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Case Report

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# Skeletal muscle metastasis: An uncommon metastasis site of a pulmonary adenocarcinoma

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## Abstract

Skeletal muscle metastasis of non small cell lung carcinoma (NSCLC) is a rare entity. And the most effective treatment approach remains undetermined. We report the case of a 49 years-old man with lung adenocarcinoma who present a muscle metastasis revealed by a contrast-enhanced computed tomography (CT) scan and confirmed histologically.

## Case report

A 49-year-old man, a heavy smoker, was admitted to our hospital with a lung lesion of about 7 cm in diameter in the right upper lobe with the histologic diagnosis of poorly differentiated adenocarcinoma. A contrast-enhanced computed tomography (CT) scan of the chest revealed a right upper lobe lung mass (74 x 69mm) and mediastinal lymphadenopathy that did not involve the chest wall with thrombosis of the superior vena cava (Figure 1). On further staging, brain metastasis was detected and a lesion in the soft tissue in the left lower paraspinal muscle (17 x 16 mm) (figure 2) without evident contact with the ribs or the parietal pleura .Ultrasonography (US) was performed to evaluate the lesion and it showed an hypoechoic inhomogeneous image, with irregular margins (50×40mm). The histologic diagnosis was muscle metastasis from NSCLC.

## Comment

Lung cancer is the major cause of cancer-related mortality, regardless of advancements in diagnosis and therapy, the 5-year survival rate is around 14% (1). Surrenal glands, liver, bone, and brain are the most prevalent sites of distant metastasis in lung cancer.

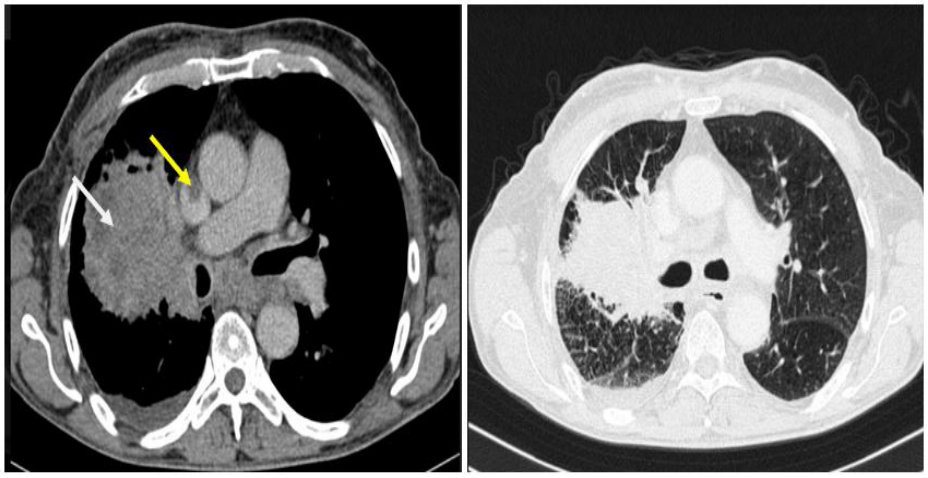

***Figure 1:*** *A contrast-enhanced computed tomography (CT) scan of the chest revealed a right upper lobe lung heterogenous mass (white arrow) with thrombosis of the superior vena cava (yellow arrow).*



