Primary adenocarcinoma of trachea – looking beyond a normal chest radiograph: A case report

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ABSTRACT

Primary tracheal growths are very rare with an incidence of less than 1%. Presenting with non-specific symptoms, these neoplasms can be difficult to diagnose at earlier stages. We describe the case of a 68-year-old male patient who had shortness of breath, dry cough, and a normal chest radiograph. Absence of clinical improvement following treatment based on an initial diagnosis of asthma prompted further diagnostic interventions that suggested a possible diagnosis of a tracheal tumor. Cytology of bronchial lavage sample confirmed the diagnosis of tracheal adenocarcinoma. The patient was referred to a cancer center for palliative stenting. The presenting case report stresses the point that there are some pulmonary illnesses that may present with normal chest radiographs. Most of these patients may initially be treated as cases of asthma or acute bronchitis. Persistence of symptoms despite therapy must prompt a further diagnostic workup for alternate conditions like localized airway obstruction.

Keywords: *Adenocarcinoma, Chest radiograph, Trachea, Tracheal tumors, Neoplasm.*

Primary tracheal tumors are considered extremely rare as they account for less than 1 % of all neoplasms [1]. They are usually diagnosed late due to the delayed appearance of non-specific symptoms like hemoptysis, dyspnea, coughing, and stridor [2]. Tracheal tumors are commonly misdiagnosed as asthma in the initial stages and treated accordingly. The presentation with normal radiograph also favors the misdiagnosis.

However, non-resolution of symptoms warrants the need for further diagnostic imaging that can aid in reaching the possible diagnosis of tracheal tumors. Once diagnosed, surgery and adjuvant radiotherapy are the primary modes of treatment. Chemotherapy, radiotherapy and laser removal are palliative measures. Some pulmonary diseases can be difficult to diagnose especially due to the presentation with non-specific symptoms and unequivocal imaging studies. This case report helps in establishing primary tracheal adenocarcinoma as one such rare pulmonary condition.

CASE REPORT

A 68-year-old male patient, with a 25 pack years smoking index, presented with complaints of shortness of breath (MMRC II) and dry cough since 10 days. Since there was no history of paroxysmal nocturnal dyspnea (PND), chest pain, fever, abdominal distension or pedal edema, cardiovascular causes of his complaints were ruled out.

On presentation, he had already completed a one-week antibiotic course comprising oral amoxicillin/clavulanic acid (625 mg twice daily) combination and azithromycin (500 mg OD) from his primary health care center. On examination, respiratory rate was 28/min while other vitals were stable. Extensive rhonchi were heard in all the lung fields on auscultation. No significant clinical findings were elicited in other systems.

His chest X-ray was unremarkable (Fig. 1). There were no abnormalities in his laboratory parameters either. The probable diagnoses considered initially were an acute exacerbation of bronchial asthma, acute bronchitis, tuberculosis, chronic obstructive pulmonary disease or pulmonary malignancy. He was

