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Case Report

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A Report of Right Carotid Artery Pseudoaneurysm with Pulmonary Artery Aneurysm

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Abstract

Objective: To summary the clinical materials of patient with right carotid artery pseudoaneurysm associated with pulmonary artery aneurysm, and analyze the pathogeny, clinical feature and therapy method.

Methods: One patient of right carotid artery pseudoaneurysm associated with pulmonary artery aneurysm was received. Aneurysm of carotid artery was diagnosed with arteria cervicalis CTA, and located at the superior segment of the right arteria carotis communis. Chest CT showed that the diseased region existed in right lobi inferior posterior segment, with a thrombus in the Pulmonary artery aneurysm. The small achieve intervening pulmonary embolism operation was performed to resect the right carotid artery pseudoaneurysm and graft himself Saphenous Vein. The pseudoaneurysm was resected successfully.

Results: The operation was successful, and no complication occurred. The patient had normal live and excellent results for two years follow-up.

Conclusion: So long as with early diagnosis, correct operation chance and operation method, we can get satisfied curative effects.

Keywords: Carotid Artery Pseudoaneurysm; Pulmonary Artery Aneurysm; Surgical Therapy

Case History

The male patient, aged 26 years, presented with a pulsating mass on the right neck. The patient developed sudden cough, hemoptysis, and pulsating mass on right neck, felt unwell, and had swelling. Neck ultrasonography showed right carotid artery pseudoaneurysm. Admission examination showed impaired general health, with a body temperature of 39°C. The body skin and mucous membranes showed no xanthochromia; on the right neck was one 6×8 cm limitated intumescence, which could move when touched. Rhythm and heart rate were at equal pace, with a clear boundary, with no tenderness. The thoracic cage was symmetrical, and two-pulmonary breath sounds were clear. Laboratory examination showed white blood cell count: 13.7×10^9/L; rythrocyte sedimentation rate: 42mm/h, super sensitivity C reactive protein: 26.2 mg/L. Carotid artery Computed Tomography Angiography (CTA) revealed carotid artery aneurysms (carotid arterial segment on the right) (Figure 1). Arteria pulmonalis CTA revealed the right lower pulmonary artery branches of the pulmonary artery aneurysm (Figure 2). Preoperative diagnoses were right carotid artery pseudoaneurysm and pulmonary artery aneurysm.

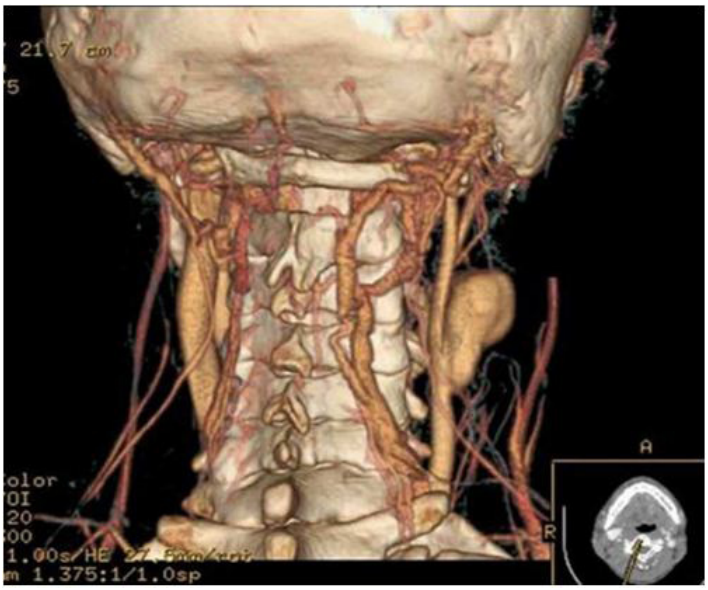

Figure 1: Carotid artery Computed Tomography Angiography.

