

CASE REPORT

RIGHT HEMIPLEGIA AND DYSPNEA: WHAT IS THE LINK BETWEEN?

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ABSTRACT

Introduction. Lung cancer is one of the most common and aggressive cancers. The most important risk factor is smoking.

Case report. A 63-year-old male, with a history of smoking for 30 years, presented for dyspnea at mild effort, right upper quadrant pain and right hemiplegia installed progressively 2 weeks before admission. Clinical examination revealed: cachectic patient; decreased breath sounds, without crackles, normal blood pressure and heart rate, pain in the right hypochondrium, hepatomegaly with nodular irregularities, right quasi-complete hemiplegia. Lab tests: leukocytosis with neutrophilia, thrombocytosis, mild hepatic cytolysis, increased inflammatory markers. Tumor markers: normal alpha-fetoprotein, increased CA 125 and CA 15-3, negative Ac HCV and Ag HBs. CT scan revealed multiple brain tumors, with discrete perilesional edema, some with necrosis, with thick, irregular, nodular appearance; two tumors in the left lung. Secondary pulmonary, hepatic and cerebral determinations. Right portal vein thrombosis. Polyserositis. Neurosurgical exam concluded that the patient had no surgical indication. At bronchoscopy, no lesions have been detected, therefore no biopsy could be performed. The patient was referred to the oncologist for palliative treatment. The final diagnosis was: left pulmonary

RÉSUMÉ

Hémiplégie droite et dyspnée: laquelle est la connexion?

Introduction. Le cancer du poumon est l'un des cancers les plus fréquents et les plus agressifs. Le facteur de risque le plus important est le tabagisme.

Rapport de cas. Un homme de 63 ans, avec une histoire de tabagisme pendant 30 ans, a présenté une dyspnée à un effort léger, une douleur dans le quadrant supérieur droit et une hémiplégie droite installée progressivement 2 semaines avant l'admission. L'examen clinique a révélé: patient cachectique; diminution de la respiration, sans craquement, pression artérielle et fréquence cardiaque normales, douleur dans l'hypochondre droit, hépatomégalie avec irrégularités nodulaires, hémiplégie droite quasi-complète. Tests de laboratoire: leucocytose avec neutrophilie, thrombocytose, cytolyse hépatique légère, marqueurs inflammatoires accrus. Marqueurs de tumeurs: alpha-fetoprotéine normale, CA125 et CA15-3 élevés, Atc HCV et Atg HBs négatifs. La tomographie a révélé de multiples tumeurs cérébrales, avec un œdème périlésionnel discret, certains avec nécrose, d'un aspect épais, irrégulier et nodulaire; deux tumeurs dans le poumon gauche. Déterminations secondaires pulmonaire, hépatique et cérébrale. Thrombose de la veine portale droite.

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tumor with hepatic and cerebral pulmonary determinations, total right portal vein thrombosis, right quasi-complete hemiplegia.

Conclusions. Sometimes, the clinical onset of cancer is related to the symptoms of metastasis. A late diagnosis limits the therapeutical options only to palliative therapy. The particularity of the case consists of clinical onset with neurological signs secondary to cerebral metastasis.

Keywords: lung cancer, portal vein thrombosis, cerebral metastases, hemiplegia.

INTRODUCTION

Lung cancer is one of the most common and most aggressive cancers¹. Lung cancer mainly occurs in older people, being more prevalent in men than in women. The average age at the time of diagnosis is about 70¹. The American Cancer Society's estimates for lung cancer in the United States for 2017 are: about 222,500 new cases of lung cancer (116,990 in men and 105,510 in women) and about 155,870 deaths from lung cancer (84,590 in men and 71,280 in women)². Lung cancer is by far the leading cause of cancer death among both men and women. The most important risk factor is smoking.

CASE REPORT

A 63-year-old male, with a history of smoking for 30 years, high blood pressure and ischemic heart disease, was hospitalized in the Internal Medicine Clinic of the Clinical Emergency Hospital of Bucharest, Romania, for dyspnea at low efforts, right upper quadrant pain and right hemiplegia installed progressively 2 weeks before admission, symptomatology aggravated a few hours before admission to hospital. He had no known allergies.

