

Case Report

Right proximal sub-clavian artery pseudoaneurysm masquerading as right upperzone opacity of lung

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ABSTRACT

Right proximal subclavian artery pseudoaneurysms are uncommon conditions with a relatively small number of recorded instances to date. Such cases might be challenging to diagnose since the patient may have symptoms that are similar to those of other illnesses, including lung cancer. The diagnosis is aided by imaging methods including contrast-enhanced computed tomography (CECT) chest and computed tomography angiography, as well as a high level of clinical suspicion. We present a rare case of a 23-year-old man with no history of lung disease or trauma, who had a complaints of change in voice, difficulty in swallowing and haemoptysis. Right-sided upper zone homogeneous opacity was seen on the chest X-ray. CECT revealed large, well-defined solid cystic areas that extended up to the posterosuperior aspect of the right upper thoracic region. Aneurysm rupture with active contrast leak. Pulmonary angiography revealed the presence of a pseudoaneurysm in the middle mediastinum on the right side, originating from the right proximal subclavian artery. The patient was operated on, and the right subclavian artery and innominate artery pseudoaneurysm were repaired. If subclavian artery pseudoaneurysms are large, they can cause compression symptoms. For compressive symptoms, open surgical resection and vascular reconstruction are required. In a patient with hemoptysis and opacities on chest imaging, arterial aneurysm should be considered as a differential diagnosis alongside lung mass. Before considering a biopsy from the lesion, further evaluation with CECT should be performed.

Keywords: Pseudoaneurysm, Subclavian artery, Haemoptysis

INTRODUCTION

There have only been a few right proximal subclavian artery pseudoaneurysms reported in the literature so far. Since the patient may exhibit symptoms that are similar to those of other illnesses, including lung cancer, such cases may be difficult to diagnose. Imaging techniques, such as contrast-enhanced computed tomography (CECT) chest and computed tomography angiography, as well as a high degree of clinical suspicion, help to make the diagnosis.¹ We present a rare case of a 23-year-old man with no history of lung disease or trauma, who had a complaints of change in voice, difficulty in swallowing and haemoptysis.

CASE REPORT

A 23-year-old male patient, an accountant by profession and a non-smoker, presented to the department of Respiratory Medicine with the following chief complaints: back pain for 6 months, change in voice for 6 months, difficulty swallowing for 10 days, cough with expectoration for 8 days, haemoptysis for 8 days, and fever for 8 days. On general examination, he appeared to be conscious, coherent, and aware of time, place, and person. There was no icterus, cyanosis, clubbing, oedema, or lymphadenopathy. On room air, he was afebrile with a pulse rate of 122 beats per minute, a respiratory rate of 18, a blood pressure of 120/80 mmHg, and a SpO₂ of 98%.

During a respiratory system evaluation, breath sounds were reduced over the right suprascapular and interscapular areas.

Past history

Six months ago, the patient experienced an H/o change in voice and difficulty swallowing, for which he was diagnosed with right vocal cord palsy and treated with steroids, supportive medications, and speech therapy. Later, the patient returned to the local hospital with similar complaints, and a chest X-ray revealed a well-defined homogeneous opacity in the right upper zone (Figure 1). He received treatment with both injectable anti-fibrinolytics and antibiotics. The patient did not experience any relief. Then, a CECT of the neck and thorax was performed, revealing a large, well-defined solid cystic area arising from the middle mediastinum on the right side and extending up to the postero-superior aspect of the right upper thoracic region with compressive atelectasis of the apical and posterior segments of the right upper lobe with lesion showing internal hyperdense areas-suggestive of hemorrhagic contents, Aneurysm ruptured with active contrast leak. The entire right lung field displays numerous patchy alveolar opacities that are suggestive of alveolitis changes (Figures 2). Digital subtraction angiography of right proximal subclavian artery was done via microcatheter injection which showed a sac of pseudoaneurysm with patent distal flow as depicted below (Figure 3).



Figure 1: Well defined homogenous opacity in right upper zone.

