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RESEARCH ARTICLE

PARANEOPLASTIC NEPHROTIC SYNDROME ASSOCIATED WITH NON-SMALL CELL LUNG CARCINOMA (NSCLC)

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ABSTRACT

Paraneoplastic syndromes are frequently found in lung cancer and can often be the first manifestation of disease. While some of the paraneoplastic syndromes are commonly observed others like nephrotic syndrome are rare. We report here a rare case of an elderly male smoker presenting with nephrotic syndrome and an underlying occult malignancy non small cell lung carcinoma though without any obvious lung mass.

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INTRODUCTION

Paraneoplastic nephrotic syndrome has been reported in various malignancies out of which lung cancer is most commonly associated with this syndrome. Previously only less than 10 cases of nephrotic syndrome associated with lung cancer have been reported in available literature however to the best of our knowledge this is the first case being reported from India. We present here a case of paraneoplastic nephrotic syndrome considerably a rare entity associated with non small cell lung carcinoma.

CASE REPORT

A 54 year old male patient was admitted to the hospital with rt. sided chest pain and generalized swelling from past 20 days. He had smoked 40 pack-years. Chest pain was insidious in onset in right lower axilla, non radiating, sharp, lancinating type with mild heaviness aggravated during inspiration and coughing and relieved during expiration and with analgesics. Swelling was of pitting type insidious in onset initially around the eyes and eventually progressed up to the feet and not associated with any diurnal variation, prolonged standing or decreased urine output. There was no other significant past, personal, family or drug history. On general physical examination, patient was vitally stable with only positive finding being grade II clubbing and gross oedema of the periorbital region, hands and legs. On auscultation of the lungs, crepitations were present over the right lower chest along with decreased breath sounds, vocal fremitus and vocal resonance in 4th to 6th ICS associated with a stony dull note in the same region. CVS, CNS and Per abdomen examinations were WNL. On the basis of history and physical examination a provisional diagnosis of pleural effusion with consolidation and anasarca was kept. Amongst laboratory investigations ESR was 60 mm·h-1, serum albumin was 1.5 g/dl and rest all investigations (CBC and biochemistry) were WNL. Urine examination revealed 4+ proteinuria with absent casts and RBCs. CXR was suggestive of right LL consolidation with mild pleural effusion. Pleural fluid was non aspirable. On further investigating the patient, 24 hr. urine protein was 5.86 gm/24hrs with high S. total cholesterol and triglycerides. Subsequently done CECT chest was suggestive of loculated pleural effusion with adjacent enhancing pleura on rt. side along with an area of consolidation with internal air bronchogram seen in basal part of rt. lower lobe. However, there was no evidence of any mass lesion on chest CT. Further bronchoscopy and BAL were carried out wherein the bronchial wash fluid cytology was suggestive of malignant epithelial neoplasm – non small cell carcinoma. Renal vein thrombosis was excluded by ultrasound with colour flow mapping .Tests for antinuclear antibody, anti-double-stranded deoxyribonucleic acid (ds-DNA), circulating immune complexes, hepatitis B serum antigen, cryoglobulins, and cold agglutinins were negative. Subsequently, a renal biopsy was performed, disclosing minimal change disease with no deposition of immunoglobulins or complement components. Amyloid deposition was also not demonstrated.