Clinical examination revealed: cachectic patient, without lymphadenopathy; respiratory system: normal chest conformation, diffuse decreased breath sounds, no crackles or wheezes were heard, his oxygen saturation was 97% with oxygen supply; the patient was hemodynamically stable, with a blood pressure of 130/80 mm Hg and a pulse of 100/minute, rhythmic, no pathological heart murmurs, with pulsating peripheral arteries; digestive system:

Polysérosité. L'examen neurochirurgical a conclu que le patient n'avait aucune indication chirurgicale. À la bronchoscopie, aucune lésion n'a été détectée, donc aucune biopsie n'a pu être effectuée. Le patient a été renvoyé à l'oncologue pour un traitement palliatif. Le diagnostic final était: une tumeur pulmonaire gauche avec des déterminations pulmonaires hépatiques et cérébrales, une thrombose totale de la veine porte droite, une hémiplégie quasi-complète.

Conclusions. Parfois, l'apparition clinique du cancer est liée aux symptômes de la métastase. Un diagnostic tardif limite les options thérapeutiques uniquement à la thérapie palliative. La particularité du cas consiste en l'apparition clinique avec des signes neurologiques secondaires à une métastase cérébrale.

Mots-clés: cancer du poumon, thrombose de la veine porte, métastases cérébrales, hémiplégie.

abdomen soft, nontender, nondistended with normal bowel sounds, painful at palpation in the right hypochondrium, slow intestinal transit; dry tongue, with candidid deposits; extension of the right hepatic lobe 10 cm inferior to the rib cage, enlarged, tender liver with nodular irregularities, non-palpable spleen; right arm and leg motor impairment; the rest of the clinical exam within normal limits.

Laboratory studies revealed leukocytosis (18.000/mm³) with neutrophilia (78%), thrombocytosis (575.000/mm³), mild hepatic cytolysis (AST 196 U/L, ALT 65 U/L) and an inflammatory syndrome (VSH 50 mm/h), increased LDH (7037 U/L).

The electrocardiogram showed sinus rhythm, a heart rate of 98/minute, the QRS complex axis within normal limits (Figure 1), but with negative T waves in V1-V6 (Figure 2). Due to ECG changes of ischemia, the dynamics of myocardial necrosis enzymes was monitored, but the values were within normal ranges.

The abdominal echography revealed hypoechoic intrahepatic nodular lesions, suggesting metastatic tumors, and a linear echogenic structure running the length of the portal vein, suggesting portal vein thrombosis. The patient's chest X-ray on admission showed an irregular opacity located in the left lower lobe of the lung (Figure 3), a potential pulmonary neoplasm being suspected. Tumor markers had increased values: CA 125 (>1000 U/ml) and CA 15-3 (203 U/ml); alpha fetoprotein was normal. The antigen HBs and antibodies anti HCV were negative.

A thoracic, upper abdomen and pelvis CT scan with contrast substance was performed, revealing two tumor lesions in the lower lobe of the left lung, one in the apical segment, 21/17 mm, the other

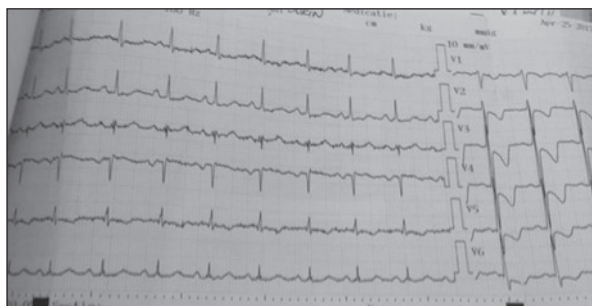


Figure 1. ECG: sinus rhythm, HR 98/min, normal QRS axis, negative T waves in V1-V6.