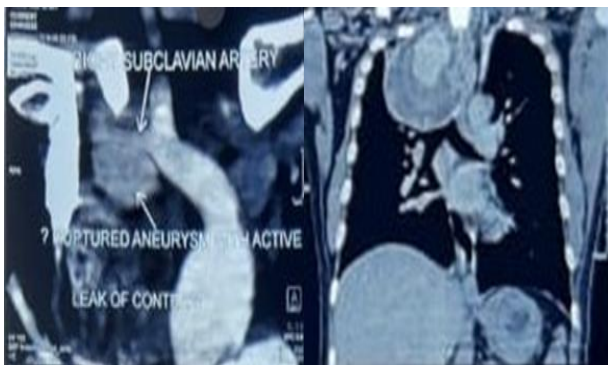


Figure 2: CECT thorax showing large well defined solid cystic areas.

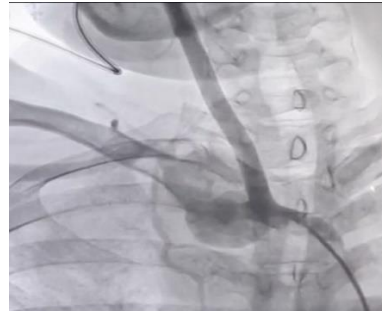


Figure 3: Digital subtraction angiography showing pseudoaneurysm sac.

Right subclavian artery and innominate artery pseudoaneurysm were repaired during surgery, and an 8 mm PTFE graft from the ascending aorta to the right axillary artery was reimplanted (Figure 4).

Large pseudoemphysems compressing the right upper lobe of the lung, trachea, and oesophagus were observed, arising from the inferior surface of the junction of the right internal carotid, right subclavian, and innominate arteries. Right supraclavicular, right subclavian, and right axillary arteries were all reopened. A 8 mm ringed polytetrafluoroethylene (PTFE) graft was anastomosed from the ascending aorta to the right axillary artery through the internal intercostal space. Right sub-clavian artery's proximal end (intrathoracic end) was sutured and closed. Right common carotid continuity was preserved. After 1 month period patient came for follow up and repeat C-X-ray was done which showed regression of the aneurysm (Figure 5).

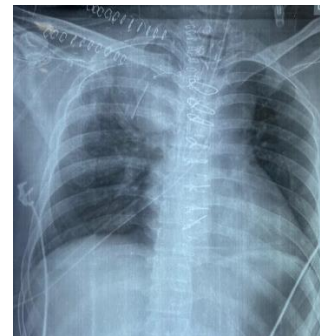


Figure 4: Pseudoaneurysm repaired with PTFE graft.

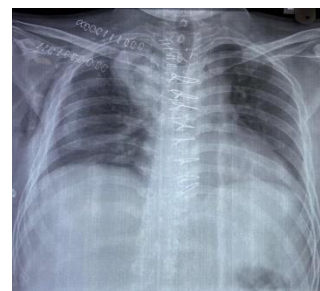


Figure 5: Chest X-ray showing regression of the aneurysm.

DISCUSSION

Pseudoaneurysm of the vessels occurs when the wall of a blood vessel is injured and the leaking blood collects in the surrounding tissue. It is also known as a false aneurysm. Because of the high mortality rate, contained rupture of a thoracic aortic aneurysm is a rare condition that usually necessitates an emergency repair. It is usually accompanied by an acute pain that appears out of nowhere. Unenhanced CT images cannot differentiate between a ruptured aneurysm and a cancer recurrence in the initial assessment. There are a few case reports of thoracic aortic aneurysm being misdiagnosed as lung cancer, and lung cancer being misdiagnosed as aortic aneurysm.¹⁻³ If a contrast-enhanced CT scan was not performed immediately after the mass was discovered in contact with the aorta, it should be considered.

