

CASE REPORT

Acute Arterial Occlusion of Lower Limbs caused by Tumor Embolism in a Patient with Lung Cancer

Oclusão Arterial Aguda de Membros Inferiores por Êmbolo Tumoral em Paciente com Neoplasia de Pulmão

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Abstract

Peripheral arterial embolism (PAE) caused by malignant tumors is a rare manifestation of cancer. PAE may originate from several sites, including the heart, aorta, and pulmonary veins. These veins are a major source of thrombotic embolism or tumors with vascular erosion. Although uncommon, lung cancer should be regarded as a source of emboli in the extremities, especially when there is neoplastic invasion of the pulmonary veins. We report on a case of a male patient who underwent pneumonectomy for lung cancer and then developed acute arterial occlusion of the lower extremities caused by saddle tumor embolus.

Keywords: embolism; lung neoplasms; ischemia.

Resumo

A embolia arterial periférica originada de tumores malignos é considerada uma manifestação rara da doença neoplásica, podendo se originar de vários sítios, incluindo coração, aorta e veias pulmonares, sendo estas últimas, fontes massivas de embolia por trombo ou tumores com erosão para seu lúmen. Apesar de infrequente, a neoplasia pulmonar deve ser considerada como uma fonte de êmbolos para as extremidades, principalmente quando há invasão neoplásica para as veias pulmonares. Apresentamos o caso de um paciente do sexo masculino submetido à pneumectomia por neoplasia pulmonar, que evoluiu com oclusão arterial aguda de membros inferiores por êmbolo tumoral "a cavaleiro".

Palavras-chave: embolia; neoplasias pulmonares; isquemia.

Introduction

Peripheral arterial embolism caused by tumors is a rare manifestation of cancer.¹ When these events do occur, they are generally associated with intracardiac tumors, in particular atrial myxoma.² Lung cancers, particularly cases in which tumors invade pulmonary veins and arteries, are considered rare causes of arterial embolisms of the lower limbs.

Case report

We report on a case of a male, 72-year-old smoker referred to a chest surgery clinic with a suspected neoplastic lesion found on lung X-ray (Figure 1). After appropriate investigations, the diagnosis of lung cancer was confirmed (Figure 2) and surgery was indicated. A right pneumonectomy was performed and invasion of

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the ipsilateral pulmonary vein was identified during the procedure.

During the immediate postoperative period, approximately 30 minutes after surgery was finished, the vascular surgery team were called to investigate a suspected acute arterial occlusion of the lower extremities. On physical examination, the patient's legs were pale and both femoral pulses were absent. The diagnostic hypothesis of saddle embolus was confirmed and the patient was returned to the operating theatre.

Arterial embolectomy was conducted with bilateral inguinal access, using size 4 and 5 Fogarty catheters inserted into the femoral arteries proximally and distally. Emboli with appearance suggestive of tumors were removed

and sent for anatomopathological analysis. The patient recovered well after the operation, with strong pedal and tibial pulses in both legs and no sign of the post-reperfusion compartment. He was discharged 15 days after surgery, after a case of hospital-acquired pneumonia had been controlled. Histopathological results for the embolectomy specimens confirmed pulmonary adenocarcinoma (Figure 3).

Discussion

Embolisms of the peripheral arteries originating from malignant tumors are considered a rare manifestation of cancer^{1,2}. They can originate from many different sites, including the heart, aorta and pulmonary veins, the last of which are a significant source of embolism by thrombus or tumors with erosion involving the lumen. With regard to diagnosis of potentially emboligenic lesions, several authors recommend using transesophageal echocardiography as a safe method for diagnosing neoplasms suspected of atrial invasion,³⁻⁵ which if found would be a predictive factor for risk of emboli. Although uncommon, lung cancers should be considered a possible source of emboli of the extremities, particularly when neoplastic lesions have invaded the pulmonary veins⁶.

Tumor fragments are responsible for a small percentage of peripheral emboli. Tumors of the heart are most often implicated and atrial myxomas are the most common of these, reported in 30% of series⁷.