Figure 3. Chest X-ray revealing irregular opacity in the left lower lobe of the lung.

postero-internally located, 50/43 mm, without mediastinal lymphadenopathy, fine linear densities with fibrous appearance located postero-basal in both pulmonary lobes (Figures 4, 5, 6); moderate hepatomegaly with major vascular impairment in the right hepatic lobe secondary to right portal vein thrombosis (Figures 7, 8). The conclusion of the CT scan was a tumor of the left lung, with secondary pulmonary and hepatic determinations, right portal vein thrombosis and polyserosity.

Our patient's motor impairment worsened during first days of hospitalization, so a neurological examination was solicited. The neurologist established the diagnosis of quasi-complete right hemiplegia. He recommended a cerebral CT scan, which revealed multiple brain tumors, between 10 mm and 48 mm diameter, with discrete perilesional edema, some with necrosis, of thick, irregular, nodular appearance (Figures 9,10,11).

At this stage, the diagnosis was: left pulmonary tumor with hepatic, cerebral and pulmonary metastases, total right portal vein thrombosis, ascites and right quasi-complete hemiplegia.

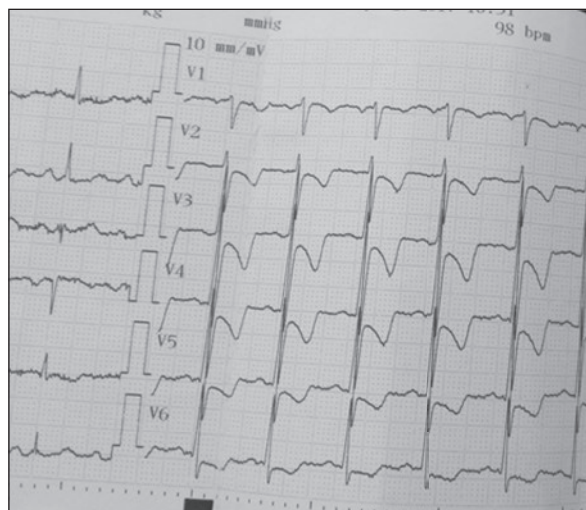


Figure 2. ECG: sinus rhythm, HR 98/min, normal QRS axis, negative T waves in V1-V6

The neurologist prescribed Dexamethasone 8 mg daily for cerebral edema, during hospitalisation. Biopsy of hepatic, pulmonary or cerebral masses has been recommended. The neurosurgeon has concluded that the patient has no surgical indication for the cerebral lesions. The thoracic surgeon recommended bronchoscopy and lavage. There was no macroscopic pathological evidence in bronchoscopy (probably due to peripheral localization of the tumor), so no biopsy could be performed.

The final diagnosis was: left pulmonary tumor with hepatic, cerebral and pulmonary metastases, total right portal vein thrombosis, arterial hypertension stage II, ischemic heart disease, right quasi-complete hemiplegia and lingual candidiasis.

During hospitalization, the patient received antibiotic and antihypertensive, anticoagulant and antialgic treatment, with stationary evolution. The oncologist concluded that the patient has no indication for specialized treatment, recommending only palliative care.

The patient was discharged with the following treatment: Famotidine, Isosorbide mononitrate, Propranolol, Low Molecular Weight Heparin (Dalteparin), Perindopril and analgetics (Metamizole or Tramadol) in case of pain, Boro-glycerine for mouthwash.

DISCUSSION

Tobacco consumption is the primary cause of lung cancer and unfortunately, in countries with developing economies, cigarette use continues to increase and along with it, the incidence of lung cancers is also rising. Cigarette smokers have a 10-fold or greater

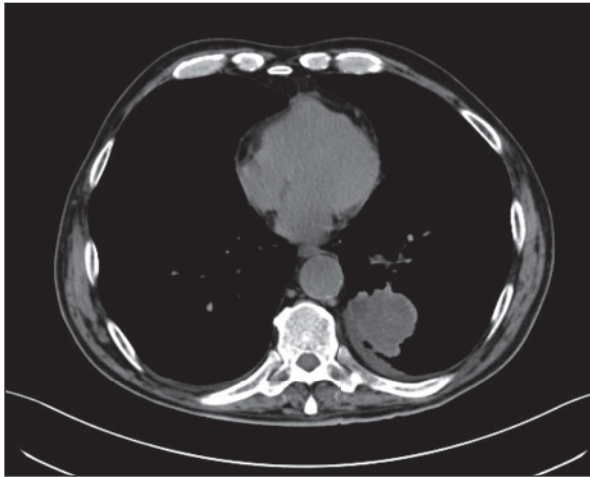


Figure 4. Computed tomography scan revealing an irregular mass located in the left lower lobe of the lung

