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Case report

Evaluation of coexistence of cancer and active tuberculosis; 16 case series

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ABSTRACT

Introduction: Tuberculosis is an important risk factor for cancer. Pulmonary TB and lung cancer(LC) may mimic each other especially in the aspect of the clinical and radiological features. The aim of the study was to evaluate the features and risk factors of cases with coexistence cancer and active TB.

Methodology: We retrospectively reviewed the medical records of patients with coexisting TB and cancer a period from 2009 to 2014. We evaluated demographic data, the ways diagnosis of TB cases, the location of TB and cancer, TB treatment results of the cases.

Results: We recorded 374 TB cases in our dyspensary at this study period. In 16 (4%) of these cases, a coexistence of cancer and TB was detected. The male/female ratio was 12/4. The mean age was 62,12 ± 15,13 years. There were TST results except three cases. There were ten pulmonary TB and six extra-pulmonary TB (four peripheral lymphadenopathy TB, one abdominal TB lymphadenopathy and one salivary gland TB). Cancer types were as follows; eight lung cancer, two breast cancer, one base of tongue, one endometrium cancer, one hypopharyngeal cancer, one stomach cancer, one bladder cancer and one maxillary cancer. Diagnosis of all cases was confirmed by bacteriologic and/or histopathological examination. Squamous cell carcinoma was the most common type of cancers. This rate was 9/16. All TB cases were new. There were risk factors out of two case in the cases. Five cases were died during TB treatment. Others completed TB treatment without any complication.

Conclusions: In our study, the coexistence of LC and pulmonary TB was more common. The local immunity is deteriorated in cancer cases. If there is pulmonary infiltrates in lung or peripheral lymphadenopathy, we must search tuberculosis too out of metastatic lesion and other infectious diseases. We should not make delay in the diagnosis of active TB in cancer cases.

1. Introduction

Cancer and tuberculosis is the most cause of morbidity and mortality, and a major public health problem worldwide. The interaction between lung cancer(LC) and active tuberculosis is known for many years. The first description of 'cancerous pthisis' was reported by Bayle in 1810 [1–5]. Chronic infections like pulmonary tuberculosis process that may lead to carcinogenesis of the lung tissue according to the production of cytokines, thus stimulate tumor growth and progression, this may result in genetic damage [6]. Malignancy itself may effect bone marrow and cause depletion in all cell lines, thus immune response may not be deteriorate [7,8]. Tuberculosis is an important risk factor for cancer. The dormant bacilli may activate due to disturbed defense mechanisms. Pulmonary cancer mortality was higher in people with tuberculosis than in those without. Diagnosis may be delay and the patient's survival may be shorter [9].

One–third of the world's population is infected with *Mycobacterium Tuberculosis bacillus*. According to global tuberculosis report 2016 of WHO, TB affects more than 9 million people and causes the death of 1.8 million people each year, especially in developing countries [10]. In the world, there were approximately 14 million new cancer cases, 8.2 million cancer related death and 32.6 million people living with cancer in 2012 and the three most common cancer diagnosed among men. lung, prostate and colorectal Ca, among in women breast, colorectal and LC. Cigarette smoking is the important risk factor and cases almost 20% of global cancer deaths and 70% of global LC deaths [11]. In our study, our aim was to evaluate features of coexisting of cancer and active TB cases in a six-year period.

2. Methodology

We retrospectively reviewed data from the recorded files of patients between the years of January 2009 and December 2014. We collected demographics data (age, gender occupation), clinical features and

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Table 1
The features of cases with coexistence of cancer and active tuberculosis.

