumm) with neutrophilia, suggesting infection or inflammation. Biochemical investigations showed poorly controlled diabetes with an HbA1c of 8.9%, along with reduced serum proteins and albumin levels, indicating malnutrition, while renal function parameters were within normal limits. Diagnostic evaluation including biopsy confirmed non-small cell lung carcinoma, specifically squamous cell carcinoma of the bronchus (right middle lobe), grade 3A. Imaging studies revealed a speculated mass measuring 4.5 × 3.8 cm in the right middle lobe with enlarged mediastinal lymph nodes on CT scan, visible endobronchial growth on bronchoscopy, elevated CYFRA 21-1 tumor marker levels, emphysema and COPD changes on HRCT, and a mass lesion with mediastinal widening on chest X-ray, while ultrasonography of the abdomen and pelvis was

normal. Based on these findings, the patient was diagnosed with squamous cell carcinoma of the bronchus, grade 3A, and was planned for concurrent chemotherapy and radiotherapy. The chemotherapy regimen included cisplatin 75 mg/m² IV and paclitaxel 175 mg/m² IV administered every 21 days, with three cycles completed. Supportive and adjunctive therapy consisted of dexamethasone to reduce inflammation and chemotherapy-related reactions, deriphylline and montelukast with levocetirizine for COPD and allergic symptoms, antibiotics such as azithromycin and amoxicillin–clavulanate, adjustment of metformin dosage with frequent blood glucose monitoring, along with antiemetics, analgesics, and nutritional supplements.

DISCUSSION

Squamous cell carcinoma of the lung is strongly associated with prolonged tobacco exposure and commonly presents with central airway involvement [4]. In this patient, long-term smoking, chronic respiratory symptoms, and hemoptysis were key risk indicators. Imaging and histopathology confirmed advanced disease. Concurrent chemoradiotherapy with cisplatin-based regimens is considered standard treatment for locally advanced NSCLC [5]. Supportive care and comorbidity management, especially diabetes and malnutrition, play a critical role in improving treatment tolerance and outcomes.

CONCLUSION

This case underscores the importance of early recognition of lung cancer symptoms in chronic smokers. Comprehensive diagnostic evaluation and timely initiation of concurrent chemoradiotherapy resulted in disease control. Smoking cessation, supportive care, and strict monitoring of comorbidities are essential components of lung cancer management.

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