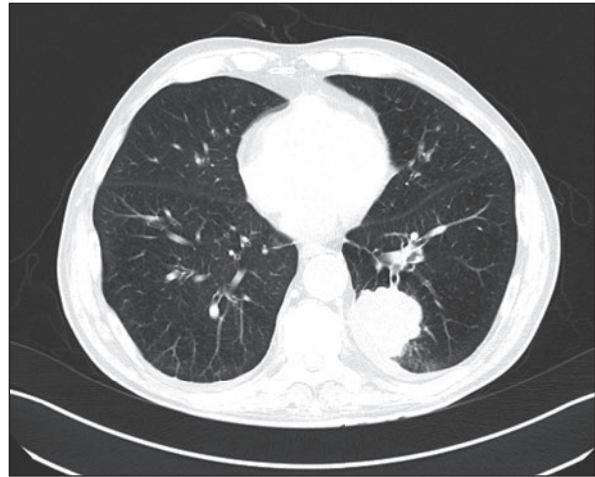


Figure 5. Computed tomography scan revealing an irregular mass located in the left lower lobe of the lung

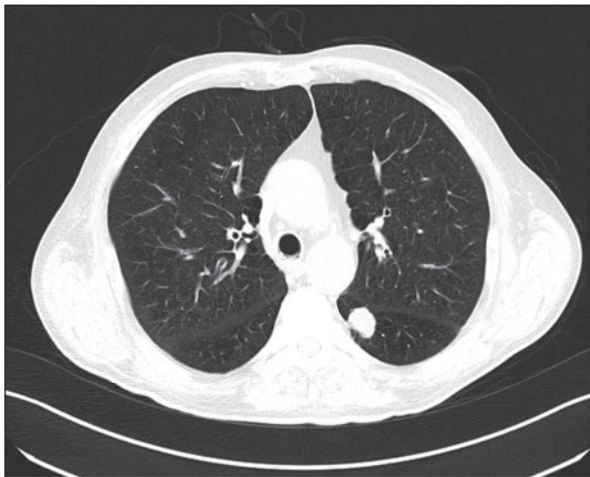


Figure 6. Computed tomography scan revealing an irregular mass located in the left lower lobe of the lung

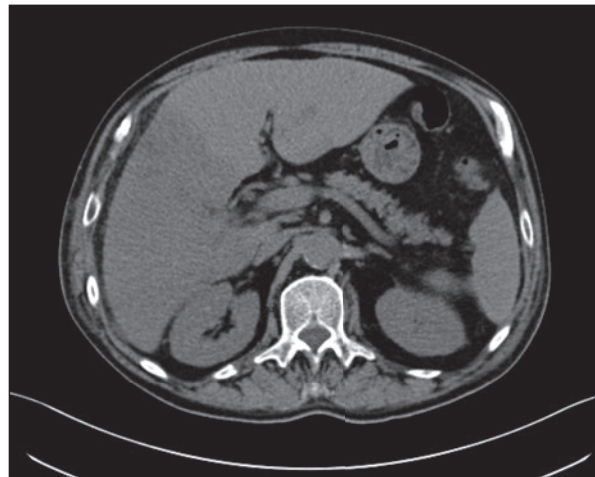


Figure 7. Computed tomography scan revealing hepatic metastases and vascularization impairment

