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Case Report

Low back pain indicative of psoas muscle metastasis and bronchopulmonary cancer ☆,☆☆

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ABSTRACT

Muscle metastases of bronchopulmonary cancer are rare, notably when they are revealing. They can affect all muscles of the body with a predominance of psoas, diaphragmatic and para-vertebral muscles. We report a case of psoas muscle metastasis revealing bronchopulmonary cancer in a 40-year-old patient with a long history of smoking (30 packs of cigarettes/year) presenting a chronic left low back pain with asthenia and weight loss (15 kg/year). The clinical examination was unremarkable. An abdominal computed tomography scan showing a retroperitoneal mass at the expense of the left psoas muscle, lysing the L2 vertebral and left pedicle with intraspinal extension. A complement by cervico-thoracic computed tomography scan showed a lung mass with hilar and mediastinal lymphadenopathy. A scan-guided biopsy puncture of the psoas muscle mass identified its metastatic origin. The clinical picture is often deceptive leading to diagnostic and therapeutic delay, hence the interest of the imagery as well as histological confirmation is recommended.

Introduction

Muscle metastases of bronchopulmonary cancer are rare, especially when they are revealing. They can affect all body muscles with psoas, diaphragmatic, and para-vertebral muscles predominating. We report a case of psoas muscle metastasis revealing bronchopulmonary cancer.

Clinical observation

A 40-year-old man, a heavy smoker (30 packs of cigarettes/year) complained a chronic left low back pain with asthenia and weight loss (15 kg/year) for 1 year. The clinical examination was unremarkable. An abdominal computed tomography scan (CT scan) showing a retroperitoneal mass at the expense of the left psoas muscle with heteroge-

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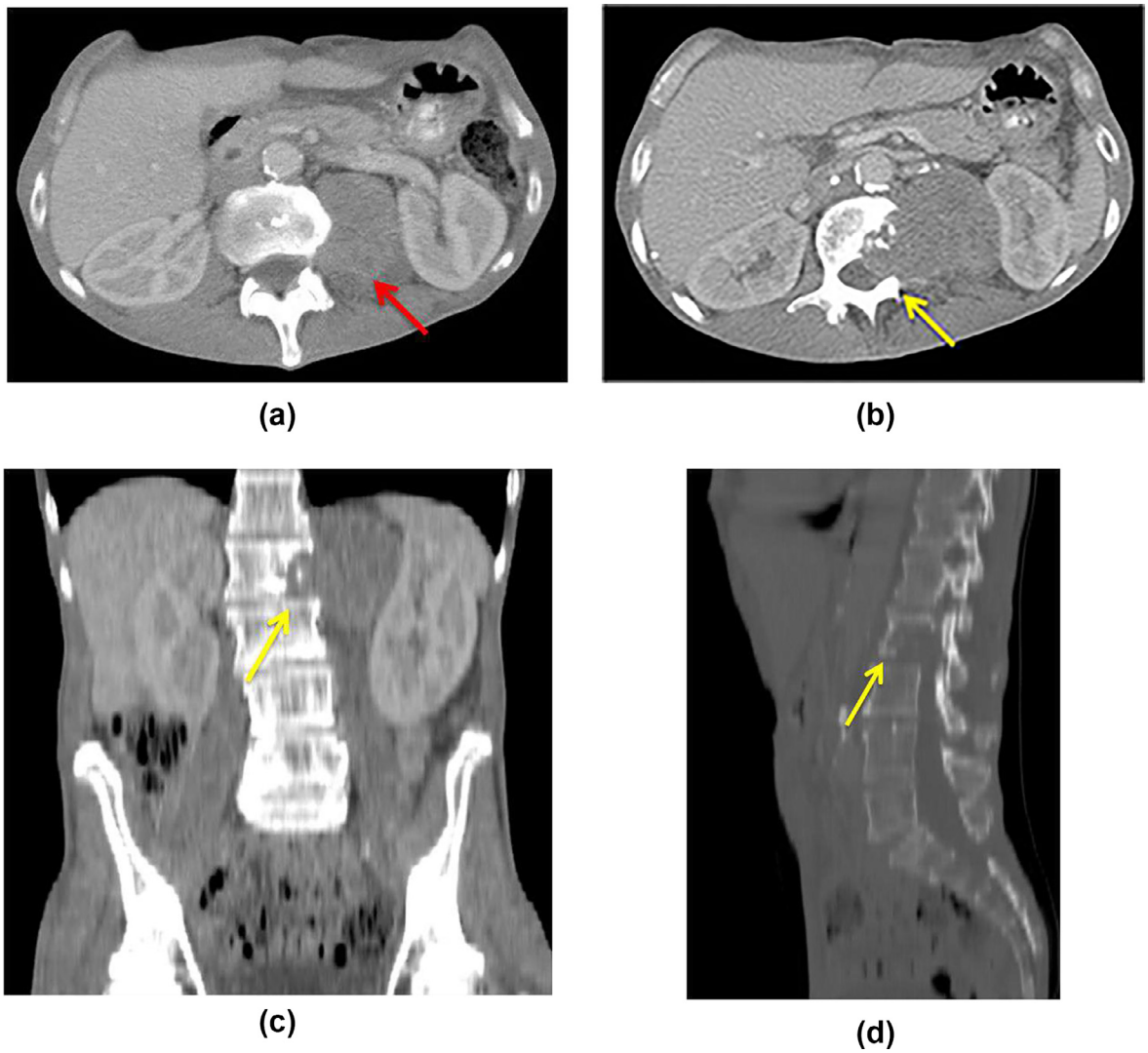