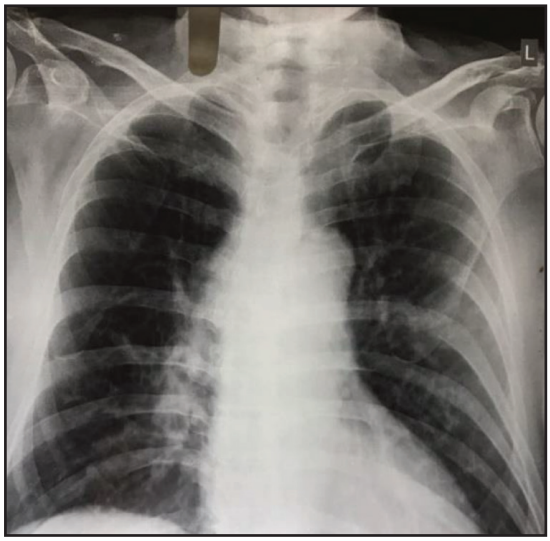

Figure 1: Chest Radiograph of the patient showing normal appearance

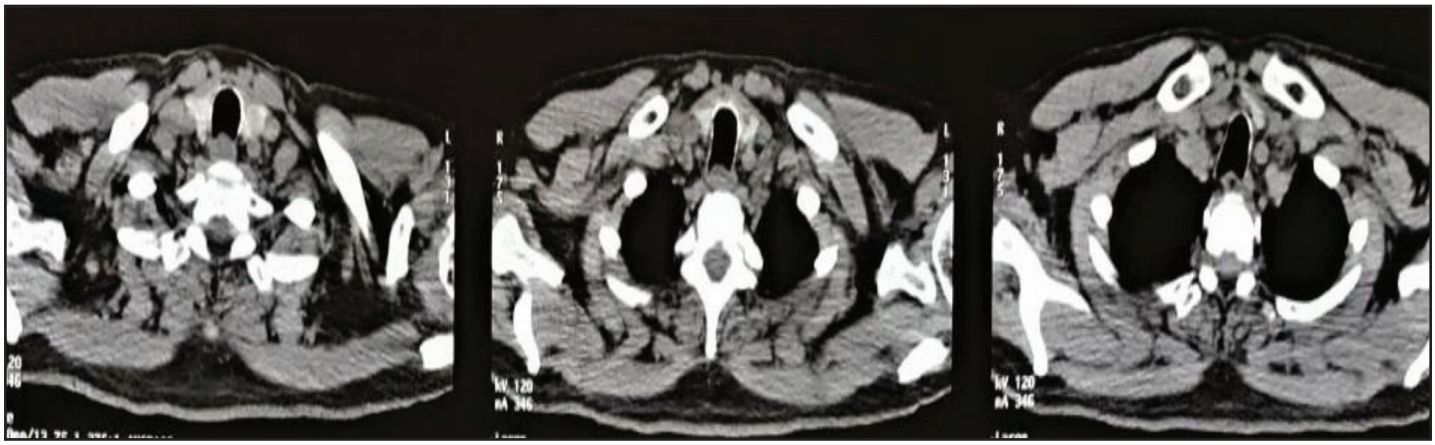

Figure 2: Computed Tomography scan of the patient

primarily diagnosed as a case of acute exacerbation of bronchial asthma and treated with oxygen, intravenous hydrocortisone 100 mg thrice daily, nebulization with ipratropium/ levosalbutamol four times daily and antibiotics (intravenous piperacillin/ tazobactam 4.5 mg thrice daily). Despite this treatment, his symptoms were not relieved. His flow-volume curve revealed a flattening of the expiratory loop with a normal inspiratory loop suggestive of variable obstruction in the extrathoracic upper airway. This led us to take a Computed tomography (CT) scan which was inconclusive (Fig. 2).

Following this, bronchoscopy was done (Fig. 3) which showed a growth occluding mid to lower trachea. Bronchial lavage sample was taken. Cytology was positive for malignant cells, suggesting the possibility of a tracheal adenocarcinoma. A biopsy was not taken due to the risk of bleeding. Due to the inoperable nature of the tumor, the patient was advised to go to a cancer center for palliative stenting.

DISCUSSION

Primary tracheal growths occur infrequently with less than 1% incidence [1]. Out of these, 80% are cancerous, the most common being adenoid cystic carcinoma and squamous cell carcinoma

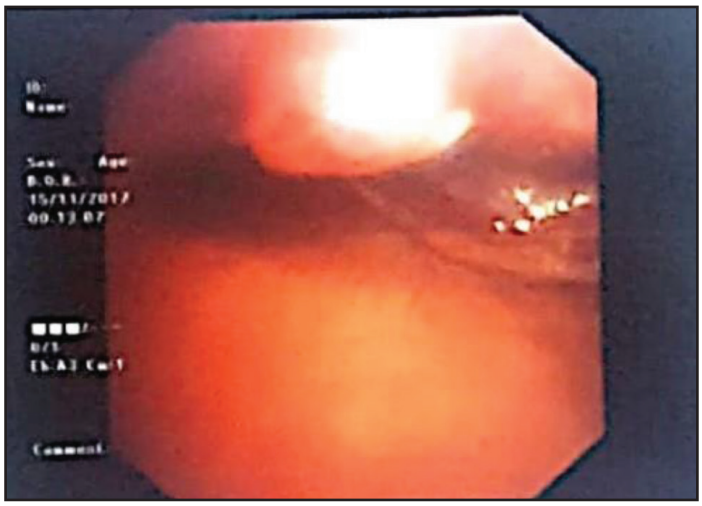

Figure 3: Bronchoscopy image of the patient showing a growth in the region of mid to lower trachea

[1]. Neoplasms of the larynx and lungs are much more common than malignant tracheal growths. Benign neoplasms such as papillomatosis, pleomorphic adenomas, lipoma, and hamartoma are much rarer than tracheal carcinomas [1,3]. These tumors are seen more frequently in males; commonly between the ages of 40 and 50 [1].

Clinical features of these tumors are primarily due to the size and site [3]. The patients often present with exertional breathlessness, persistent cough or acute onset of wheezing, that may usually be wrongly diagnosed as asthma. Patients are hence initially managed accordingly. Involvement of the adjacent structures may further cause symptoms such as hemoptysis, dysphagia, hoarseness, and cough, though these are found to be rare [2]. Because of the non-specificity of symptoms, and the rarity of such cases, diagnosis is mostly delayed. Thus, in adults, asthma that does not subside with adequate treatment should raise alarm to the likelihood of a lesion obstructing the central airway [3]. In these patients, a flow-volume curve may offer exceedingly useful data and will lead the physician towards a precise diagnosis [2,3].

