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Case Report

Metastatic mucoepidermoid carcinoma of the lung: A case report

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ABSTRACT

Mucoepidermoid carcinoma (MEC) is a rare form of lung malignancy that is classified into high-grade and low-grade according to its histological characteristics. High-grade mucoepidermoid carcinoma (HMC) is more aggressive form of malignancy which involves lymph node and distant metastasis. Here, we report a 62-year-old female with complaints of dry cough and generalized weakness was diagnosed to have high grade mucoepidermoid carcinoma of lung metastases to lymph nodes, pleura, left adrenal and skeleton. Diagnosis was confirmed by Computed Tomography (CT) which showed numerous lung nodules, biopsy revealing metastatic deposit of mucoepidermoid and Positron Emission Tomography (PET) indicating primary left lung malignancy with metastasis. Despite chemotherapy initiation, the prognosis remained poor.

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1. Introduction

Mucoepidermoid carcinoma (MEC) of the lung is exceedingly rare which accounts for 0.1 to 0.2% of all pulmonary tumors.¹ Its involvement in the lung pleura can result in respiratory compromise and failure. This arises from minor salivary glands in proximal bronchi and are usually central in location adjacent to large airways.² It was first reported and documented by Smetana in 1952.³ Complete surgical resection, chemotherapy, radiotherapy are the treatment of choice for pulmonary mucoepidermoid carcinoma. The prognosis for HMC can vary, but 25% of these patients develop metastases, especially in lymph nodes, bone or skin.⁴

2. Case History

A 65-year-old female initially presented with complaints of dry cough and generalized weakness six months

ago to which her laboratory reports revealed low hemoglobin counts (11.4g/dL) along with elevated levels of Erythrocyte sedimentation Rate (ESR) (60mm/hr) and C Reactive Protein (CRP) (98.4 mg/L). On evaluation, imaging Computer Tomography (CT) showed multiple nodules within all lobes of right lung and pleura, in homogeneously enhancing mediastinal and retroperitoneal lymph nodes, within left adrenal gland and within right kidney along with lateral body of the tongue. Initially, the differential diagnosis was salivary gland carcinoma. Further, Histopathological examination (HPE) of left supraclavicular lymph node suggestive of metastatic mucoepidermoid carcinoma [Figure 1(a) and 1(b)] and Immunohistochemistry of the same showed positive for CK7 [Figure 2 (a)] CK 5/6 [Figure 2(b)], Cyclin D1 [Figure 2(c)], p63 [Figure 2 (d)] and negative for TTF1, SOX 10 Whole body (PET CT) demonstrated primary left lung malignancy with metastatic spread to the lymph nodes, pleura, left adrenal and skeleton. The patient received one cycle of Nab paclitaxel and carboplatin. However, she

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developed persistent tachycardia (HR- 132-140 beats/min) and hypoxia requiring four liters of oxygen and Bi-PAP support. Chest X ray and laboratory reports revealed mild left pleural effusion (Figure 3) and hypernatremia, hyperkalemia and hypochloremia respectively, where the latter conditions were corrected accordingly. However, the patient manifested breathlessness which was acute on onset, gradually progressive even at rest associated with drowsiness thus indicating poor prognosis.

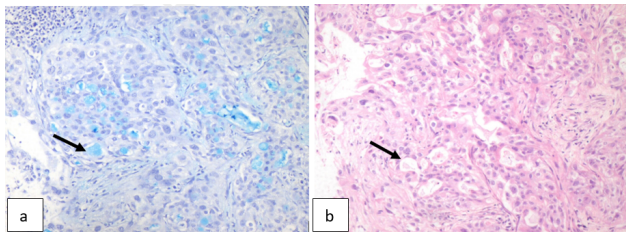


Fig. 1: a: Histopathological examination shows that Alcian blue stain shows Mucin within the lumen (black arrow) suggestive of Metastatic Mucoepidermoid carcinoma as seen under the Magnification power 200x; b: Histopathological examination depicts cells with mucin and squamous cells (black arrow) as seen under Magnification power of 200x

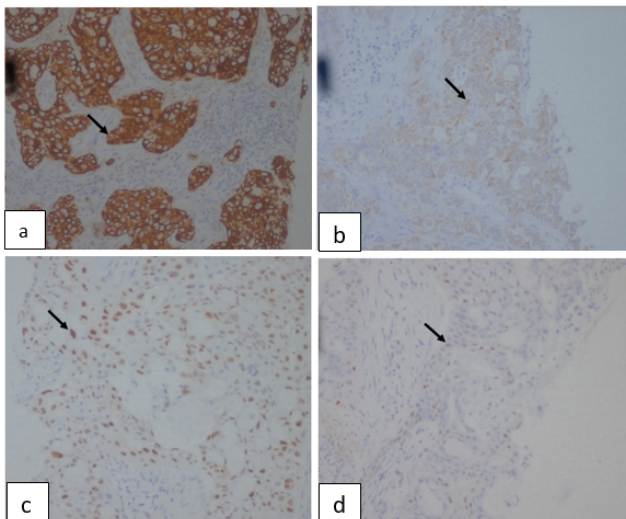


Fig. 2: a: Immunohistochemistry shows cytoplasmic staining positive for CK7 under Magnification power of 200x; b: Immunohistochemistry cytoplasmic staining (Dark Brown cells) shows positive for CK5/6 under Magnification power of 200x; c: Immunohistochemistry cytoplasmic staining (Dark Brown cells) shows positive for Cyclin D1 under Magnification power of 200x; d: Immunohistochemistry cytoplasmic staining (Dark Brown cells) shows positive for p63 under Magnification power of 200x