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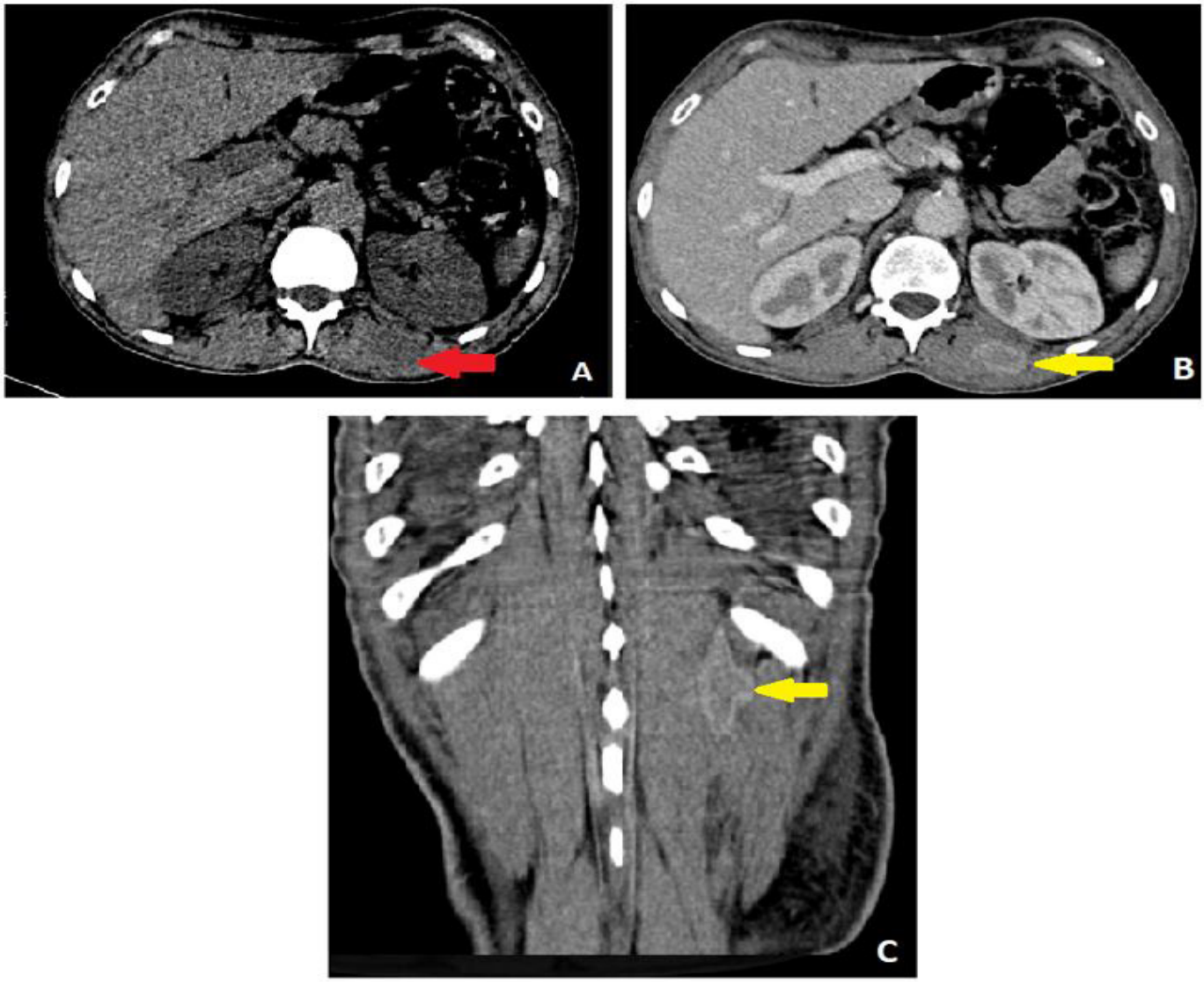


***Figure 2:*** *Computed tomography scan showing roundish metastases (red and yellow arrows) involving the long muscles of the dorsum before (A) and after enhancement (B and C).*

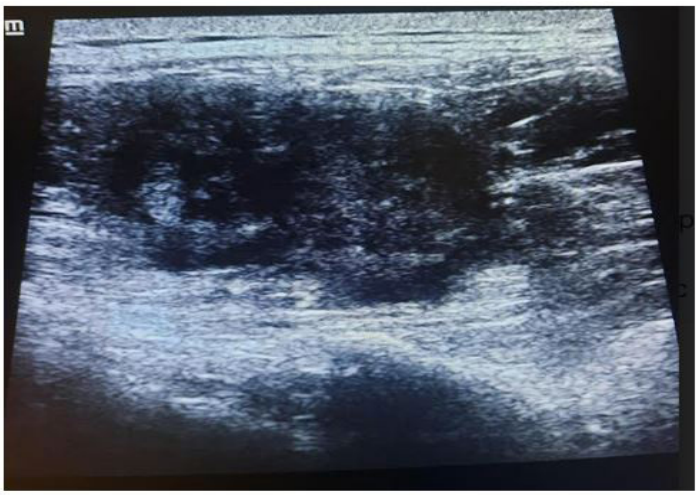

***Figure 3:*** *Gray scale image shows a hypo echoic lesion with indeterminate margin with no doppler uptaking.*

Fisher et al. (2) was the first to describe skeletal muscle metastases from lung cancer. it is extremely uncommon in any tumor, with a reported incidence of less than 1%. The muscle groups most often involved were those of the arm and the shoulder, lumbar spine, and thighs and the mechanism is still unclear. Despite its rich vascular blood supply and a large mass in the body, it is resistant to hematogenous metastases.

The hematogenous route is the most frequently accepted theory (3). According to this hypothesis, tumor cells are produced as a result of tumor embolism. Certain authors speculated that skeletal muscle metastases may be caused by aberrant lymph nodes located in the muscle.

The typical clinical manifestations are local pain, increased muscle tone and the development of a swelling.

Despite differences in the connection between histologic



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subtypes and skeletal muscle metastases between studies, in a study by Bocchino, et al. (4) (87%) had NSLC and (13%) had small cell lung cancer. Adenocarcinoma was found in (60%) of the NSCLC patients.

The diagnostic procedures for skeletal muscle metastases are not specific. Direct films often reveal only soft tissue shadows. MRI frequently reveals a hypointense signal in T1 and a hyperintense signal in T2. MRI is recommended for distinguishing soft tissue metastases from abscess, sarcoma, and other diseases (5).

The ideal therapy and prognosis for lung cancer skeletal muscle metastases remain unclear and uncertain. Treatment options include observation, surgery, chemotherapy, and radiation, depending on the clinical features (4).

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