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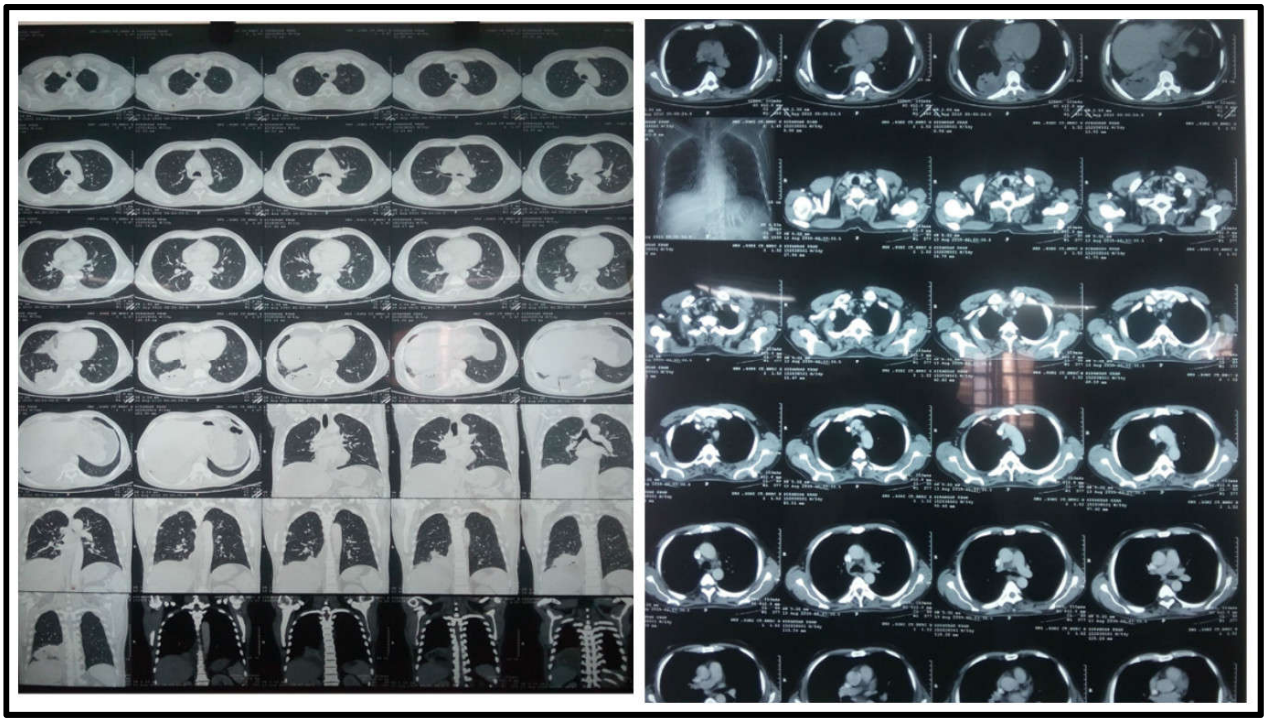

Figure 1. CECT thorax showing loculated free fluid with adjacent enhancing pleura is seen on right side; area of consolidation with internal air bronchogram is seen in basal part of rt. lower lobe

Eventually, paraneoplastic nephrotic syndrome (Minimal Change Disease) was diagnosed associated with non small cell lung carcinoma. Treatment was started in form of steroids, salt restriction, diuretics, ACE inhibitor and statins and palliative chemotherapy (double regimen – Paclitaxel plus carboplatin) was planned. Patient is on follow up.

DISCUSSION

Paraneoplastic syndrome refers to a group of clinical disorders associated with malignant diseases that are not directly related to the physical effects of the primary or metastatic disease. Lung cancer is the leading cause of cancer deaths worldwide and is among the malignancies commonly associated with a paraneoplastic nephrotic syndrome mostly related to membranous nephropathy (Ebert *et al.,* 2003). However the renal biopsy done in our patient was suggestive of minimal change disease. Nephrotic syndrome seems to occur in the early years of evolution of lung cancer, mostly in non squamous cell lung cancer. Lee et al. found that 11% of patients with the nephrotic syndrome had carcinoma (Lee, *et al.,* 1966). Our patient too had an underlying occult malignancy as the cause of nephrotic syndrome even though there was no obvious lung mass on chest radiography. The pathogenesis of this paraneoplastic syndrome has been attributed to the production of cancer-related antigens, with subsequent damage to the glomerular basement membrane by antigen-antibody complexes (Costanza *et al.,* 1973). An alternative hypothesis is that an autoantibody, produced in response to the malignancy may cross-react with and damage the glomerular basement membrane. Presentation with nephrotic syndrome occurs before the diagnosis of cancer in approximately 40% of patients, at the time of diagnosis in 40% of patients and after diagnosis in 20% of patients (Burstein *et al.,* 1993).

There have been reports suggesting a role of early use of steroids in the management of paraneoplastic nephrotic syndrome associated with lung cancer apart from treating the primary malignancy. Treatment of the neoplasm is associated with improvement in proteinuria (Shikata *et al.,* 1999; Boon *et al.,* 1994). We initiated treatment with steroids, salt restriction, diuretics, ACE inhibitor and statins and palliative chemotherapy (double regimen – Paclitaxel plus carboplatin) was planned. Patient is now on follow up.

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