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Case Report

A rare case of small cell neuroendocrine carcinoma-lung in pregnancy

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ABSTRACT

Neuroendocrine tumours constitute heterogenous group of cancers that arise from cells in our body which have neuroendocrine cells-mostly from gastro intestinal tract and lungs. They are further divided into low grade, high grade and poorly differentiated ones. It is rare in pregnancy and it poses diagnostic challenge even among experts in the speciality. So, multi-disciplinary approach to management of neuroendocrine carcinomas (NECs) is the key for optimal management.

Keywords: NEC lung, Pregnancy, Multi-disciplinary approach

INTRODUCTION

Lung cancer in pregnancy is rare but the second most cause of mortality in women of reproductive age group. the overall incidence in pregnancy is around 0.1%. Here we present a case of neuroendocrine carcinoma (NEC) lung in a pregnant woman who presented to us with complaints of cough, breathlessness, expectoration and chest pain for one month.

CASE REPORT

This report presents a case of 31-year-old pregnant woman, non-smoker, presented at gestational age 33 weeks 5 days with complaints of cough with expectoration, chest pain for 1 month aggravated on lying to the right side, shortness of breath for 5 days. The patient is a second gravida, with one previous live boy child of age 7 years delivered by lower segment caesarean section in view of second degree cephalopelvic disproportion. On admission patient was mildly dyspnoeic, tachypnoeic with 96% saturation in room air, auscultation revealed decreased air entry towards right lung field. On obstetric examination the uterus was corresponding to 34 weeks gestational age (GA), fetal heart rate was good, and cardiotocography (CTG) was normal.

Patient has a history of admission to nearby hospital for whole blood transfusion in view of severe anaemia with thrombocytopenia 2 months ago. Patient was admitted in another tertiary care centre for breathlessness and was referred to our institution with computed tomography (CT) chest reports showing well defined soft tissue lesion in right upper lobe of lung up to mediastinum. Antenatal maternal corticosteroids were administered. Electrocardiography (ECG) and echocardiography (ECHO) was normal. Blood gas, routine investigations were normal. Magnetic resonance imaging (MRI) chest was done which revealed 10.4×7.8×7.2 cm mass encasing the right upper lobe bronchus, bronchus intermedius, lower lobe bronchus, cardiac left atrium, ventricle, right pulmonary artery and main pulmonary artery. Superiorly the mass was encasing SVC completely causing occlusion and also the trachea on right side. Right upper lobe showed segmental atelectasis.

After a full discussion with the multi-disciplinary team (MDT) - department of cardio thoracic surgery, ear nose and throat (ENT), pulmonology, and anaesthetic fitness

was obtained and elective repeat lower segment caesarean section was done under epidural anaesthesia with invasive hemodynamic monitoring on 18 June at 10.05 am and a 2 kg alive preterm boy baby was delivered in a good condition. The patient made a good recovery and was transferred to thoracic surgery ward on post operative day 4 of surgery. CT guided biopsy was taken as the mass was extra luminal and biopsy detected tumour cells arranged in trabecular pattern with oval to spindle shaped nuclei and scanty cytoplasm with rosette formation suggestive of neuroendocrine tumour. Immunohistochemistry expressed synaptophysin, chromogranin, CD 56, TTF-1, Pan-CK with Ki-67 is up to 25%. The diagnosis was small cell NEC - lung.

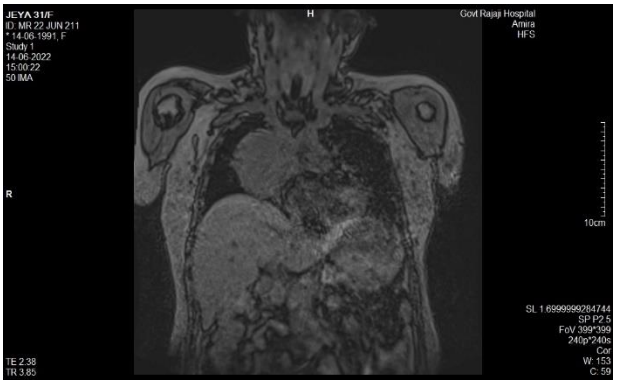

Figure 1: MRI chest.