Years M/F*	Occupation	TST/ BCG*scar	Risk factors	TB localization	Sputum smear and culture, Biopsy results	Resistant test to drugs (AFB)	Histological type of lung cancer	TB diagnosis way and the latent time between onset of TB treatment and diagnosis of cancer (day)**	TB treatment result
87/M	Retired	18 mm/0	Cigarette smoker(Famıly contact +)	Pulmonary TB	+/+ (Mycobacterium Tuberculosis complex)	Sensitive to major drugs (HRZE)	Lung Ca (Squamous cell carcinoma)	Sputum smear AFB positive during fourth chemotherapy (171day)	Cure*
77/M	Retired	18 mm/0	HBSAg+,AntiHCV*+, D.M+Cr. viral hepatic C+CVD*+Renal failure	TBLD* (Extra thoracic LN)	−/−Lymph node biopsy (granolomatous inflammation with caseous necrosis)		Non hodgkin lymphoma Large Cell Ca in Lung and bronchial Ca (moderately differentiated Squamous cell carcinoma)	Suspected inflammation in chest radiograph, +Right supraclavicular, axillary and inguinal lymph node biopsy (12day)	Died within second month TB treatment
57/M	Retired	10 mm/2	Cigarette Smoker	Pulmonary TB	+/+ (*Mycobacterium tuberculosis* complex)	Sensitive to major drugs (HRZE)	Non hodgkin'slymphoma, Large Cell treatment in 2001 and BAL (squamous cell carcinoma) in 2010)	First TB diagnosis (BAL liquid AFB positive).Then CA diagnosis (Wedge resection (30day)	Treatment Complation
60/M	Retired	10 mm/2	Hypertension Cigarette smoker	Pulmonary TB	−/+ (*Mycobacterium tuberculosis* complex)	Absent resistant test to drugs	Moderately differentiated Squamous cell carcinoma of the base of tongue	Suspected inflammation in chest radiograph, sputum smear AFB positive(46day)	Treatment Complation
69/F	House women	24 mm/1	Absent	TBLD(Intra-abdominal LN)	Lymph node biopsy (granolomatous inflammation with caseous necrosis)		Endometrial Ca and mixed Mullerian Tumor	Diagnosis intra -abdominal lenf nodu biopsy during Serviks Ca operation(34day)	Died within sixth month TB treatment
69/F	Retired	16 mm/0	Her relative TB (before 50 years	TBLD(Right supraclavicular LN)	Lymph node biopsy (granolomatous inflammation with caseous necrosis)		Breast Ca(Biopsy result was absent in file)	Right supraclavicular lymph node in control operation breast Ca (128day)	Treatment Complation
59/M	Driver	12 mm/1	Cigarette Smoker	Pulmonary TB	+/+ (MOTT(M.szulgai)	Absent resistant test to drugs	Lung Ca (pleomorphic carsinoma)	Suspected inflammation in chest radiograph, (24day)	Cure
80/M	Retired	15 mm/0	Absent	TBLD (Cervical LN)	Lymph node biopsy (granolomatous inflammation with caseous necrosis)		Lung Ca (Squamoz cell carsinoma, poorly differentiate	To investigate metastase to find right supraclavicular lymph node (10 day)	Treatment Complation
50/M	Worker	Absent	COPD	Pulmonary TB	Trans thorasic Lung biopsy (caseous necrosis)		Lung and bronchial Ca(FOB biopsy) (Squamoz cell carcinoma)	To investigate metastase to find right supraclavicular lymph node (14day)	Died within first month TB treatment
64/F	House women	16 mm/2	Her relative TB (before 10 years)	TBLD Left axillar LN)	Lymph node biopsy (granolomatous inflammation with caseous necrosis)		Left Breast Ca (high grade invasive ductal carsinoma)	To investigate metastase to find left axillar lymphadenitis TB diagnosis (85day)	Treatment Completion
35/M	Driver	0 mm/1	Cigarette Smoker	Pulmonary TB	+/+(*Mycobacterium tuberculosis* complex)	Sensitive to major drugs	Hypopharyngeal Ca (moderately differentiated Squamous cell carcinoma)	During medical therapy and radiotherapy(111 day)	Treatment Completion
42/M	Building worker	0 mm/1	Cigarette Smoker	Pulmonary TB	+/+MOTT*(There wasn't type in the record)	No resistant to drugs testin the record)	Lung Ca (Squamous cell carcinoma)	Suspected inflammation in chest radiograph, (30 day)	Died within second month of TB treatment
43/M	Butcher	Absent	Cigarette Smoker	Pulmonary TB	+/+(*Mycobacterium tuberculosis* complex)	No resistant to drugs testin the record)	Stomach Ca (Biopsy result was absent in the record)	Smear AFB positive during third chemotherapy (360 day)	Died within second month TB treatment (Liver metastases, membranous glomerulopaty
70/M	Retired	0 mm/1	Cigarette Smoker, COPD	Pulmonary TB	BAL −/+ (*Mycobacterium tuberculosis* complex)	Absent resistant test to drugs	Prostate Ca (High grade urothelial carcinoma,)	Pulmonary inflammation in chest graphy during chemotherapy (5day)	Treatment Completion
52/M	Dental technician	Absent	Cigarette Smoker	Pulmonary TB	+/+ (*Mycobacterium tuberculosis* complex)	Sensitive to major drugs (HRZE)	Lung Ca (Neuroendocrin tumor)	During third cure chemotherapy(210 day)	Treatment Completion

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