Aneurysms are associated with atherosclerosis, inflammatory lung diseases, bronchiectasis, bronchitis, and systemic vascular abnormalities such as Osler-Weber-Rendu syndrome.⁴ A pseudoaneurysm is an organised collection of thrombus that is contained by thrombus fibrosis or by surrounding structures. Trauma, infections, rupture of an aneurysm, iatrogenic causes, vasculitis, connective tissue disorder, malignancies, or even coagulopathies can all cause a pseudoaneurysm.⁵ Aortic arch aneurysms can cause compression of the left recurrent laryngeal nerve, resulting in hoarseness of the voice and other nearby organs/tissues.⁶ Ortner's syndrome is the medical term for this condition.

Mycotic aortic aneurysm (MAA) caused by *Staphylococcus aureus* is sometimes diagnosed in patients. With a hospital mortality rate of 23.5%-37% and accounting for 0.5%-1.3% of all aortic aneurysms, this disease has a poor prognosis.^{7,8} Infection of the arterial walls can occur through a variety of routes, including septic emboli, bacteremic seeding of an existing intimal injury or atherosclerotic plaque, dental infections, with the gingival sulcus serving as the point of entry.⁹ MAAs are prone to rapid aneurysm expansion due to arterial wall weakening, and the risk of rupture can be 85% or higher. Furthermore, MAA has been linked to a high rate of contained rupture.¹⁰

CONCLUSION

Differential diagnosis of arterial aneurysm should be considered along with lung mass in a patient presenting with hemoptysis and opacities on chest imaging and absence of other causes of haemothorax or trauma. Further evaluation with CECT should be done before considering a biopsy from the lesion, CT angiography being the gold standard in the diagnosis of pseudo-aneurysm. Early

intervention is crucial for preventing mortality and morbidity in these patients.

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REFERENCES

- Che GW, Chen J, Liu LX, Zhou QH. Aortic arch aneurysm rupture into the lung misdiagnosed as lung carcinoma. *Can J Surg.* 2008;51(4):E91-2.
- Takahara Y, Nishiki K, Nakase K, Mizuno S. Ruptured pseudoaneurysm of the thoracic aorta mimicking lung cancer: A case report. *Thorac Cancer.* 2021;12(5):685-9.
- Lin F, Yang M, Guo C, Liu L. Lung cancer mimicking aortic dissecting aneurysm in a patient with situs inversus totalis. *Thorac Cancer.* 2016;7(2):254-6.
- Jackson SB, Villano NP, Benhammou JN, Lewis M, Pisegna JR, Padua D. Gastrointestinal Manifestations of Hereditary Hemorrhagic Telangiectasia (HHT): A Systematic Review of the Literature. *Dig Dis Sci.* 2017;62(10):2623-30.
- Koirala A, Thapa A, Mahat S, Sapkota S, Sosa O. A Rare Case of Ruptured Bronchial Artery Pseudoaneurysm and Its Nonsurgical Management With Interventional Techniques. *Cureus.* 2020;12(9):e10502.
- Subramaniam V, Herle A, Mohammed N, Thahir M. Ortner's syndrome: case series and literature review. *Braz J Otorhinolaryngol.* 2011;77(5):559-62.
- Dumont E, Carrier M, Cartier R, Pellerin M, Poirier N, Bouchard D, et al. Repair of aortic false aneurysm using deep hypothermia and circulatory arrest. *Ann Thorac Surg.* 2004;78(1):117-20.
- Jones CS, Reilly MK, Dalsing MC, Glover JL. Chronic contained rupture of abdominal aortic aneurysms. *Arch Surg.* 1986;121(5):542-6.
- Furuta T, Tsubokawa T, Takabatake S, Ohtake H, Watanabe G, Yamagishi M. Pseudoaneurysmal formation in abdominal aorta associated with *Escherichia coli* infection. *Intern Med.* 2011;50(9):1025-8.
- Rakita D, Newatia A, Hines JJ, Siegel DN, Friedman B. Spectrum of CT findings in rupture and impending rupture of abdominal aortic aneurysms. *Radiographics.* 2007;27(2):497-507.

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