Pulmonary Mucoepidermoid Carcinoma: Diagnosis and Treatment
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Abstract
Pulmonary mucoepidermoid carcinoma (MEC) is a rare malignant neoplasm with the clinical picture mimicking infectious aetiologies in most of the patients. Hence, this rare entity poses a great challenge to the pathologist in terms of diagnosis and to the oncologist in terms of treatment. This case report aims to look at the clinico-pathological features of pulmonary MEC, the role of immunohistochemical analysis in diagnosis and choice of chemotherapeutic agent. The objective of reporting this case on pulmonary mucoepidermoid carcinoma is not only the rare frequency of this carcinoma but also to highlight the importance of adequate immunohistochemical analysis in establishing the diagnosis.

Keywords: Lung cancer, mucoepidermoid carcinoma,
delivery of her child. A baseline CT scan was done and chemotherapy Carboplatin AUC-5 and Paclitaxel 175mg/m2 every three weeks were started. There was an interval of 4.5 months between surgery and first chemotherapy cycle. Our patient received 6 cycles of Carboplatin and Paclitaxel without any significant toxicity. She remained on active surveillance and disease free for up to a year. Her disease relapsed at multiple sites and unfortunately she could not be given second line chemotherapy in view of her florid disease and poor performance score.

**Discussion**

Mucoepidermoid carcinoma is defined by the World Health Organization as a tumour comprising of mucus secreting, squamous and intermediate cells[1,4]. More frequently it is found in the parotid and the submandibular salivary glands[4]. Mucoepidermoid carcinoma equally affects males and females both with the median age of presentation at 40 years; however the range is wide from 3 to 78 years [4, 5].

Generally it involves the proximal bronchi and hence the patient presents typically with symptoms suggestive of bronchial obstruction such as cough, haemoptysis, wheezing, and fever and post obstructive pneumonia [3, 4].

Chest radiographs may show distal atelectasis or pneumonia and rarely help in diagnosis. Computed tomography scan generally shows non spherical, smooth polypoidal mass [5].

**Figure 1:** Lung parenchyma showing invasive tumour with two cell populations predominantly epidermoid and mucin filled cells.
Histologically, the tumour can be classified as low grade or high grade [6]. Low grade mostly have cystic components with mild atypia. High grade tumours predominantly show squamoid and intermediate cell with a small component of mucin secreting cells with high mitotic rate [7]. Making a diagnosis of high grade MEC prior to surgery is difficult. It is the histological findings of presence of three components mucin secreting, squamous and intermediate that help establish the diagnosis of MEC [4]. To distinguish MEC from adenosquamous carcinoma is not easy. Absence of keratinization and TTF1 negativity is suggestive of high grade MEC [8].

Surgical resection remains the standard treatment for pulmonary MEC. Video Assisted thoracoscopic surgery (VATS) is becoming more common operative approach [3]. In Low grade tumours adjuvant therapy is not indicated [5].

Prognosis of low grade MEC is excellent with 5 year survival of 95%. In contrast, high grade MEC carries a poor prognosis with most of the patients succumbing to disease [3,6]. Lymph node metastasis is the most important prognostic factor in pulmonary MEC and imparts a dismal outcome. Therefore surgery alone does not seem to be adequate for such patients [8].

The role of adjuvant chemotherapy and targeted agents has only been studied in case reports. EGFR mutation is found in 40% cases of pulmonary MEC and gefitinib has shown effectiveness in such cases as reported [9]. However there have also been reports of response to TKI’s in patients with no EGFR mutation which warrants further studies [3,9].

Conclusion

Rare tumours pose a challenge to the pathologist and oncologist both in terms of diagnosis and treatment respectively. Mucoepidermoid carcinoma of the lung is one such entity. Literature review is available mainly in the form of case reports and hence there are no established chemotherapy protocols. The significance of this case report is to highlight the importance of histological and immunohistochemical analysis in the diagnosis of this infrequent tumour. One important aspect that was investigated was the use of Carboplatin and Paclitaxel as chemotherapeutic agents and assessment of disease response.

Needless to say, more studies are required to define the optimal treatment regimens for initial presentations as well as relapsed/refractory disease.

Established Facts:

- Rare tumour with clinical presentation mimicking infectious aetiology.
- Pathology and immunohistochemical analysis are essential for diagnosis with radiology having a limited role.
- Surgery as the mainstay of treatment in low grade MEC.

Novel Insights:

- Role of chemotherapy in provision of meaningful survival in patients with high grade pulmonary MEC which is particularly an aggressive tumour. In areas like ours, the resources are limited and a number of patients have financial restraints which of course means that testing for EGFR mutations and consequently use of Tyrosine Kinase inhibitors is not really a practical option. Therefore we have to rely on chemotherapy in adjuvant settings in case of high grade tumours. The only literature on the choice of chemotherapeutic agents in Pulmonary MEC is in the form of case reports and series. In the case of our patient with high grade MEC, we used Carboplatin and paclitaxel which provided a disease free survival of one year.

References: