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*Saurabh Puri*

## ABSTRACT

Tuberculosis (TB) and lung cancer are the leading cause of mortality and morbidity in the world. Burden of TB is significantly high in developing countries causing serious public health concern, and incidence of lung cancer is also increasing all around the world with high mortality. Pulmonary TB coexisting with lung cancer can mask the underlying disorder producing diagnostic dilemma resulting in delay in diagnosis leading to decreased survival of the patients. Here we report a rare case of a 66-year-old male diagnosed microbiologically confirmed TB along with coexisting small cell neuroendocrine carcinoma of lung presenting with SIADH.

**Keywords:** pulmonary tuberculosis, lung carcinoma, small cell neuroendocrine tumor, hiccups, SIADH.

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# Syndrome of Inappropriate Anti Diuretic Hormone (SIADH) Presenting with Recurrent Hiccups in a Case of Small Cell Neuroendocrine Carcinoma of Lung with Concomitant Pulmonary Tuberculosis

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*Tuberculosis (TB) and lung cancer are the leading cause of mortality and morbidity in the world. Burden of TB is significantly high in developing countries causing serious public health concern, and incidence of lung cancer is also increasing all around the world with high mortality. Pulmonary TB coexisting with lung cancer can mask the underlying disorder producing diagnostic dilemma resulting in delay in diagnosis leading to decreased survival of the patients. Here we report a rare case of a 66-year-old male diagnosed microbiologically confirmed TB along with coexisting small cell neuroendocrine carcinoma of lung presenting with SIADH.*

**Keywords:** pulmonary tuberculosis, lung carcinoma, small cell neuroendocrine tumor, hiccups, SIADH.

## I. INTRODUCTION

One of the leading cause of cancer related mortality worldwide is lung carcinoma, whereas TB is major cause of morbidity and mortality in developing countries, despite availability of effective antibiotic therapy. Simultaneous or concomitant coexistence of both the disease is poorly understood and under reported but causes serious impact on outcome of patients along with public health. Due to similar clinical and radiological presentation of both TB and lung cancer, it is often overlooked and there is delay in diagnosis causing poor outcome of the patients. We present a case of an elderly male who was suffering from pulmonary TB and

was diagnosed with coexistent small cell neuroendocrine lung carcinoma on further investigation in view of persistent hyponatremia not responding to IV normal saline.

## II. CASE REPORT

A 66-year-old male presented with complaints of nausea, persistent vomiting, weight loss and loss of appetite from last 30 days followed by continuous hiccups since 14 days. He is a known case of diabetes mellitus, on regular treatment. He was diagnosed with pulmonary TB and anti-tubercular therapy (ATT) was initiated 21 days back. On examination, he was conscious, oriented to time, place and person. At admission, his vitals were pulse rate 118/min, blood pressure 110/80 mmHg, respiratory rate 24/min, oxygen saturation (Spo<sub>2</sub>) 97% on room air, temperature 99°F, random blood sugar 96 mg/dl. General examination revealed dry tongue and systemic examination revealed decreased breath sound in left supra and infraclavicular region. Blood count revealed normal hemoglobin, leukocyte count and platelet count (Hb 12.0 gm/dl, TLC 6.54 x 10<sup>9</sup>/L, Platelet 243 x 10<sup>9</sup>/L). Liver function test revealed transaminitis (SGOT 194.8 U/L, SGPT 263.0 U/L, ALP 88 U/L, GGTP 51 U/L). Renal profile showed normal urea and creatinine with hyponatremia (sodium 114 mmol/L, potassium 4.4 mmol/L). Chest X ray PA view showed homogenous opacity in left upper and mid zone (figure 1). He was

managed with intravenous normal saline, proton pump inhibitor and anti emetic. His serum sodium was repeated next day which was further decreased to 112 mmol/L. Normal saline was stopped and intravenous 3% saline was initiated, however his serum sodium further dropped to 109 mmol/L. Workup for hyponatremia was done which revealed normal serum uric acid (4.8 mg/dl), low serum osmolality (224 mOsm/Kg), high urine osmolality (540 mOsm/Kg), spot urine sodium (120 mmol/L) suggestive of SIADH. His fluid intake was restricted to 1 litre/day.

Serial monitoring of serum sodium was done which revealed rising trend after fluid restriction was initiated. Contrast enhanced computed tomography (CECT) chest was done which showed .....(figure 2, 3) USG guided lung biopsy showed poorly differentiated carcinoma favoring small cell carcinoma with granulomatous inflammation in surrounding tissues with immunohistochemistry which was Tumor cells express Synaptophysin and CD56, Ki-67 proliferation index - 60%. (figure 4,5) PET/CT scan was done to rule out any metastasis, revealed a large FDG Avid heterogenous enhancing lobulated mass lesion involving anterior segment left lung upper lobe, extending to left suprahilar region encasing the left pulmonary artery and abutting arch of aorta suggestive of malignant etiology. (figure 6) Final diagnosis was made as SIADH induced by small cell neuroendocrine carcinoma lung with concomitant Pulmonary TB, and he was referred to oncologist for further management of lung carcinoma with continuation of ATT.

### III. DISCUSSION

Since coexistence of Lung carcinoma and pulmonary TB was first reported by Bayle in 1810,<sup>1</sup> both lung carcinoma and TB, are important cause of morbidity and mortality, especially in poor and developing countries.<sup>1,2</sup>

However, association between both the disease seldomly discussed, but it creates great impact over public health.<sup>3</sup> 0.7% cases of lung cancer have been found to have pulmonary TB, whereas Chandra et al found 17% cases of lung carcinoma were suffering from pulmonary TB.<sup>4,5</sup> Both diseases can occur in following patterns: 1) carcinoma over TB ground, reactivating old focus of TB. 2) carcinoma from previous TB scars (scar carcinoma). 3) carcinoma from epithelium metaplasia of TB cavities. 4) Independent and develop simultaneously. 5) Metastatic carcinoma in old TB lesion. 6) secondary TB in cancer patient.<sup>6</sup> Our case both the disease possibly occurred independently and develop simultaneously. Wu et al proposed theory of reverse causality explaining reactivation of latent TB due to weakened host immune system caused by occult lung cancer and diagnosed during the TB treatment.<sup>7</sup>

Clinically both pulmonary TB and lung cancer can present clinically with fever, loss of appetite, weight loss, fatigue, chest pain, hemoptysis along with similar radiological features leads to delay in diagnosis and management causing poor outcome.<sup>8</sup> Lung cancer is often overlooked and delayed due to masking by tubercular lesion in active TB cases.<sup>9</sup> Similar to our case, Ting et al. suggested radiographic features increasing suspicion of lung carcinoma in patients with preexisting pulmonary TB, foremost was progression of pulmonary infiltrates while on anti tuberculosis drugs.<sup>10</sup> Histologically, most common type was non small cell lung cancer, especially adenocarcinoma,<sup>2</sup> however in the case described above, he was found to have small cell neuroendocrine lung carcinoma.

Since SIADH in lung cancer was described in 1957 by Schwartz,<sup>11</sup> 10% patients of lung cancer present with paraneoplastic syndrome, with SIADH occurring in 7-16% patients of SCLC, linked with worst outcome.<sup>12,13</sup>

#### IV. CONCLUSION

Physicians should be aware of protean manifestations of both TB and cancer and simultaneous coexistence should be considered in high index of suspicion due to misleading clinical and radiological presentations. In patients who are non responsive to anti tubercular therapy and radiological worsening, physicians should look for other potential diagnostic clues and go for establishing additional diagnosis.

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