

Large-cell lung cancer originating from tracheal bronchus — A rare case

Turan Aktas,¹ Fatma Aktas,² Zafer Ozmen,³ Sadik Server,⁴ Akgul Arici⁵

Abstract

Tracheal bronchus is a rarely seen congenital anomaly generally originating from the right lateral wall of the trachea and approximately 2 cm above the carina. It was firstly defined by Sandifort in 1785 and its frequency of incidence in normal population changes between 0.1% and 2%. There are two types called "Supernumerary" and "Displaced". It is a rarely seen kind of tracheal anomaly although fairly well defined. The cases accompanied by lung cancer are seen more rarely. Nine cases of this association were reported in literature and tracheal bronchus-lung cancer association whose pathological result is undifferentiated large-cell carcinoma has not been stated so far. We present a 75 years old male patient as possibly the first case having tracheal bronchus and large-cell carcinoma association in literature.

Keywords: Tracheal Bronchus, Lung Cancer, Large-Cell Carcinoma.

Introduction

Tracheal bronchus (TB) was firstly defined in 1785 by Sandifort as a branch of right upper lobe originating from the trachea. Tracheal bronchus is generally settled 2 cm

above the carina, but this distance can change between 0.6 cm-2 cm in some cases.¹

TB and Lung cancer association was previously stated in total 9 cases of which 4 cases were squamous cell carcinoma.² To the best of our knowledge, ours is the first one in literature due to its pathological aspect.

Case Report

A seventy-five years old male patient attending our clinic with the complaints of coughing and haemoptysis for the last two days in January 2012. Right upper mediastinal extension was found on chest radiography. Thorax CT was performed and accessory bronchus leaving from almost 1.5-2 cm above the carina was observed. A mass image distal to this bronchus and a great number of lymph nodes pathological size were identified at mediastinum (Figure-1a and 1b). Bronchoscopy showed an accessory bronchus leaving from right lateral wall of the trachea and 2 cm above the carina (Figure-1c). However there was no endobronchial formation. Bronchial lavage was performed inside the accessory bronchus with the aim of cytologic examination was normal. Thoracoscopic biopsy was performed for diagnostic purpose. Immunostaining

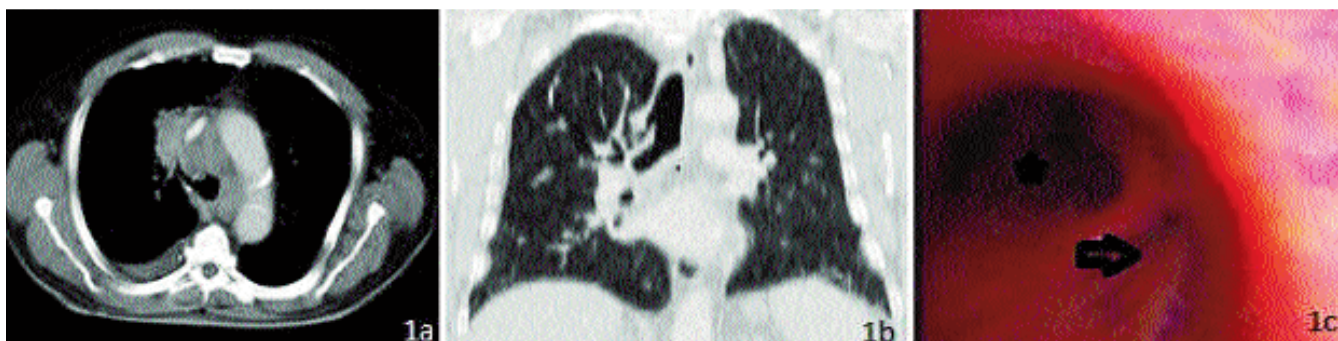


Figure-1: a) In Thorax CT axial mediastinum window, there are accessory bronchus originating from trachea right lateral wall and in its distal, solid mass obliterating bronchus lumen completely, spiculated irregular limited, contrasted heterogenously and lymphadenopathies, in pathological size, in mediastinum. b) In thorax CT coronal reformat parenchyma window image, main carina and right main bronchus and accessory bronchus (white arrow) leaving from the trachea, just its superior, are seen. c) In bronchoscopic examination, accessory bronchus (black arrow) leaving from the trachea right wall, about 2 cm above the main carina (star shape) is seen.

¹Department of Pulmonary Medicine, ^{2,3}Department of Radiology, ⁵Department of Pathology, Gaziosmanpasa University, Tokat, ⁴Department of Radiology, Bilim University, Istanbul, Turkey.

