

Carabulea Adelina Ioana¹, Nicolae Anamaria¹, Pricop Ş.¹, Bitca R.², Deacu S.^{1,3}, Neculai-Candea Lavinia^{1,4}, Popa M. F.^{1,4}

Sudden Death Between Morphological Arguments And Assumptions- Case Report

¹ Emergency Clinic County Hospital of Constanța, Forensic Department

² Emergency Clinic County Hospital of Constanța, Endocrinology Department

³ Faculty of Medicine, "Ovidius" University of Constanța, Histology Department

⁴ Faculty of Medicine, "Ovidius" University of Constanța, Forensic Department

ABSTRACT

Sudden deaths have very many different causes, but what unites them all is that they are unexpected and consequently unanticipated. We present a particular case that involves the strong connection between pathology department and the forensic assumptions, based on scientific acknowledgments.

Lung adenocarcinoma is a malignant epithelial neoplasm that ranks second frequency in Romania (25%). We bring out a case of a papillary adenocarcinoma which is a subtype of invasive adenocarcinoma. What differentiates this layout is that pure lung papillary adenocarcinoma represents only 3-10% of lung adenocarcinoma, so is a rare tumor that not only evolves rapidly, but almost entirely is not diagnosed promptly for treating the patient, therefore most of this medical cases become forensic objectives.

The role if this paper is to highlight the importance of identifying the concrete cause of a sudden death. In this regard, must be mentioned the work and cooperation with other departments, which can offer essential investigative data

Keywords: sudden death, lung papillary adenocarcinoma, forensic autopsy, histopathological exams.

Adelina Ioana Carabulea

Forensic Department Aleea Zmeurei No. 2, 900439, Constanța

email : dr.adelinadcarabulea@gmail.com phone: +40 760136822

Introduction

Pulmonary adenocarcinoma is the second in frequency in Romania (25%), and the incidence of it grew with 10% in the last 25 years in Europe[1,2].

This is the form of pulmonary carcinoma with the highest prevalence amongst young men and females indifferent of age and amongst non-smokers and former smokers.

From a macroscopic point of view, the adenocarcinoma presents like a lobulated grey mass, usually situated peripheral, firmer when the tumor contains a significant desmoid reaction [3].

Histologic, lung adenocarcinoma is a malignant epithelial neoplasm established from glandular structures, composed by goblet cell, Clara cell, type II pneumocytes, and bronchial surface epithelial cell types with or without mucin production [4]. Papillary adenocarcinoma is a subtype of invasive adenocarcinoma that has papillary structures with true fibrovascular cores replacing the alveolar lining or present within the alveolar spaces [5,6]. The fibrovascular cores are lined by cuboidal to columnar neoplastic cells. Pure lung papillary adenocarcinomas represents only 3-10% of lung adenocarcinomas. Also, a papillary component can be common in adenocarcinomas with multiple histological subtypes

The size of the lesion also the initial histological

type influences the incidence of the metastasis. The adenocarcinomas tend to metastasize early, most frequently in: brain, liver, bones and suprarenal gland. The cerebral metastases are present in 11% of the patients without symptoms and in 33% of the patients with CNS symptoms.

Materials and Methods

At the external exam of the body, is observed the cachectic condition without marks of violence on the head, body and limbs; signs that indicates a sudden death.

At the internal examination is observed an area on the cerebrum, situated on the right parietal lobe, described as grey on cortical level and yellow on the medullar level, of soft consistency, friable. This region had the appearance of softening of the brain.

On the thorax level, the left parietal pleura was adherent, which means a pathology of the left lung. Therefore, on the inferior lobe of the left lung we found a condensed area, which look alike TB sequel. Also, on the fourth rib, of the right hemi thorax is found a tumor mass of grey color; which on the section has a greasy appearance, with necrotic center. For establishing the exact cause of death, it has been taken fragment of the organs. For each material taken we determined the pathological profile in common stains (hematoxylin and eosin) and special stain (Van Gieson's stain). Also, it has been drawn blood for establishing the blood type and alcohol concentration.

The forensic autopsy and complementary examinations established the following.

Results and Disccusions

Autopsy revealed that death could have happened following some possible TB sequel, localizes on the lung, as shown in figure 1.



Figure 1- The macroscopic appearance of the lower lobe of the left lung

The result of the anatomo-pathologist showed that it has been examined a lung papillary adenocarcinoma (Figure 2). The forensic opinion, wasn't a confusion really, because the macroscopic aspects of the two lesions are quite related, thus sometimes can deceive the diagnosis. Also, is known the fact that pulmonary neoplasia occurs almost always following antecedents of chronic interstitial lung disease (sarcoidosis, tuberculosis, interstitial pneumonia, other pulmonary necrotizing diseases), so neoplasia develops as a result of lung lesions, determined by the underlying disease.

In the brain region (Figure 3) and bones (Figures 4-5), metastases were found, as quoted in the literature.



Figure 2 - Tumor papillae with conjunctivo-vascular axis that replace the normal alveolar epithelium (HE x40)



Figure 3- The macroscopic appearance of the right parietal lobe with metastasis



Figure 4 - The macroscopic appearance of the costal fragment with metastasis



Figure 5 -The macroscopic appearance of the costal fragment with metastasis

At the histopathological examination, on the lung sections, was spotted a tumor area, made up of papillae with conjunctivo-vascular axis, delimited by cuboidal or columnar cells, with marked nuclear atypia; parenchyma with atelectasia, seizure fibrosis, perivascular and peribronchial (Figure 6).



Figure 6- Tumor papillae with conjunctivo-vascular axis that replace the normal alveolar epithelium (Van Gieson x40)

On the cerebral parenchyma was observed an area with architectural disorganization, numerous neoplastic islands composed also by papillae with conjunctivo-vascular axis, delimited by cuboidal or columnar cells, with atypia; dilated blood vessels, filled with red blood cells, cerebral edema (Figures 7-8).



Figure 7 - Cerebral tissue with tumor invasion made up of papillae with conjunctivo-vascular axis, delimited by cuboidal or columnar cells, with marked nuclear atypia (HE x40)



Figure 8- Cerebral tissue with tumor invasion (Van Gieson x40)

The costal fragment collected contained minimal bone tissue, replaced by tumor proliferation composed of papillae with conjunctivo-vascular axis. (Figure 9).



Figure 9 Bone metastasis (costal) (HE x40)

Serological analyzes have shown that blood belonged to the blood group A, and no alcohol was found in the blood collected from the corpse.

Following the corroboration of survey data with the necropsy results and the complementary exams, it has been established that the man died due to a lung papillary adenocarcinoma, with cerebral and bone metastasis.

Conclusions

Lung papillary adenocarcinoma is a rare tumor, with nonspecific symptoms and fulminant evolution, found most often during the autopsy. It produces in a very short time metastases, in brain and bone, leading to patient death.

Positive diagnosis of pulmonary carcinoma was emphasized by morphopathological examinations, which demonstrates the strong connections between our departments.

Solving any case of sudden death is a challenge for the doctor; in such a situation it is required to relate all survey data, medical history, histopathological and toxicological examinations [7].

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