Hematological findings and biochemical profile are usually non-conclusive in these tumors [1]. Chest radiographs rarely show changes suggestive of tracheal neoplasms. On radiology, the neoplasm can appear exophytic or appear as an intraluminal thickening of the wall. The thoracic spine and mediastinal structures are superimposed on the trachea in PA view and so lateral view of chest X-ray often helps more in making a diagnosis [2]. However, most patients with these neoplasms may initially present with normal chest radiographs. This is another reason for the delay in diagnosis.Computed tomography (CT) and fibreoptic bronchoscopy are better imaging techniques for diagnosing these tumors. A study done by Wei Li et al suggested that, in a CT scan, cross-sectional view of the trachea and the surrounding structures can be visualized, thus enabling the determination of the extent of the disease [2]. Fibreoptic bronchoscopy is a component of the workup for most tracheal neoplasms as it helps in finding the cause for airway obstruction [1].

The optimal treatment option is surgical resection and reconstruction with postoperative irradiation. Palliative treatment in the form of laser resection or stenting may be offered to patients with inoperable tumors [4]. Close follow-up after surgery is

necessary to find recurrences [3]. A case reported by Prommegger R *et al* indicated that long-term survival was found to be poor because of delayed local relapses and late metastatic extension and hence, close follow-up should be continued [5].

This case report demonstrates the challenge faced in reaching the exact diagnosis in the background of a normal chest radiograph as well as an inconclusive CT scan. A similar report suggested that tracheal tumors may present with a normal chest X-ray [3]. Further research also indicated that there have been case reports on both acute and chronic pulmonary conditions that have presented with an unremarkable chest X-ray. Previous studies have shown that diseases such as bronchial asthma, acute pulmonary embolism and pneumonia may present this way [6,7,8]. Reports on chronic conditions that have presented this way are lung cancer and chronic diffuse infiltrative lung disease [9.10]. Out of these, asthma, being the most common, is considered as the initial diagnosis in patients presenting with respiratory symptoms and normal chest X-rays. Chest radiographs have been used as the initial imaging study for a variety of diseases. The advantages of the X-ray over CT scan include the low cost, short procedure time and low dose of radiation. However, non-response to appropriate anti-asthma therapy must prompt a further workup for alternate diagnoses such as localized airway obstructions.

CONCLUSION

Patients with tracheal growths may present with a normal chest radiograph and an inconclusive CT scan; almost mimicking asthma or bronchitis. Thus, most of these patients may initially be mismanaged. Persisting symptoms despite initial investigations and treatment must, therefore, prompt a more elaborate diagnostic workup for alternate conditions.

REFERENCES

1. Singh R, Kate A, Joshi JM. Tracheal tumour presenting as non-responding asthma. Lung India. 2007;24:145-7.
2. Li W, Ellerbroek NA, Libshitz HI. Primary Malignant Tumors of the Trachea A Radiologic and Clinical Study. Cancer. 1990;66:894-9.
3. Kokturk N, Demircan S, Kurul C, Turktas H. Tracheal adenoid cystic carcinoma masquerading asthma: A case report. BMC Pulmonary Medicine. 2004;4:10.
4. Abbate G, Lancella A, Contini R, Scotti A. A primary squamous cell carcinoma of the trachea: case report and review of literature. Acta Otorhinolaryngologica Italica. 2010;30:209.
5. Prommegger R, Salzer GM. Long-term results of surgery for adenoid cystic carcinoma of the trachea and bronchi. Eur J Surg Oncol. 1998;24:440-4.
6. Bousquet J, Chanez P, Lacoste JY, White R, Vic P, Godard P *et al*. Asthma: A disease remodeling the airways. Allergy. 1992;47:3-11.
7. Worsely DF, Alavi A, Aronchick JM, Chen JT, Greenspan RH, Ravin CE. Chest radiographic findings in patients with acute pulmonary embolism: observations from the PIOPED study. Radiology. 1993;189:133-6.
8. Maughan BC, Asselin N, Carey JL, Sucov A, Valente JH. False-negative chest radiographs in emergency department diagnosis of pneumonia. R I Med J. 2014;97:20-3.
9. Stapley S, Sharp D, Hamilton W. Negative chest X-rays in primary care patients with lung cancer. The British Journal of General Practice. 2006;56:570-3.
10. Epler GR, McLoud TC, Gaensler EA, Mikus JP, Carrington CB. Normal chest roentgenograms in chronic diffuse infiltrative lung disease. N Engl J. Med 1978;298:934-9.

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