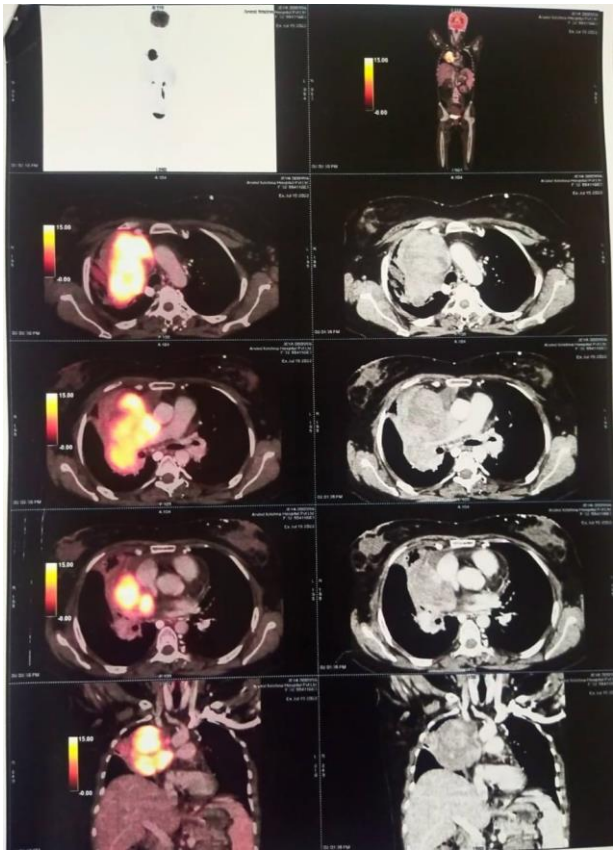

Figure 2: PET CT lung.

Radiation oncologist opinion obtained, suggested palliative radiotherapy for SVC syndrome with 10 cycles for 10 consecutive days with 300 cGy per day in 10 fractions. Patient is under regular care and follow up under multidisciplinary care in our centre.

DISCUSSION

The first case of lung cancer in pregnancy was reported by Barr in 1953.[1] The cause of lung cancer during pregnancy is unknown. Hatem found that 19 (61%) patients in their study of 31 gestational lung cancer cases had an active history of smoking.[2] On the other hand, Mitrou's research showed that only 35% of pregnant lung cancer patients had a history of smoking, while 27% had no history of smoking at all (the other 38% had unknown smoking history.[3] Symptoms and signs of lung cancer in patients can be related either to the primary tumour or distant metastasis. Common symptoms include a cough, hemoptysis, mode changes in coughing, wheezing, loss of appetite, and weight loss. Most patients already have distant metastasis at the time of diagnosis. The reasons for the delay in diagnosis may be attributed to the non-specific clinical manifestations of early-stage lung cancer. Clinicians often interpret fatigue, dyspnea, and coughing as being related to the pregnancy itself, rather than as tumour related symptoms. Most consider a differential diagnosis of lung cancer until patients exhibit symptoms of advanced disease, such as hemoptysis, brain metastasis, or Horner's syndrome. In addition, many patients worry about the effects of ionizing radiation and are reluctant to undergo imaging examination during pregnancy. This also causes a delay in diagnosis. Some scholars have recommended that pregnant women over the age of 30 who are smokers should consider the possibility of lung cancer when respiratory symptoms occur during pregnancy.[4] At this point, the patient's medical history and symptoms should be inquired about in detail, and the patient should undergo thorough examination, to determine if there are enlarged lymph nodes, skin changes, abnormal breasts, or hepatosplenomegaly. A needle biopsy can be used to obtain a pathological diagnosis for superficial enlarged lymph nodes. This patient presented with productive cough, dyspnoea, chest pain and severe anaemia. Neuro endocrine tumours are rare slow growing tumours which arise from primitive neuroendocrine cells. The most common sites for growth are the gastro-intestinal tract (66%) and the pulmonary system (10%). Diagnosis in pregnancy can be made more challenging by attribution of symptoms such as shortness of breath and vomiting to physiological changes of pregnancy rather than pathology. Furthermore, normal pregnancy is associated with increased levels of the key carcinoid tumour marker chromogranin A, partly due to a contribution from the placenta, an organ with neuroendocrine activity.[5] Decisions regarding imaging and biopsy procedures may be influenced by pregnancy, with a desire to minimize exposure to ionizing radiation and procedural risk. In the absence of a histological sample, clinicians will have to consider all features of symptomatic, biochemical and

radiological evidence in making a diagnosis. Reported survival rates vary depend on whether the disease is localized or metastatic, with recent data reporting 80 to 95% survival at five years post-diagnosis.

CONCLUSION

In conclusion, although lung cancer is one of the most common malignant tumours, pregnancy with lung cancer is rare. Nevertheless, its incidence rate is increasing. For patients with recurrent respiratory symptoms during pregnancy, imaging examination should be carried out promptly, and biopsy should be taken, if necessary, to obtain early diagnosis and treatment should be individualized.

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