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Disseminated skin metastasis in patient with lung cancer: A case report

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Abstract

Skin metastases from lung cancer are rare events possessing diagnostic and prognostic significance. We present a clinical case of a patient suffered from the lung cancer, whose first clinical signs were multiple skin metastases along with the signs of the spinal cord involvement.

Keywords

skin metastases; lung cancer; neoplasms

Introduction

Lung cancer is one of the most common neoplasms. It is frequently fatal. Lung cancer often metastasizes into hilar nodes, bones, liver, brain and adrenal glands. Skin metastases develop only in 0.6%-12% patients with lung cancer according to different sources. Despite the rarity of the skin metastases, they may be the first sign of the malignancy. We report a clinical case of the patient with lung cancer and multiple skin metastases, his clinical course, and outcome.

Case Presentation

A fifty-five year old Moldavian man, an inveterate smoker, was admitted to our department with multiple skin nodules localized in the back, chest, and abdomen. The nodules were firm and non-tender, some of them were ulcerated. Some nodules were skin-colored, some were bright red. Nodules were measured at 10-25 millimeters in greatest dimension (Figure 1).

They occurred two weeks before being admitted. The patient exhibited weight loss in 4 previous months, anorexia, and fatigue. Two weeks prior the admitting, the patient noted the appearance of a cough, dyspnea during physical activity, elevated body temperature (37,5ºC), leg edema and weakness in his legs. His condition progressively deteriorated and he had to seek medical treatment.

Laboratory results showed prominent leukocytosis with a left shift (48.24×10^{9}/L, 15% bands, Neu% 97.5%, Lym% 1.3%, Mon% 0.9%, Eos% 0.2%, Bas% 0.1%), normochromic anemia (Hb 85 g/L, RBC 3.02×10^{12}/L, MCV 80.5 fL, MCHC 350 g/L, RDW-CV 12.9%), and an increased number of platelets (564×10^{9}/L, MPV 7.5 fL, PDW 15.9). C-reactive protein value was 139.4 mg/l (0 to 5.0). Also laboratory results showed slight increase in urea level in plasma (12.42 mmol/L) without increase in creatinine level

(91 mkmol/L). Total protein value was decreased (50 g/L). Liver transaminases levels were normal (ALT 14 U/L, AST 17 U/L). Amylase level was not increased (60 U/L). Glucose level was normal (4.9 mmol/L). CK and CK-MB levels were 45 U/L and 17 U/L respectively. Plasma sodium level was slightly decreased (130 mmol/L, later it dropped to 120 mmol/L). And potassium level was within normal range (4.0 mmol/L). Coagulation tests demonstrated decreased Quick value (51.5%), increased INR value (1.4), and normal PTT (36.5 sec).

A CT scan demonstrated solid mass 56×38×38 mm with well-defined irregular borders near the origin of the right superior lobar bronchus, also solid mass with well-defined irregular borders was revealed in S2 segment (Figure 2).

A CT scan demonstrated multiple zones of osteolytic destruction in bodies and spinous processes of C7, Th1, Th2, Th3, Th4, Th5 with extension into the surrounding soft tissues, zones of destruction in the right first, fifth ribs, and xiphiod processus (Figure 3).

Lymph nodes of axilla, mediastinum (especially paratracheal, paraaortal, supraclavicular groups) were enlarged according the CT scan. With the CT scan multiple soft-tissue masses were revealed subcutaneously along the ribs, anterior surface of the sternum, in the axillas. Also radiological signs of the pneumonia and left-side hydrothorax were observed.

ECG showed no significant findings. Abdominal ultrasound revealed a 0.8×0.8 cm stone in the gallbladder and left-sided hydrocalycosis. Echocardiography revealed myxomatous degeneration of the mitral and tricuspid valves with slight regurgitation.

Excision biopsy of the subcutaneous nodules was performed. Histological analysis revealed high-grade adenocarcinoma. In immunohistochemistry, tumor cells were positive for Cytokeratin 7 and TTF-1, but negative for Cytokeratin 20.

Patient was started on infusion and antibacterial therapy. On the second day of the hospital stay the patient developed urinary retention that required suprapubic catheterization. Urethral catheterization was impossible due to strictures of a urethra gaining possibly after a previous gonorrhea infection.

On the seventh day of the hospital stay, the patient's condition suddenly deteriorated and he required cardiopulmonary resuscitation (CPR). After the success of the CPR, he was moved to a resuscitation department, where passed away on the twelfth day of the hospital stay.

According to an autopsy the cause of death was pulmonary thrombus from the pelvic veins. Also the autopsy revealed high-grade adenocarcinoma of the upper lobe of the right lung (7×4×3 cm), multiple metastases into the mediastinal, intrathoracic, intraperitoneal, paraaortal, cervical, inguinal lymph nodes, metastases in the skin, liver, kidneys, pericardium, ribs, sternum, vertebrae. Though bilateral pneumonia in the lower lobes of the lungs and bilateral hydrothorax (200 ml) were revealed.