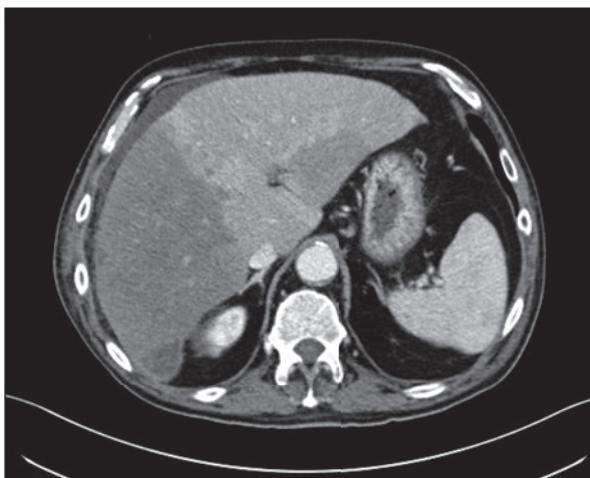


Figure 8. Computed tomography scan revealing hepatic metastases and vascularization impairment

increased risk of developing lung cancer compared to those who have never smoked. The risk of lung cancer is higher among persons who continue smoking (20 times higher) than among those who quit³.

There are numerous factors incriminated for rising the risk of lung cancer including occupational exposures to arsenic, asbestos, hexavalent chromium, bischloromethyl ether, nickel and polycyclic aromatic hydrocarbons but it has been shown that cigarette smoking increases the risk of all the major lung cancer cell types. Stopping tobacco use before middle age avoids more than 90% of the lung cancer risk attributable to tobacco but in case that a patient already has cancer, smoking cessation will improve not only his quality of life, but also will have fewer side effects from radio/chemo-therapy and will rise the survival rate³.

Adults with a low vegetable and fruit intake cannot benefit from chemopreventive effects of retinoids

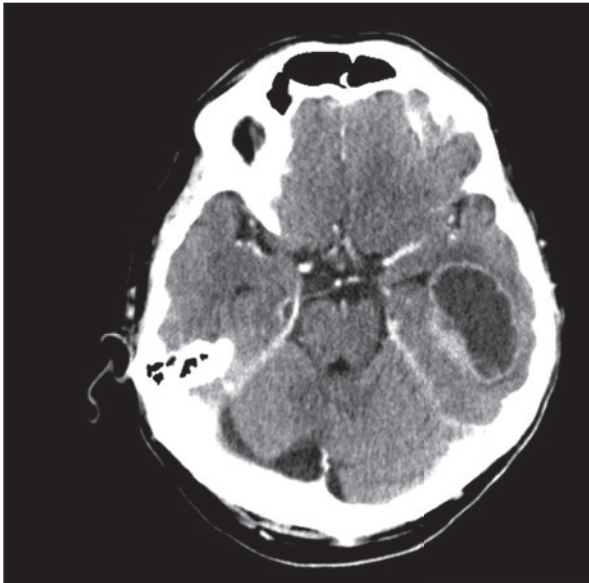


Figure 9. Head CT scan showing cerebral metastasis

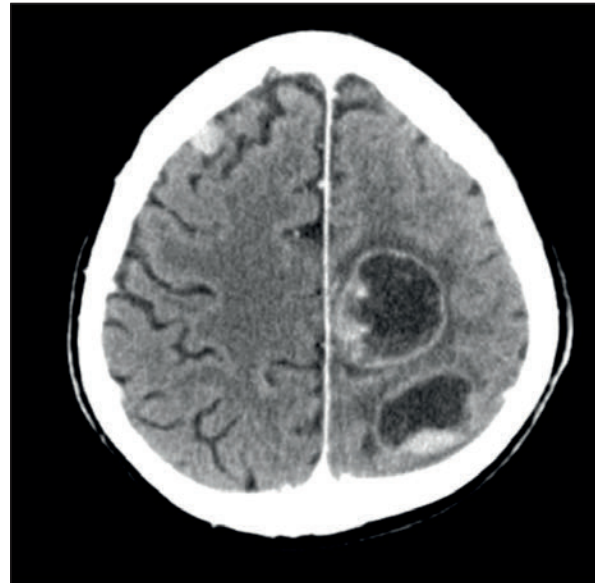


Figure 10. Head CT scan showing cerebral metastasis

and carotenoids, therefore the risk of developing any type of cancer is higher.