Fig. 1 – (A) The CT image in axial section showed retroperitoneal mass at the expense of the left psoas muscle with heterogeneous enhancement after injection of the contrast agent (red arrow). The CT images in axial (B), coronal (C), and sagittal (D) views showing an intramuscular mass of left psoas muscle in a cachectic patient, lysing the L2 vertebral and left pedicle with intraspinal extension (red arrow). Color version available online.

neous contrast enhancement after injection of the contrast agent (Fig. 1A), lysing the L2 vertebral and left pedicle with intraspinal extension in a cachectic patient (Fig. 1B-D). A complement by cervico-thoracic CT scan showing an irregular mass of a right upper lobe lung with pleural connections, spiculated nodule and mediastinal-hilar lymphadenopathy (Fig. 2 A-D). A scan-guided biopsy puncture of the psoas muscle mass identified its metastatic origin (Fig. 3). We therefore concluded that metastatic psoas muscle mass results from lung cancer.

Discussion

Muscle metastases are rare although over 45% of body mass is muscular, and it's richly vascularized [1,2]. However, the frequency of muscle metastases varies according to the circumstances of the findings: in clinical series the muscle is the site of metastasis in 0.03%-0.16% of cancers, whereas in autopsy series the frequency is up to 16% [3].

Several hypotheses have been put forward to explain the rarity of these lesions: striated skeletal muscle escapes tumor invasion through its contractile activity, resistance thru the production of lactic acid that prevents cell anoxia that favors the development of tumor cells. Blood circulation turbulence prevents metastatic emboli of being fixed and normal muscle tissue can produce a strong immune reaction inhibiting tumor cell fixation [4,5].

Tumors with a high muscular metastatic potential are in order of frequency: carcinomas of different origins (mammary, bronchial, thyroid, colic, and gastric), lymphomas and leukemias [1].

Bronchopulmonary cancer is thought to be the primary cause of muscle metastases. Berge et al reported a 1% of

