

# BRONCHOPULMONARY CANCER: CLINICAL MANIFESTATIONS AND IMAGISTIC DATA

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**Abstract:** Bronchopulmonary cancer is the most important and frequent form of pulmonary tumor representing more than 90% from the primitive pulmonary malign and benign tumors.(5) It had the most expressed tendency of increasing among all neoplasia in the second half of the last century. In Romania this tumor presents a continuous tendency of increasing in both genders having a prevalence of 8% and an incidence of 17% (18) from the point of view of the number of deaths by cancer is on the first place in the masculine gender and fourth place in the feminine gender.(6) Clinical manifestations of the bronchopulmonary cancer are of a great diversity reported to the anathomoclinical form, histological type and the stage of the disease. At the moment of their appearance, the clinical manifestations (pulmonary, extrapulmonary or general) are elements of advanced disease with the very probable evolution of the tumor for few years. (2 to 3 years for the small cells carcinoma and 10years for the adenocarcinoma)

**Cuvinte cheie:** cancer  
bronho-pulmonar,  
manifestări clinice,  
date imagistice

**Rezumat:** Cancerul bronho-pulmonar este cea mai importantă și frecventă formă de tumoră pulmonară, reprezentând peste 90% din tumorile pulmonare primitive maligne și benigne (5). El a avut cea mai exprimată tendință de creștere dintre toate neoplaziile în a doua jumătate a secolului trecut. În România, această tumoră malignă prezintă o tendință continuă de creștere la ambele sexe, având o prevalență de 8% și o incidență de 17 % (18); din punct de vedere al numărului de decese prin cancer ocupă locul întâi la sexul masculin și locul patru la femei (6). Manifestările clinice ale cancerului bronho-pulmonar sunt de o mare diversitate, în raport cu forma anatomoclinică, tipul histologic și stadiul bolii. În momentul apariției lor, manifestările clinice (pulmonare, extrapulmonare sau generale), sunt elemente de boală avansată, cu evoluția foarte probabilă a tumorii de câțiva ani (2-3 ani pentru carcinomul cu celule mici și aproximativ 10 ani pentru adenocarcinom).

## Clinical Manifestations

Bronchopulmonary cancer is the most important and frequent form of pulmonary tumor representing more than 90% from the primitive pulmonary malign and benign tumors.(5) It had the most expressed tendency of increasing among all neoplasia in the second half of the last century. In Romania this tumor presents a continuous tendency of increasing in both genders having a prevalence of 8% and an incidence of 17% (18) from the point of view of the number of deaths by cancer is on the first place in the masculine gender and fourth place in the feminine gender.(6)The bronchopulmonary cancer is a tumor of extreme gravity, the clinical signs appear extremely tardive, 7/8 of the evolution is asymptomatic and less than 1/3 cases discovered with actual methods are found in a therapeutic phase.(5) Clinical manifestations of the bronchopulmonary cancer are of a great diversity reported to the anathomoclinical form, histological type and the stage of the disease. At the moment of their appearance, the clinical manifestations (pulmonary, extrapulmonary or general) are elements of advanced disease with the very probable evolution of the tumor for few years. There are 3 big groups of clinical manifestations in the bronchopulmonary cancer:

- respiratory manifestations
- extension manifestation (metastasis intra or extrathoracic)
- paraneoplastic manifestation

Respiratory manifestations are the most frequent, but relatively unspecific and shifty:

1. The cough (in 75% of the patients is frequent the initial clinical manifestation.(9)
2. Hemoptysis (appears in 57% of the patients) as a first symptom in 4% of patients, in repeated, low quantity is very suggestive for bronchopulmonary cancer in an ill person with an unjustified persistent cough.(9)
3. Dispnea is a tardive manifestation of bronchopulmonary cancer, it could result from the obstruction or compression of a large bronchia or in a compressive mediastinal syndrome or pleural syndrome.
4. Localized wheezing (an unilateral wheezing breathing) with or without paroxysm of cough, it doesn't disappear after coughing suggesting a recent incomplete bronchic obstruction more often than tumoral origin.
5. Muco-purulent or purulent expectoration appears in 70-80% of the cases where coexist a chronic bronchitis or appear secondary suppurative processes, eventually suppurative necrosis of the tumoral mass.(1)
6. Asthenia at first discreet becomes in the advanced phases, constant and profound constitutes a precious sign of neoplastic impregnation in the whole organism. Initially, the body weight maintains stationary, then keeps decreasing. The appetite corresponds to the same evolution, sometimes

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## CLINICAL ASPECTS

anorexia appears precocious with or without vomitings, because of the secretion of antidiuretic hormone with the alteration of the sodic metabolism. Often, patients present repulsion regarding nourishments especially for meat. Fever is missing in most of the cases, but appears frequently in inflammatory and suppurative complications or in the case of paraneoplastic syndrome. A persistent fever in the context of the bronchopulmonary cancer is ominous.