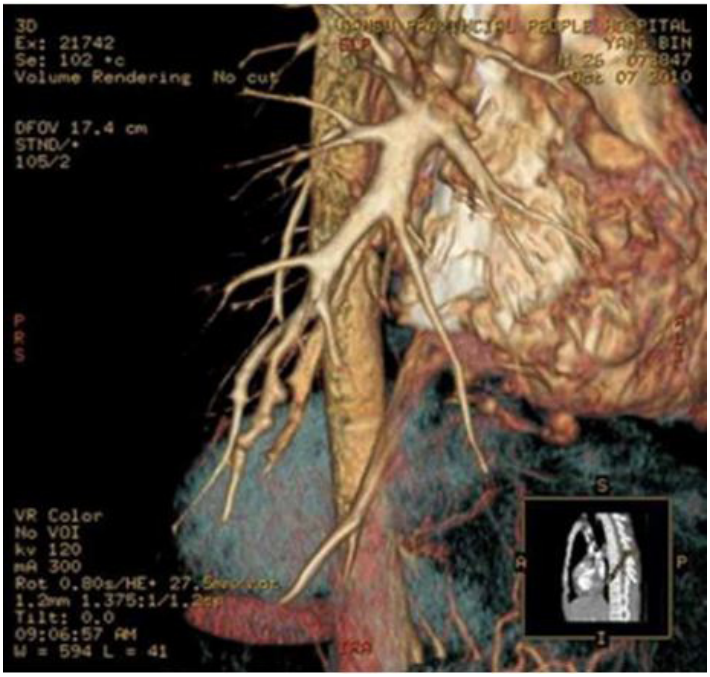

Figure 2: Preoperative Diagnoses.

After preoperative preparation, pulmonary arteriography and pulmonary artery aneurysm embolization were performed under local anesthesia. The pulmonary arteriography showed no visible abnormalities in the left pulmonary artery and bundle branch. The branch of the right pulmonary artery showed limited distention, with aneurysm shadow. After placing the sliding superconducting wire into the branch of the aneurysm, and coil embolization was attempted, the sliding superconducting wire was popped out of the aneurysm branch. Angiography showed no shadow in the aneurysm branch, thrombus fell off, and obstructed the bole. After angiography in the right main pulmonary artery, the branch of the aneurysm was not developing. The operation was then concluded. The pathogenetic condition of the patient improved after the operation; the patient experienced no chest complaint or chest distress and no cough or hemoptysis. The resected right carotid artery pseudoaneurysm and autogenous saphenous vein graft performed under general anesthesia (approximately 20 cm of the great saphenous vein pre-emergency) freed the arteria carotis communis, arteria carotis externa, and arteria carotis interna from the right cervical part, cut the aneurysm after blocking There were large thrombi within the aneurysm wall, and the blood vessel of the initial part of the arteria carotis externa was seriously damaged. Thus, the arteria carotis externa was ligatured, the end section of the arteria carotis communis and the arteria carotis interna was resected, both ends of the internal carotid artery and saphenous vein, respectively, were anastomosed and both ends of the great saphenous vein by the artery were anastomosed (Figure 3). The pathological report revealed some thrombi and inflammatory exudates. and arterioles. Some part of the vessel wall was uneven, and a few phlegmonosis cells infiltrated. Anticoagulation, antiplatelet, vasodilator, and antibiotic treatments to prevent infection were administered, and wound surface dressing was changed after the operation. The patient recovered uneventfully and was discharged on the ninth postoperative day. The patient was followed up for 2 years after discharge and enjoys a good quality of life with no evidence of recurrence.

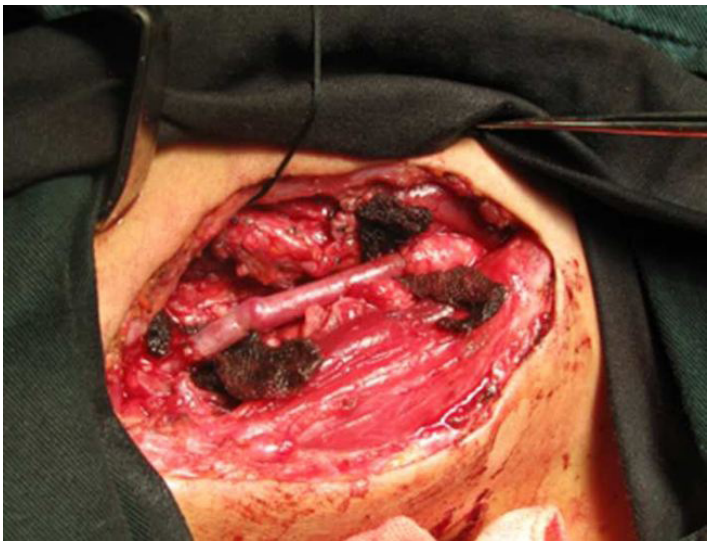

Figure 3: Thrombi and Inflammatory Exudates.

