



## International Journal of Allied Medical Sciences and Clinical Research (IJAMSCR)

ISSN:2347-6567

IJAMSCR | Volume 5 | Issue 1 | Jan - Mar - 2017  
www.ijamscr.com

Case Report

Medical research

### Unusual occurrence of two pathologies in one lung - pulmonary tuberculosis and primary lung carcinoma

Ramya.V.H\*, Kalyani Sri.K\*, Gangadharan.V

\*Corresponding Author: Ramya.V.H

#### ABSTRACT

Tuberculosis and lung cancer rarely coincide together but have been proven to have a definitive link and that cause substantial morbidity and mortality worldwide. We present the case report of 58yr old male presented with left sided abdominal pain and breathlessness for past 2 months, h/o ATT taken for 4 months from February 2016 for sputum positive TB and stopped due to abdominal pain. He is chronic smoker. Respiratory system examination showed decreased breath sounds, VF, VR in left infrascapular, infraaxillary area .P/A examination - tenderness in the left hypochondrial region. Serial CXR's from February showed infiltrates in the upper zones which became stable lesions later with increasing left sided non homogenous opacity in the mid and lower zones. Sputum AFB- Negative. CECT Chest and Abdomen showed large mass in left lower lobe with adrenal and nodal metastasis. Bronchoscopy showed fungating mass in the left main bronchus. HPE of biopsy showed moderately differentiated squamous cell carcinoma. This case is being presented to create awareness among the clinicians of simultaneous occurrence of two different entities in a single person and proper screening for malignancy in all patients with radiological worsening even after ATT.

#### INTRODUCTION

Tuberculosis (TB) and lung cancer are common diseases that cause considerable morbidity and mortality worldwide [1] .Lung cancer being a leading cause of death globally research on these topic gains interest. Although these two pathologies rarely occur together, a relationship has been established between them. A study conducted by the National Cancer Institute found that patients with pulmonary TB had increased risk of lung cancer [3] and another estimated a twofold elevation in risk of lung cancer in men with TB(1).The coexistence of TB and lung cancer is estimated at 2% [3,4] and usually found in the upper lobes [5].

The association of TB and cancer is interesting and diverse. Simultaneous occurrence of both TB and cancer in the same organ causes difficulty on diagnosis. Inflammation and scarring due to chronic TB results in metaplasia, dysplasia, and thus leads on to cancer. The reactivation of latent TB in patients with cancer can also occur because of immunosuppression due to malnutrition, aggressive chemotherapy, and immunomodulatory therapy.

#### Historical account

Co-existence of carcinoma and TB was delineated by many pathologists. Berroya 8 cites has explained 'cancerous pthisis' by Bayle (1815). Meyer 9 quoted Penard documenting co-existence of bronchogenic carcinoma and pulmonary TB with

authoritative histological evidence. Pearl<sup>10</sup> based on autopsy findings at Johns Hopkins Hospital, USA, suggested that lung carcinoma is less commonly seen in patients who died of pulmonary TB than in those who died of other causes, and went on to even suggest that “this formed sufficient evidence to support the treatment of cancer patients with tuberculin”.

Berroya<sup>8</sup> stated that Rokitansky (1854) considered pulmonary TB and carcinoma of lung were thought to be mutually antagonistic. Lubarsch (1888)<sup>11</sup> cited by Berroya<sup>4</sup> also endorsed Pearl's view<sup>10</sup>. Randall and Spalding<sup>12</sup> state that Carlson and Bell (1929) opposed Pearl's conclusions and suggested that the less frequent occurrence of lung cancer in patients with pulmonary TB could be because of the fact that TB killed the patients before developing lung cancer in them. Carry and Greer<sup>13</sup> studied 140 cases of bronchogenic carcinoma complicated by pulmonary TB and felt that there was no relationship between TB and bronchogenic carcinoma. As per Miller<sup>14</sup>, Pilliet and Piattot were the first to describe the coexistence of TB and cancer. Since then many reports and articles have been published in the literature disagreeing and agreeing the causal relationship between TB and cancer.