### Methastatic manifestations

In more than 2/3 of the patients with bronchopulmonary neoplasm, clinical symptoms are due to the local extension intrathoracic or extrathoracic metastasis.(1)

Almost half of the bronchopulmonary neoplasia with squamous cells don't have an extrathoracic extension, but the carcinoma with small cells, adenocarcinoma produces extrathoracic metastasis frequently.

The manifestations of the intrathoracic extension are the result of growing and direct extension of the tumor or the result of lymphatic metastazation. The manifestations of extrathoracic extension are precocious and very frequent in the cancer with small cells and tardive and inconstant in the epidermoid carcinoma.

Paraneoplastic manifestations associated to the bronchopulmonary neoplasia are many and different. They are seen in 15-20% of the cases.

### Imagistic data

Radiologic examination is the first and most important paraclinical examination in the pulmonary cancer. The thoracic radiologic examination appears modified with approximative 6-7 months before the appearance of the first clinical manifestation of the disease. Thoracic radiography presents pathological modifications in 97% of the patients with bronchopulmonary neoplasia.(1) The first essential radiological signs in establishing the diagnosis are:

- A. Opacity in the pulmonary parenchima with aspect of peripheral solitary nodule
- B. Segmental opacity, undefined may be the clinical expression of a neoplasia with debut in the small bronchia. The radiological image is frequently inhomogenous with disrupted contour, estomped, with many prolongings in the tissue near-by.
- C. Cavitation inside the solid tumoral mass, situated in the inferior pulmonary areas may be seen in the epidermoid carcinoma.
- D. Unilateral enlargement of a pulmonary hil is a radiologic image relatively frequent that appears especially in central tumors.
- E. Atelectasis is located in a lobe or in one of the lungs and is often the expression of the neoplastic bronchic obstruction
- F. Homogenous opacification of the pulmonary apex with or without costal or vertebral body erosion (syndrome Pancoast Tobias).
- G. Other radiologic aspects isolated or associated: image of voluminous or medium pleurisy, with or without highlight of the parenchima or mediastinum opacity, with aspect of segmentary infiltration (pneumonitis), segmental or obstructive lobar emphysema, voluminous mediastinal opacity with vague limits with the increasing of the cardiac shadow through pericardial overflow with an asymmetric hil or with the increasing of the mediastinum, radiologic changes of the esophagus (compression, infiltration, esophageal-bronchial fistula) of the diaphragm (unilateral ascending with paradoxal movement, through the invasion of the phrenic nerve).

The evaluation through Computed Tomography CT: is absolutely necessary in establishing the stadialization and the

surgical indication. Neoplastic hilar adenopathy is evident only in 64% of the cases through standard radiological examination in 80% of the cases through conventional tomography and in almost 95% through CT.(5)

**Computed Tomography** emphasizes with accuracy the characteristics of the tumoral mass, its structure (calcification, cavitation), its terms with the pulmonary parenchima, with the bronchial side, with the great blood vessels and with the pulmonary extension. It emphasizes the adenopathy in the mediastinum, it proves the tumoral invasion of the vertebral body, it detects small pleural collections that are not evidenced through radiological examination.

**Magnetic Nuclear Resonance:** has the advantage that may be used in the cases with intolerance to contrast substance. It offers better images of the mediastinal fat, of the sanguine flux through mediastinal vessels and the tumor. MNR has a special resolution and no advantages in determining the nodes invasion comparing to the CT. It is more useful than the CT in appreciating the invasion of the thoracic wall and the invasion of the superior thoracic aperture. It shouldn't be indicated as a routine technique of diagnosis and stadialization in bronchopulmonary cancer.

**Ultrasonography:** is used on a large scale, instead of the CT, for the estimation of the hepatic or suprarenalis metastases and is considered equally useful. Endoscopic transesophageal ultrasonography permits the evaluation of the lymphatic mediastinal nodes in the para-aortic area and in the subcarinal, para-esophageal and of the pulmonary ligament stations.

**Radioisotope studies:** pulmonary scintigraphy with Gallium67 is useful for the identification of the primary tumor mass and of the metastasis in mediastinal nodes. At present, is replaced by CT.

**Bronchoscopy** is a compulsory examination that is used in all patients that have a clinical or radiological suspicion of bronchopulmonary cancer. It is the method of election for the bronchopulmonary cancer especially in central localization. It allows the view of the tracheobronchial arborization until the subsegmental (in the flexible variant) and makes evident the tumoral mass in 25-50% of the cases, mentioning its macroscopic characters.(9) Bronchoscopy brings information regarding the place of the tumor, its infiltrative, obstructive or bleeding character, its proximal extension (indispensable for the stadialization) the existence of a bronchial compression associated (through hilar and mediastinal adenopathy) or at the carina level. Bronchoscopy allows frequently: the biopsy of the bronchial tumor, realising a transbronchial biopsy, the histological examination of the biopsy fragments or of the bronchial aspiration necessary for the histological diagnosis. The epidermoid carcinoma and the carcinoma with large cells are promptly diagnosed. Peripheral tumors, especially adenocarcinomas slip the diagnosis. Bronchoscopy is extremely important in the postsurgical pursuit of the patient.

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