Fig. 3: Chest X-ray posteroanterior view showing air space opacities being noted in the visualized right lung field and pleural effusion in the left lung

3. Discussion

Mucoepidermoid carcinoma (MEC) is the most well-known malignant tumor of salivary gland with a broadly different biologic conduct that is connected with the histological level of the tumor.¹ The clinical symptoms and signs incorporate cough, hemoptysis, bronchitis, wheezing, fever, chest pain and rarely clubbing of the fingers. It is commonly seen in young adults, although all age groups (3–78 years) can be affected having female predominance with prevalence most noteworthy in their fifties.⁵ Mucinous cells, intermediate cells, and epidermoid cells are the three parameters to determine grading which plays an important role in treatment. The high-grade features include necrosis, nuclear pleomorphism, and active mitosis whereas low-grade tumors are typically limited to the bronchus and do not have those histologic highlights as found in high-grade tumors. [6] Patients with low-grade MECs have a generally excellent forecast with a five-year survival rate approaching 95%. In this population, adjuvant therapy is not suggested. Conversely, high-grade MECs convey a lot less fortunate visualization of survival.¹ Leonardi et al. conducted a study which included seven patients with MEC, six low-grade and one high-grade lesions that underwent different surgical approaches as a initial treatment. It was inferred that high-grade tumors were impervious to surgical therapy alone or in combination with radiotherapy as observed in this intricate case.⁶

While it is known that only HMC has tendency for malignancy, Takafumi Nakagakia, et al has reported a rare case of low grade MEC with cervical lymph node metastasis indicating that malignancy do occur in low grade tumors.⁷ As it is reported by Yiqi Q.Wang et al that MEC usually arises in the parotid and submandibular salivary glands or in the minor salivary glands of the oral cavity and

peri maxillary region,⁸ we present an unusual case on MEC having the primary origin in the lungs with distant metastasis.

While surgery is reserved to treat localized tumor, chemotherapy and targeted therapy is restricted to metastatic condition. Nonetheless, the prognosis stays poor in metastatic disease due to aggressive behavior of HMC. Shoko Sonobe et al. reported a case that carboplatin plus paclitaxel was used for unresectable pulmonary MEC patients with 25 months disease free survival.⁹

In this report, we present an instance of pulmonary mucoepidermoid carcinoma with distant metastases which is seldom reported. Prognosis of this rare disease is reliant on grade and extent of disease at the time of presentation, and resectability. In most detailed metastatic cases, the clinical course was rapidly fatal. Prior determination would probably improve endurance, and patients would profit from long-term follow-up.

4. Source of Funding

None.

5. Conflict of Interest

The authors declare that there is no conflict of interest.

References

1. Triantafyllidou K, Dimitrakopoulos J, Psomaderis K, Iordanidis F, Koufogiannis D, Pd. PD.244 Mucoepidermoid carcinoma of minor salivary glands. A clinical study of 16 cases and review of the literature. *Oral Oncol Suppl.* 2005;1:141.
2. Rohit K, Baby J, Valsalan K, Sunila E, Lolly M. Mucoepidermoid Carcinoma of Lung Presenting as a Peripheral Cavitary Lesion. *J Clin Diagn Res.* 2018;12:3–5.
3. Smetana HF, Iverson L, Swan LL. Bronchogenic carcinoma; an analysis of 100 autopsy cases. *J Eur PMC.* 1952;5:335–51.
4. Radiopedia.org [internet]. Mucoepidermoid Carcinoma of Lung; c2018 [cited 2018. Available from: <https://radiopaedia.org/>.
5. Thomas D, Modi Y, Dorai B, Guron G. A Rare Case of Lung Carcinoma with Mucoepidermoid Histopathology: A Case Report and Review of the Literature. *Ann Clin Lab Sci.* 2015;45:219–21.
6. Leonardi KH, Jung-Legg Y, Legg AM, Neptun BW. Tracheobronchial mucoepidermoid carcinoma. *J Thorac Cardiovasc Surg.* 1978;76:431–8.
7. Nakagaki T, Ogi K, Abe M, Dehari H, Miyazaki A, Hasegawa T. Low-grade mucoepidermoid carcinoma with regional lymph node metastasis: A case report and genetic review of criteria for grading. *J Oral Maxillofac Surg.* 2016;28:189–92.
8. Wang Y, Mo Y, Li S, Luo R, Mao S, Shen J. Low-Grade and High-Grade Mucoepidermoid Carcinoma of the Lung: CT Findings and Clinical Features of 17 Cases. *Am J Roentgenol.* 2015;205:1160–6.
9. Sonobe S, Inoue K, Tachibana S, Shiojiri M, Maeda T, Nakanishi N. A Case of Pulmonary Mucoepidermoid Carcinoma Responding to Carboplatin and Paclitaxel. *Jap J Clin Oncol.* 2014;44:493–6.

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