## CASE REPORT

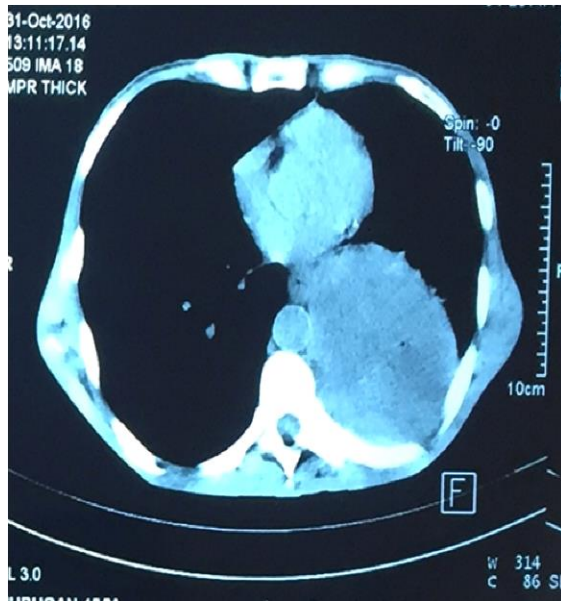
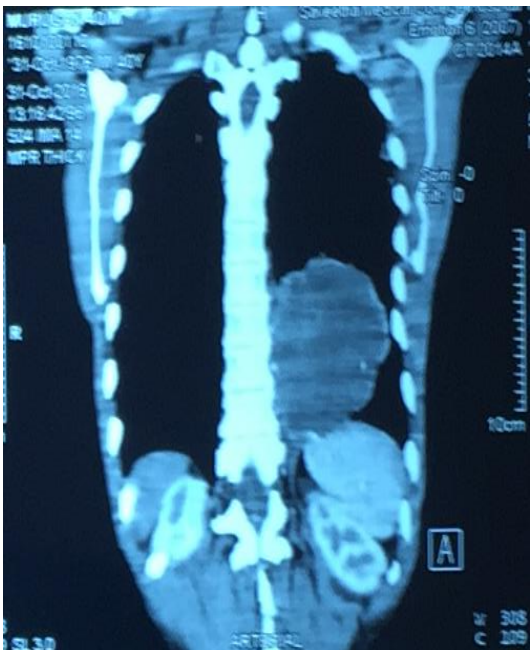
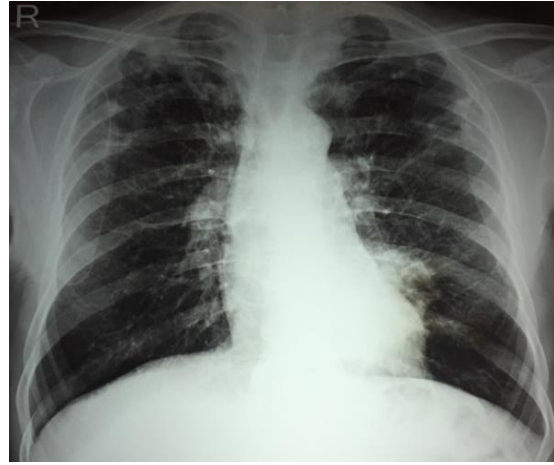
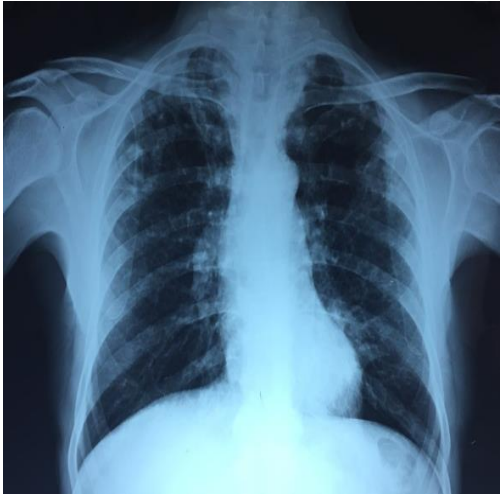
A 58 years old male weighing 56 kg resident in Chennai admitted with the complaints of abdominal pain and breathlessness for past 2 months. Pain was more in lying position and relieved on stooping forwards. Breathlessness was grade 2 MMRC. There was history of loss of weight about 5kgs in

last 2 months. Patient was diagnosed to have pulmonary tuberculosis and was on treatment with anti tuberculosis drugs for past 4 months containing rifampicin , isoniazid, pyrazinamide, ethambutol for initial two months followed by rifampacin and isoniazid . ATT was started from February 2016 for sputum positive PTB and stopped due to abdominal pain. He was chronic smoker with 20 pack years of smoking. No other co-morbidities. On general physical examination there was grade 3 pan-digital clubbing .