Correspondence: Turan Aktas. Email: turanaktas79@yahoo.com

revealed no evidence of lung adenocarcinoma and squamous cell carcinoma (Figure-3a and 3b). Undifferentiated large-cell carcinoma was seen in biopsy taken from thoracic lymph nodes. Two nodular lesions

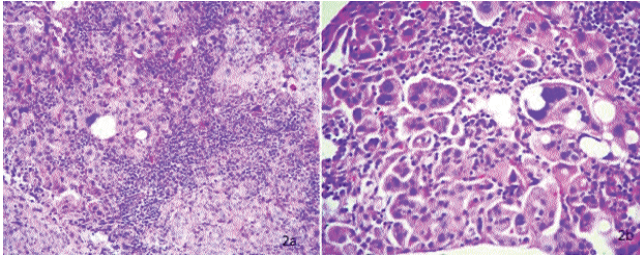


Figure-2: a) Tumoral infiltration which is pleomorphic and has big nucleus, consists of large eosinophilic cytoplasm atypical cells is seen in lymph node (HE X 100). b) There are tumour cells including intracytoplasmic vacuolisation, multinuclear and in bizarre appearance (HE X 200).

significant in terms of metastasis were found in the right lung upper lobe while there were no distant organ metastasis according to the PET scan results.

Carboplatin and Paclitaxel chemotherapies were planned by the oncology department as the treatment. While his treatment and follow-ups were ongoing, the patient was brought to the Emergency Department with cardiopulmonary arrest. He was hospitalized for acute coronary syndrome. Despite all the medical interventions, the patient expired.

Discussion

Tracheal bronchus is a rarely seen congenital airway anomaly and its incidence is 0.1% - 2% in normal population. It was firstly defined by Eduard Sandifort (1742-1814), an anatomist, in 1785. Usually it originates from the settled right lateral wall of the trachea, at carina's 2 cm above.¹

Tracheal bronchus is accepted as a normal anatomical variation in some animals like sheep, pig, camel, goat and giraffe while it is seen as a congenital anomaly in human beings. There are two types called supernumerary (23%) and displaced. In supernumerary type, normal upper lobe bronchus structure and anatomy is protected. In displaced type, normal upper lobe structure is protected, it is a fact that apart from the upper lobe bronchus, an accessory bronchus structure ventilates the upper lobe's normal parenchymal tissue by leaving from the trachea. In

our case, TB was right-settled and it was in the more rarely seen supernumerary type.¹

Many pathologies like various clinical cases including chest wall deformities (pectus excavatum, oesophagus diseases, adenoid cystic) can accompany tracheal bronchus.²

Tracheal bronchus and lung cancer association is rarely stated in the literature. There has been total 9 cases in literature so far. Four cases had a histopathologic diagnoses of squamous cell carcinoma.² The first case was reported by Uchikov et al. in 1974, in Bulgaria.³ The second case was published by Moriya and colleagues in 1985, in Japan.⁴ The case in which resection was applied to tumour originating from TB for the first time was reported by Kim et al. in Korea.⁵ In Turkey, lung cancer accompanying TB was shown by Sen and his colleagues in 2009.² Their histopathologic diagnosis was squamous cell carcinoma.

Conclusion

Tracheal bronchus is very rarely seen as a congenital bronchial system anomaly. It can be identified incidentally through the thorax CT images taken for another reason. In addition to this, lung cancer cases accompanying this rarely seen anomaly have been stated in literature and this case in which tracheal bronchus and undifferentiated large-cell carcinoma association was seen as the first one in literature.

Disclosure: The authors have no conflict of interest.

References

1. Ghaye B, Szapiro D, Fanchamps JM, Dondelinger RF. Congenital bronchial abnormalities revisited. *Radiographics*. 2001; 21:105-19.
2. Sen S, Sentürk E, Pabu?çu E, Sen S. Upper lobectomy for lung cancer with true tracheal bronchus: a unique presentation. *Arch Bronconeumol*. 2010; 46:332-4.
3. Uchikov P, Nikolov P. A case of carcinoma developing from the base of an anomalous tracheal bronchus. *Khirurgiia (Sofia)*. 1974; 27:319-20.
4. Moriya H, Kato H, Togawa T. Small cell lung cancer arising in an abnormal bronchus. *Jpn J Chest Dis* 1985; 44:1035-9.
5. Kim J, Park C, Kim H, Lee KS. Surgical resection of lung cancer originating in a tracheal bronchus. *Ann Thorac Surg*. 1998; 66:944-6.