Discussion

Pulmonary artery aneurysm is a disease of the pulmonary artery trunk and/or the branch limitations vasodilator, with one or

more pulmonary artery wall degenerations and necrosis. Incidence of pulmonary artery aneurysm is rare. The Deterling statistical autopsy rate was 0.073%, and morbidity is not associated with gender or age [1]. Based on whether there is communication between the pulmonary artery and the arterial vein, a pulmonary artery aneurysm can be divided into two categories: merger of arteriovenous aneurysm of communication and nonmerge of arteriovenous aneurysm of communication [2]. The former is associated with genetic defect, and the latter is caused by infection such as tuberculosis or syphilis, heart vascular abnormalities, pulmonary hypertension, trauma, or idiopathic pulmonary artery aneurysm. Most often, the condition is caused by multiple factors, especially pulmonary hypertension and idiopathic pulmonary artery aneurysm [3]. The pathological changes account primarily for cystic middle changes and atherosclerosis. The patient in this report also had right carotid artery pseudoaneurysm. Aneurysm of the carotid artery is divided into aneurysms and pseudoaneurysms: aneurysms are more common clinically, and pseudoaneurysms are extremely rare. Indeed, pseudoaneurysm is often reported in individual case studies or small case series [4]. The etiology of carotid artery aneurysm is complicated and has not been determined clearly. At present, the majority of causes are atherosclerosis and trauma [5]. In addition, cases are also known to be caused by caused by hereditary disease, fibro muscular dysplasia, arterial wall cystic middle changes, Marfan syndrome, Behcet's disease, arterial inflammation, and so on [6]. Disease in this case report was found in the right lower pulmonary artery branches of the pulmonary artery aneurysm, with simultaneous right carotid artery pseudoaneurysm, which is clinically rare. The patient did not have tuberculosis, syphilis, arteriosclerosis, or other causes; Thus, the aneurysm formation was very likely arterial hypertension, congenital pulmonary arterial wall defects, and repeated infection resulting from the interaction of multiple factors. Among all the causes, arterial hypertension and arterial wall middle cystic necrosis are primary, and local recurrent infection caused arterial wall damage, resulting in arterial wall of the middle layer of elastic fibers and muscle deformation necrosis. The two sides interact as both cause and effect, and exacerbate each other.

The clinical symptoms of the disease manifested primarily as sudden cough, hemoptysis, and right neck pulsatile mass, etc. The right carotid artery pseudoaneurysm was diagnosed, but the pulmonary artery aneurysm is not specific, and many patients may not have symptoms. X-ray imaging may appear normal; if the tumor is large, the prominence will be clearly seen on the left ventricular edge. Computed Tomography (CT), magnetic resonance imaging, pulmonary angiography, and heart ultrasonography can be helpful in the diagnosis. Preoperative diagnosis of patients with cough and hemoptysis, was determined through chest CT. The effect of aneurysm treatment is not so promising leading to tumor rupture and causing sudden death [7]. Once diagnosed, treatment should begin immediately.

Surgery is the primary method of aneurysm treatment. Surgical treatment of pulmonary artery aneurysms together to correct the cause of disease and aneurysm must consider the position of the tumor and concomitant deformity. Surgeons can perform aneurysm resection and pulmonary artery reconstruction or pulmonary artery replacement [8]. Tumor of the disease involving only the lower right pulmonary artery branch requires only pulmonary tumor embolization. In this case, the minimally invasive interventional therapies succeeded. Compared with surgery, the traumatic effect of interventional treatment is small, and complications and risks are low. The effect of early treatment is good; however, long-term outcomes are rarely reported.

Although there are no large case study results reported, 2 years' follow-up effect of the case is good. Long-term effects remain to be seen. The principle of carotid artery aneurysm surgical treatment is the maintenance of cerebral blood supply of the resected or isolated aneurysms. Carotid artery aneurysm resection and revascularization is the ideal surgical approach for the treatment of carotid artery aneurysms. In this case, the right carotid artery pseudoaneurysm resection and autogenous saphenous vein grafts resect the pseudoaneurysm successfully. As in this case, surgical treatment of the patient with good short-term effects still require additional follow-up.

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