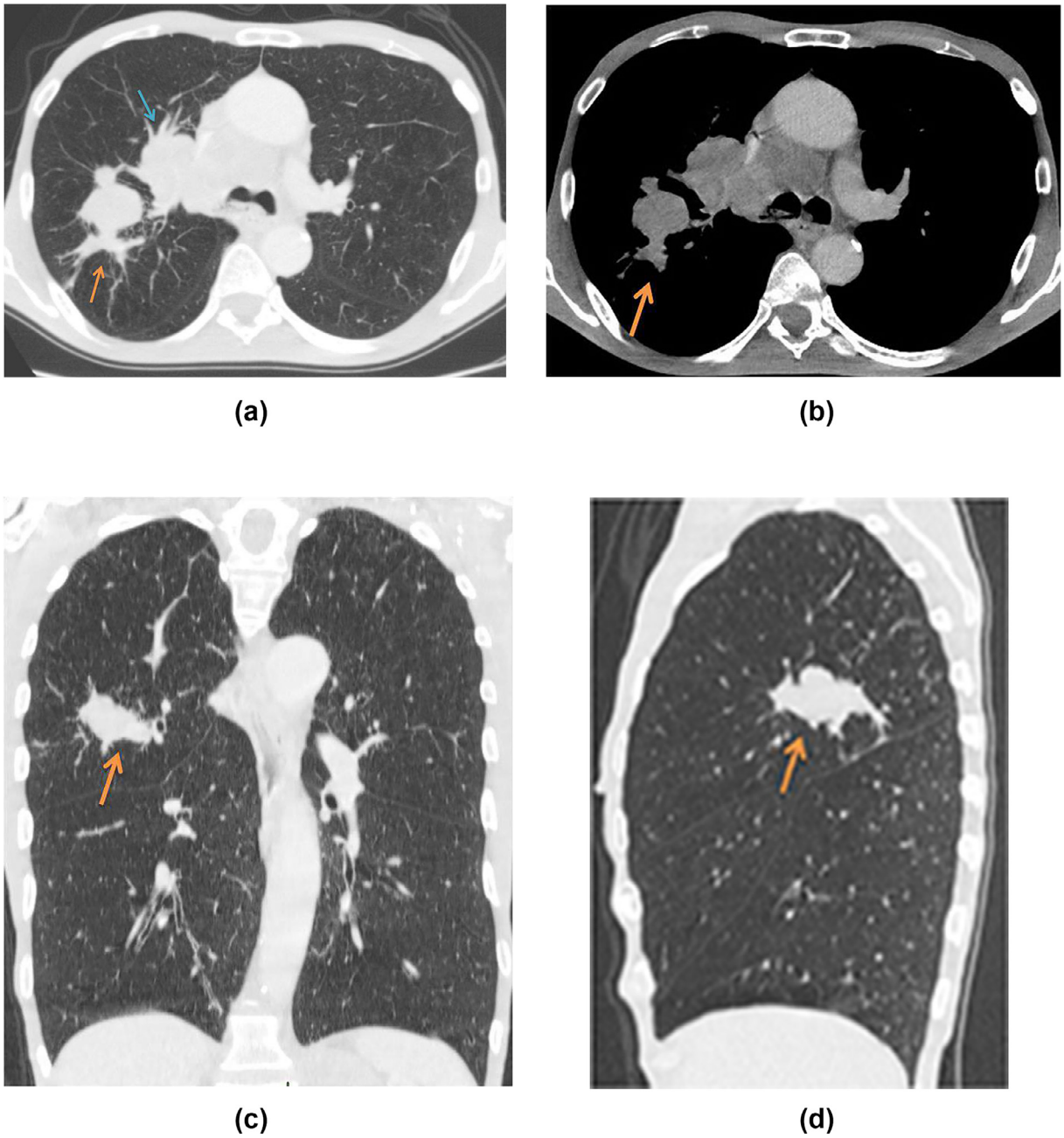

Fig. 2 – Chest CT scan in axial section (A = parenchymal window, B = mediastinal window), coronal (C) and sagittal (D) reconstructions showing an irregular mass of a right upper lobe lung with pleural connections, spiculated nodule (orange arrow) and mediastinal-hilar lymphadenopathy (blue arrow). Color version available online.

747 patients with bronchopulmonary cancer have a muscle metastases [6].

Often muscle metastases are focal, but the most affected muscles are the diaphragm muscle (67.8%), the psoas muscle (29.4%) and the para-vertebral muscles, rarely other muscles [7]. Typically, these metastases occur in an established neoplastic context, as with our patient they are exceptionally indicative of primary tumor [8].

Although no radiological criteria are specific, a histological confirmation is always essential [9]. The CT scan shows an enlargement of the muscle body following injection of the contrast agent by a heterogeneous tissue lesion with central necrosis areas and peripheral contrast of the tumor tissue. In T1-weighted sequence of magnetic resonance imaging will objectify a hypo or iso intense lesion relative to healthy muscle with central necrosis areas in hyper-signal in T2-weighted sequences [3,10].

There are three possible approaches to muscle metastasis treatment: surgery, radiotherapy, and chemotherapy [11,12]; their combination and use protocol depends on the primary

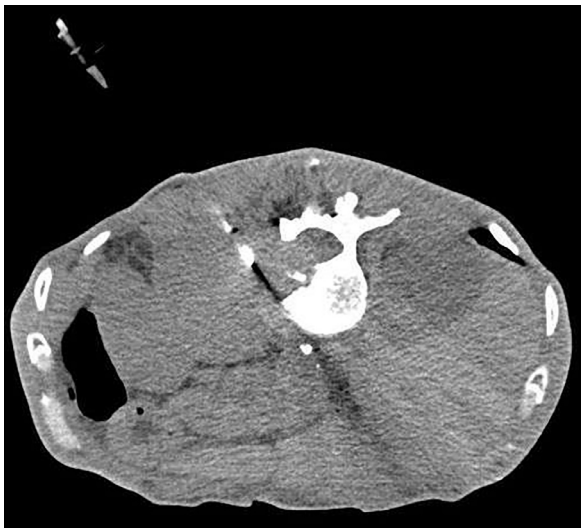

Fig. 3 – Axial section scan image shows tumor biopsy scan guidance.

disease, the other organs involved, and the patient's age [13]. Muscle metastasis prognosis is pejorative and is directly linked to the primary lesion prognosis [11,13].

Conclusion

Muscle metastases rarely revealed bronchopulmonary cancer. The clinical and radiological image is often misleading, leading to delays in diagnosis and treatment, the assertion is histological.

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