The WHO classification system divides epithelial lung cancers into four major cell types: small-cell lung cancer (SCLC), squamous cell carcinoma, adenocarcinoma and large-cell carcinoma; the latter three types are all together known as non-small-cell carcinomas (NSCLCs)⁴.

Lung cancer's signs and symptoms may vary from coughing, hemoptysis, chest pain, weight loss, loss of appetite, dyspnea, frequent pulmonary infections or new onset of wheezing⁵. Diagnosis may involve imaging tests: an X ray, a CTscan; sputum cytology or tissue sample (biopsy)⁶. There are five basic ways to treat NSCLCs: surgery, chemotherapy, radiation therapy, targeted therapy and immunotherapy⁷.

More than 80% of patients with adenocarcinoma and large-cell carcinoma, 50% of patients with squamous carcinoma and greater than 95% of patients with SCLC have extrathoracic metastases found at autopsy³.

Patients with cerebral metastatic disease may present with headache, seizures, or neurologic deficits, nausea and vomiting⁸. When liver metastases occur, right upper quadrant pain, hepatomegaly, anorexia, fever and weight loss are usually primordial symptoms and signs. Biliary obstructions and liver dysfunction are usually rare³.

Portal vein tumor thrombosis (PVTT) is a rare complication of metastatic pulmonary cancer in clinical practice and the precise incidence of PVTT complicating lung metastasis remains unknown. The presence of PVTT indicates a poor prognosis^{9,11}. Many studies have shown that portal vein tumor

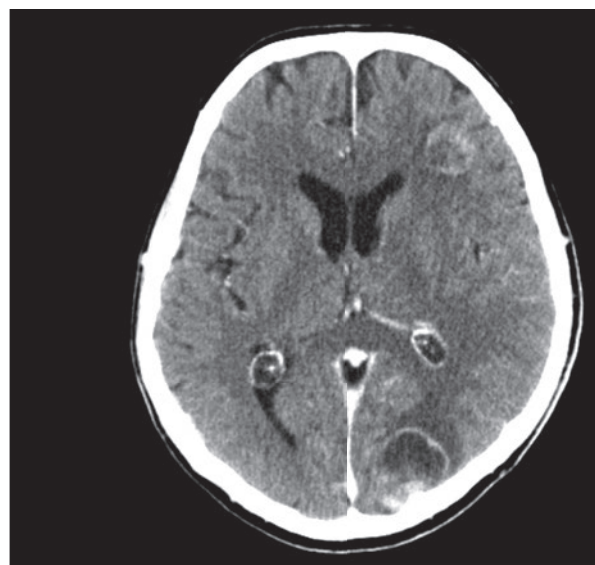


Figure 11. Head CT scan showing cerebral metastasis

thrombosis is a common paraneoplastic condition¹² in advanced primary hepatocellular carcinoma or hepatobiliary tract malignancies and tumors with PVTT are frequently associated with adverse and aggressive features, such as intrahepatic tumor dissemination, early treatment failure, or deterioration of hepatic function¹³. Other malignancies, such as melanoma, pancreas cancer, kidney cancer have been reported to cause PVTT¹⁴.

Metastasis located in the brain parenchyma is the single most common neurologic complication of any histologic subtype of lung cancer. In order to maintain or to improve neurologic function,

radiation therapy and surgical resection of brain metastases may lead to local control of cerebral lesions¹⁵. Neurologic complications of lung cancer are a frequent cause of morbidity and mortality.

The tumor-node-metastasis (TNM) international staging system provides useful prognostic information and is used to stage all patients with NSCLC, while the survival rate varies with the stage of the disease.

CONCLUSIONS

The delay in patient's presentation to the hospital makes this lung cancer case with secondary pulmonary, hepatic and cerebral determinations a case which can benefit only from palliative therapy. Considering the peripheral localisation of the lung tumor, which was not accessible for biopsy during bronchoscopic examination, a histopathological confirmation could not be obtained. The particularity of the case consists of clinical onset with neurological phenomena secondary to cerebral determinations.

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Conflict of interest: nothing to disclose.

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