Once a diagnosis of lung cancer with vascular invasion has been made, Locertales et al.⁸ recommend a median sternotomy approach, with the tumor resection performed under cardiopulmonary bypass, in order to avoid embolic

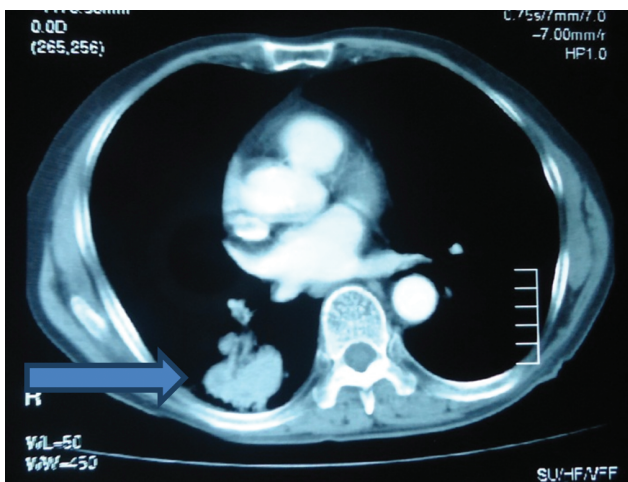


Figure 1. Tomography showing the lung tumor at the arrow tip.

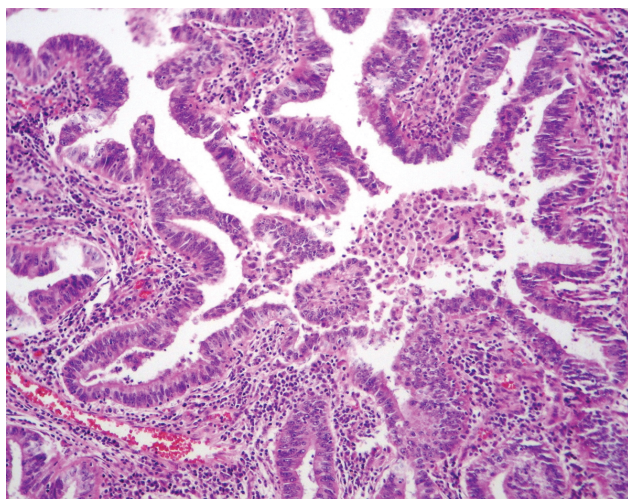


Figure 2. Lung section – Moderately differentiated acinar adenocarcinoma, Grade II in the International Classification of Diseases (Hematoxylin-eosin stained).

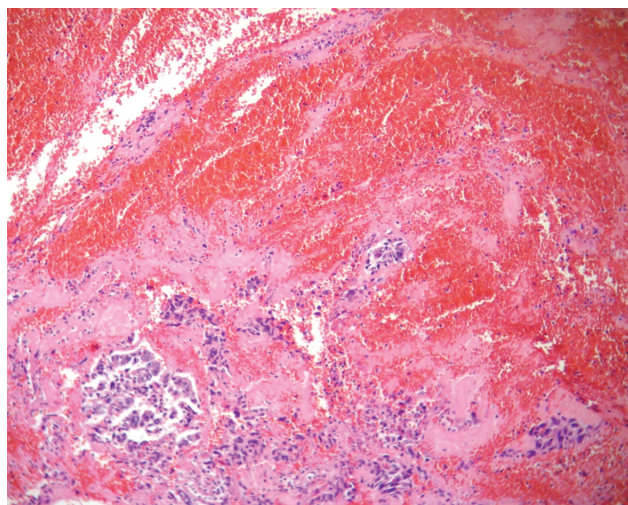


Figure 3. Slide of tumoral embolus material (Hematoxylin-eosin stained).

complications during and after the operation, although conventional thoracotomy is the more common approach, as described by Joshi and Pradham⁹. Locertales et al.⁸ also suggest routine echocardiography during preoperative work-up for patients with advanced lung cancer to facilitate planning of the surgical approach, once more in order to avoid embolic complications. The same authors cite a literature review published by Zurcher et al., in which 38 cases of acute arterial embolism were found in patients with lung cancers,¹⁰ confirming the rarity of this disease as a cause of occlusion of lower limb arteries.

Acute occlusion of the abdominal aorta with tumoral origins is a rare event with potentially catastrophic consequences that demands rapid surgical intervention¹¹.

There is one other Brazilian description of a similar case, in which a patient with secondary Schwannoma in the heart suffered embolization of tumor fragments in the distal aorta, although the presentation was subacute arterial occlusion,¹² which meant a preplanned surgical intervention could be conducted after arteriography had been performed, in contrast with the case reported here which demanded immediate action to ensure reperfusion of the lower limbs.

Conclusions

We conclude that the study of rare cases of arterial embolism in lower limbs helps make vascular surgeons aware of uncommon etiologies of acute arterial occlusion, contributing to rapid diagnosis and treatment of such patients and avoiding the catastrophic consequences of acute occlusion recognized at late stages. Furthermore, we hope to have highlighted the importance of preoperative and intraoperative precautions that chest surgeons should take to attempt to avoid this severe complication.

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