Respiratory system examination showed midline trachea; vocal fremitus and resonance decreased in left infrascapular, infraaxillary area, breath sounds was also decreased. Per Abdomen examination - tenderness in the left hypochondrial region, no organomegaly, no ascites. CNS and CVS normal.

Blood investigations showed elevated total counts. Serial CXR's from February showed infiltrates in the upper zones which became stable lesions, later with increasing left sided non homogenous opacity in the mid and lower zones. USG abdomen was normal. Sputum AFB- Negative. HIV - Negative. CECT Chest showed bilateral upper lobe fibrosis with large necrotic mass in left lower lobe, multiple pulmonary nodules and tree in bud appearance in right and left lower lobes - ? Metastasis / ? Infective etiology. CECT abdomen revealed adrenal and nodal metastasis.

Bronchoscopy showed fungating mass in the left main bronchus. Bronchial wash is positive for malignancy possibly non - small cell carcinoma and Histopathological examination of biopsy showed moderately differentiated squamous cell carcinoma.



He was started on chemotherapy with Cisplatin and Ifosfamide and he is under regular follow up.

Patient is now doing well.

## DISCUSSION

Pathogenesis of coexisting TB and lung cancer remains ambiguous. One hypothesis suggests that the tumor arising from a previous TB lesion is named as scar cancer [14]. Additionally, TB May cause sustained inflammation leading to fibrosis, scarring, and host-tissue damage [15]. The fibrosis from the old TB lesion may cause lymphostasis, increase carcinogen deposition in the area [14]. Given the distal metastasis found in this Patient, we felt that surgery was not appropriate. The diagnosis of scar cancer is made following tumor resection [16], so we were unable to determine if this was indeed the case. There are many other theories concerning the relationship Between TB and lung cancer. One is that TB mycobacterial cell Wall components may actuate nitric oxide production and Reactive oxygen species, both are involved in carcinogenesis [17]. Increased lung cancer in patients with pulmonary tuberculosis occurrence may be related to immunosuppression [1,9]. On the other hand, the immunosuppression caused by cancer or chemotherapy might increase the

reactivation of TB in patients with cancer [18,19]. When pulmonary tuberculosis is diagnosed simultaneously with the diagnosis of neoplasia appears to be no change in the prognosis [20, 21]. Diagnosis of concurrent TB and lung cancer is foremost, but may be difficult. TB lesions can mask lung cancers that delay the diagnosis [14]. Patients who present with active TB and lung cancer have lower survival rates than those having lung cancer without TB [22]. Surgical resection For early-stage lung cancer with anti-TB therapy is the possible Treatment, however, there are currently no established Guidelines [13, 14]. One suggestion is that newly diagnosed TB Cases be followed up periodically with chest X-ray, bronchoscopy, And sputum cytology to allow early diagnosis of Lung cancer [14]. Although rarely occurring together, TB and adenocarcinomas have an established connection. Diagnosis of simultaneous Occurrence is difficult, given that one can mask the other; however, identification of the diseases is important and can impact outcomes and patient treatment options.

## REFERENCES

- [1]. M.S. Shiels, D. Albanes, J. Virtamo, et al, Increased risk of lung cancer in men with tuberculosis in the alpha-tocopherol, Beta-carotene cancer prevention study, *Cancer Epidemiol. Biomarkers Prev.* 20, 2011, 672–678.
- [2]. Parikh PM, editor. *Lung Cancer Monograph 2012*. ICP, API; 2012.
- [3]. A.V. Brenner, Z. Wang, R.A. Kleinerman, et al, Previous Pulmonary diseases and risk of lung cancer in Gansu Province, China, *Int. J. Epidemiol.* 30, 2001, 118–124.
- [4]. S. Cicenias, V. Vencevicius, Lung cancer in patients with Tuberculosis, *World J. Surg. Oncol.* 5, 2007, 22.
- [5]. Y.I. Kim, J.M. Goo, H.Y. Kim, et al, Coexisting bronchogenic Carcinoma and pulmonary tuberculosis in the same lobe: Radiologic findings and clinical significance, *Korean J. Radiol.* 2, 2001, 138–144.
- [6]. Lubarsch O. Ueber den primären Krebs des ileum, nebst Bemerkungen über das gleichzeitige Vorkommen von Krebs und Tuberculose. *Virchows Arch* 111, 1888, 280-317.
- [7]. Russell DG. Who puts the tubercle in tuberculosis? *Nat Rev Microbiol* 2007; 5: 39-47.
- [8]. Saunders BM, Britton WJ. Life and death in the granuloma: Immunopathology of tuberculosis. *Immunol Cell Biol* 85, 2007, 103-11
- [9]. Berroya RB, Polk JW, Raju P, Bailey AH. Concurrent pulmonary Tuberculosis and primary carcinoma. *Thorax* 26, 1971, 384-7.
- [10]. Meyer EC, Scatliff JH, Lindskog GE. The relation of antecedent Tuberculosis to bronchogenic carcinoma. A study of the Tuberculin test, radiologic and pathologic evidences. *J Thorac Cardiovasc Surg* 38, 1959, 384-97.
- [11]. Pearl R. Cancer and tuberculosis. *Am J Hyg* 9, 1929, 97-159.