Discussion

Lung cancer is the second most common type of cancer and the most common cause of death among the oncologic patients [1]. The most common histologic type is adenocarcinoma, followed by squamous cell carcinoma, small cell carcinoma, and large cell carcinoma. Frequent metastatic sites are

hilar nodes, adrenal glands, liver, brain, and bone [2]. Skin metastases occur in 0.6%-10.4% of all patients with cancer and represent 2% of all skin tumors [3]. Skin metastases from the lung cancer are an uncommon event [4]. According to recent publications, lung cancer is the most common source of the skin metastases in men followed by large intestine, oral cavity[3]. In women lung cancer as the primary site for skin metastases is only on the forth place after breast cancer, ovary and oral cavity [3]. Although metastases to the skin are rare, they could be an important warning sign especially in the absence of the pulmonological symptoms and signs. The most common sites of skin metastases from lung cancer are the chest, abdomen, head and neck [5]. Interestingly mostof the skin metastases disseminate to skin regions close to the primary cancer site. Usually skin metastases present as round nodules. They could be skin-colored, red, or even black. Nodules can be present as mobile or fixed to surrounding tissues lesions. In rare cases they appear as papules (solitary or grouped), zosteriform, erysipelas-like, plaques and zones of the alopecia on the scalp [6, 7]. Sometimes skin metastases in lung cancer patients are the first to develop after initial diagnosis [5], especially in small cell lung cancer [8], and comprise about 25% of all lung cancers [9]. Moreover, it was indicated that cancer of the upper lobes of the lungs have a greater tendency to metastasize into the skin [10]. Cutaneous metastases are usually incurable and signify a poor prognosis [3]. Usually the response to chemotherapy is not good, possibly because of poor blood supply to skin [11]. Presence of skin metastases decreases the average survival time by approximately 3-4 months in comparison with patients who present initially without skin lesions [12]. Mean survival in lung cancer patients is usually about 5-6 months after the diagnosis of a cutaneous metastasis [10]. The prognosis is even poorer in cases when besides cutaneous metastases there are extracutaneous metastases also [13]. All histological types of lung cancer may develop metastases in the skin [10]. The exact mechanism of the skin metastasizing in lung cancer patients is not understood. There is no agreement between different observations about frequencies of skin metastases in different histological cancer types. Some studies demonstrate that the most common type of lung cancer associated with skin metastases is lung adenocarcinoma [10]. While other studies demonstrate that lung adenocarcinoma occupies the second place after the large cell carcinoma [14, 15], and some authors could not find any difference in frequencies of metastasizing between different histological types [10]. In our case the source of the skin metastases was lung adenocarcinoma located in the upper lobe. Skin metastases along with neurologic symptomatic were the first signs of malignancy. The skin nodules were completely painless and that is why the patient did not pay attention to them. The reason he had to seek medical advice was not the disseminated nodules, but progressive weakness in the lower limbs.

Figures

Figure 1: A 55-year-old man with a significant history of tobacco use presented with multiple nodular skin lesions. The multiple nodules are nonpainful, round or oval, firm, mobile, and rubbery in texture. Some of the nodules are ulcerated.

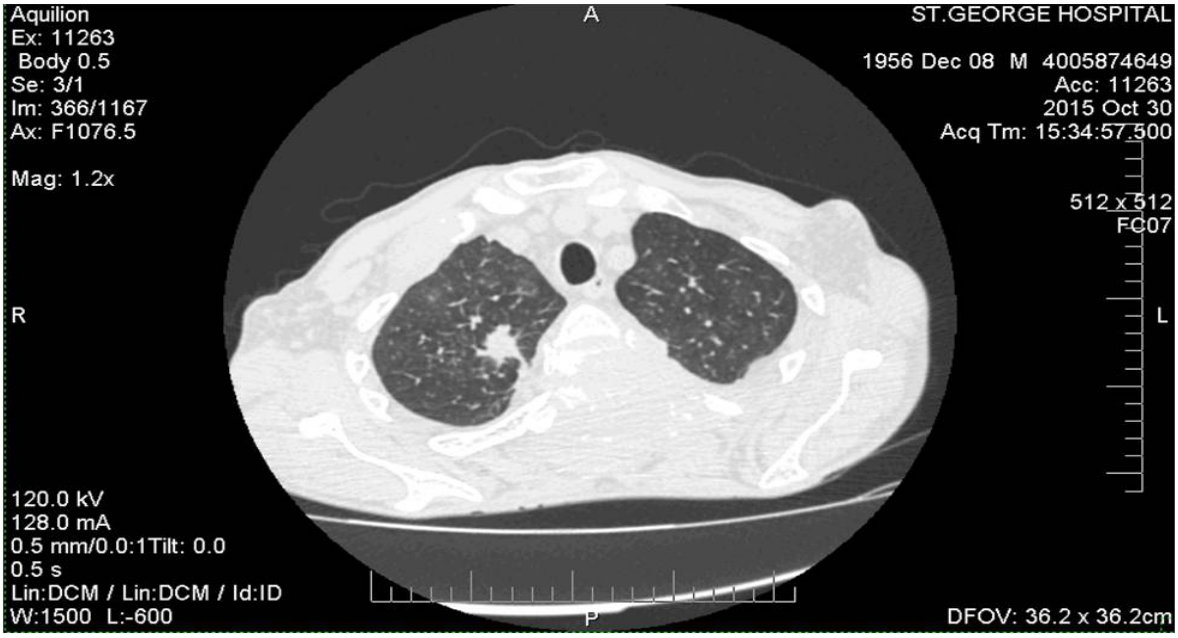

Figure 2: Chest computed tomography scan. CT scanning demonstrates in the upper lobe of the right lung spiculated nodule implicating mediastinal pleura.

Figure 3: Chest computed tomography scan. Osteolytic destruction in the bodies and spinous processes of thoracic vertebra and soft-tissue involvement.

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