- [12]. Lubarsch O. Ueber den primären Krebs des ileum, nebst Bemerkungen über das gleichzeitige Vorkommen von Krebs und Tuberculose. *Virchows Arch* 111, 1888, 280-317.
- [13]. Randall KJ, Spalding JE. Simultaneous carcinoma and tuberculosis Of the colon; report of a case and review of the literature. *Br J Surg* 34, 1946, 372-5.
- [14]. Carey JM, Greer AE. Bronchogenic carcinoma complicating Pulmonary tuberculosis: a report of eight cases and a review of 140 cases since 1932. *Ann Intern Med* 49, 1958, 161-80.
- [15]. Miller RE, Salomon PF, West JP. The co-existence of carcinoma and Tuberculosis of the breast and axillary lymph nodes. *Am J Surg* 121, 1971, 338-40.
- [16]. M.S. Shiels, D. Albanes, J. Virtamo, et al, Increased risk of Lung cancer in men with tuberculosis in the alphas-tocopherol, Beta-carotene cancer prevention study, *Cancer Epidemiol. Biomarkers Prev.* 20, 2011, 672–678.
- [17]. Y.I. Kim, J.M. Goo, H.Y. Kim, et al, Coexisting bronchogenic Carcinoma and pulmonary tuberculosis in the same lobe: Radiologic findings and clinical significance, *Korean J. Radiol.* 2, 2001, 138–144.
- [18]. M.E. Falagas, V.D. Kouranos, Z. Athanassa, et al, Tuberculosis And malignancy, *Q. J. Med.* 103, 2010, 461–487.
- [19]. Brasil Ministério da Saúde. Tuberculose: Guia de Vigilância Epidemiológica. FUNASA, Brasília-DF, 100p. Libshitz HI, Pannu HK, Elting LS, Cooksley CD. Tuberculosis in Cancer patients: an update. *J Thorac Imaging* 1997, 12(1), 2002, 41-6.
- [20]. Gómez-Marin JE+, León Franco CIL, Guerrero MI, Rigouts L, Portaels F. S6110 Fingerprinting of Sensitive and Resistant Strains (1991-1992) of Mycobacterium tuberculosis in Colombia. *Mem Inst Oswaldo Cruz*, 97(7), 2002, 1005-1008.
- [21]. Libshitz HI, Pannu HK, Elting LS, Cooksley CD Tuberculosis In cancer patients: an update. *J Thorac Imaging.* 12(1), 1997, 41-6.
- [22]. Kolk AHJ, Kox LFF, Van Leeuwen J, et al. Clinical utility of The polymerase chain reaction in the diagnosis of Extrapulmonary tuberculosis. *Eur Respir J* 11, 1998, 1222- 1226.
- [23]. Y.M. Hen, J.Y. Chao, C.M. Tsai, et al, Shortened survival of Lung cancer patients initially presenting with pulmonary Tuberculosis, *Jpn. J. Clin. Oncol.* 26, 1996, 322–327.

**How to cite this article:** Ramya.V.H, Kalyani Sri.K, Gangadharan.V. Unusual occurrence of two pathologies in one lung - pulmonary tuberculosis and primary lung carcinoma. *Int J of Allied Med Sci and Clin Res* 2017; 5(1): 127-131.

**Source of Support:** Nil. **Conflict of Interest:** None declared.