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## **The frequency of detection of various forms of deforming bronchitis during endoscopic examination of patients with bleeding from the broncho-pulmonary system**

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### **Abstract**

237 patients were examined with bleeding from the broncho-pulmonary system. During the bronchoscopy, it was revealed that all patients suffered from deforming bronchitis of various forms: 73 (30.8%) patients had atrophic bronchitis, a primary inflammatory form; in 111 (46.8%) patients - primary dystrophic form of atrophic bronchitis; in 53 patients (22.4%) - diffuse, bilateral bronchitis of II and III degree of inflammation intensity. 237 patients were examined with bleeding from the broncho-pulmonary system. During the bronchoscopy, it was revealed that all patients suffered from deforming bronchitis of various forms: 73 (30.8%) patients had atrophic bronchitis, a primary inflammatory form; in 111 (46.8%) patients - primary dystrophic form of atrophic bronchitis; in 53 patients (22.4%) - diffuse, bilateral bronchitis of II and III degree of inflammation intensity.

**Key words: bleeding from the broncho-pulmonary system, bronchoscopy, chronic deforming bronchitis.**

**Частота выявления различных форм деформирующего бронхита при эндоскопическом обследовании больных с кровотечением из бронхо-легочной системы**

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**Резюме**

Было обследовано 237 больных с кровотечением из бронхо-легочной системы. При проведении бронхоскопии было выявлено, что все пациенты страдали деформирующим бронхитом различной формы: у 73-х (30,8%) пациентов был обнаружен атрофический бронхит, первично-воспалительная форма; у 111-ти (46,8%) пациентов - первично-дистрофическая форма атрофического бронхита; у 53-х (22,4%) пациентов - диффузный, двусторонний бронхит II и III степени интенсивности воспаления.

**Ключевые слова:** кровотечение из бронхо-легочной системы, бронхоскопия, хронический деформирующий бронхит.

**Частота виявлення різних форм деформуючого бронхіту при ендоскопічному обстеженні хворих з кровотечею із бронхо-легеневої системи**

**Г. В. Макарова, А. О. Авраменко**

**Резюме**

Було обстежено 237 хворих з кровотечею із бронхо-легеневої системи. При проведенні бронхоскопії було виявлено, що всі пацієнти страждали деформуючим бронхітом різної форми: у 73-х (30,8%) пацієнтів був виявлений атрофічний бронхіт, первинно-запальна форма; у 111-ти (46,8%) пацієнтів - первинно-дистрофічна форма

атрофічного бронхіту; у 53-х (22,4%) пацієнтів - дифузний, двосторонній бронхіт II і III ступеня інтенсивності запалення.

**Ключові слова:** кровотеча із бронхо-легеневої системи, бронхоскопія, хронічний деформуючий бронхіт.

**Introduction.** In recent decades there has been an increase in the incidence of chronic bronchitis in most countries of the world. With the current incidence, the number of patients with chronic bronchitis within 10 to 12 years almost doubles [13], and this pathology is dramatically younger [1, 6]. Chronic bronchitis is a major socio-medical problem and is rightly considered the disease of the century (along with coronary heart disease) due to the high prevalence, steady increase in morbidity and mortality and the enormous economic damage caused to society [3, 12, 18].

One of the complications of diseases of the broncho-pulmonary system is pulmonary hemorrhage, which is a life-threatening emergency and in which mortality reaches 30–50%, and for massive bleeding it exceeds 50% [14, 21, 23, 24], however the literature does not reflect data on the quantitative composition of various forms of deforming bronchitis, accompanied by bleeding, which was the reason for our research.

**Purpose of the study.** To study the frequency of occurrence of various forms of deforming bronchitis during bronchoscopy in patients with bleeding from the pulmonary system.

**Materials and research methods.** 237 patients were examined with bleeding from the broncho-pulmonary system. Men were 181 (76.4%), women - 56 (23.6%) aged 22 to 72 years old (average age was  $44.5 \pm 1.2$  years). When collecting the history, it was found that the terms of the disease with chronic bronchitis ranged from 2 years to 30 years (the average duration of the disease was  $14.3 \pm 1.13$  years).

The study was carried out in compliance with the basic bioethical provisions of the Council of Europe Convention on Human Rights and Biomedicine (dated 04.04.1997), the Helsinki Declaration of the World Medical Association on the Ethical Principles of Scientific Medical Research with Human Participation (1964-2008), and the MOH Order Of Ukraine No. 690 of September 23, 2009. A written consent was obtained from the patients for the study.

The order of examination: first, bronchoscopy was carried out according to the standard technique [4], and then anamnesis was collected to clarify the specifics of each

patient. The obtained digital values were processed by the method of variation statistics (the arithmetic mean  $M$  was calculated and its standard error was  $\pm m$ ).

**Research results and discussion.** All patients were referred for bronchoscopic examination with a diagnosis of pulmonary hemorrhage. Before performing bronchoscopy, the following causes of bleeding were suggested, established on the basis of a clinical and radiological examination (Table 1).

Table 1

**Clinical diagnoses in patients with pulmonary bleeding before performing bronchoscopy  
(n = 237)**

Clinical diagnosis	Number of patients	%
Chronic pneumonia	94	39,7
Chronical bronchitis	128	54,0
Cancer of the lung	9	3,8
Cirrhosis of the lung	6	2,5

**Note:** n-the number of studies

After bronchoscopy, it was found that all patients in 100% of cases suffered from deforming bronchitis of various shapes. Data on the number of patients with various forms of deforming bronchitis, identified during bronchoscopy, are presented in table 2.

Table 2

**The frequency of detection of various forms of deforming  
bronchitis during bronchoscopy in patients with pulmonary hemorrhage**

Group number	Form of deforming bronchitis	Number of patients	%
1st group (n = 73)	Atrophic bronchitis, primary inflammatory form	73	30,8
2nd group (n = 111)	Atrophic bronchitis, primary dystrophic form	111	46,8
3rd group (n = 53)	Diffuse bilateral bronchitis II and III degree of intensity of inflammation	53	22,4

**Note:** n-the number of studies

Data analysis of clinical symptoms in patients with diagnosed deforming bronchitis are presented in table 3.

Table 3

**The main clinical symptoms in patients with diagnosed deforming bronchitis  
(n = 237)**

Symptom name	Number of patients	%
Cough with sputum	126	53,2
Cough without sputum	111	46,8
Bleeding	237	100
Low-grade fever	18	7,6
Dyspnea	126	53,2

**Note:** n-the number of studies

When analyzing the clinical symptoms in patients with diagnosed deforming bronchitis, it was found that coughing and bleeding were the leading symptoms, which were noted in all patients in 100% of cases, regardless of the duration of the disease and the extent of the process.

The agonizing cough without sputum discharge was dry, “barking”, and with sputum was accompanied by a large amount of viscous mucous purulent or purulent sputum. In bleeding, blood streaks in sputum were most often noted (degree I bleeding - hemoptysis), however, in 18 (7.6%) patients II degree bleeding occurred. In 184 patients (77.6%), the bleeding was repeated.

The third most common symptom was shortness of breath, which appeared even with a little exertion; the fourth most common symptom was subfebrile temperature (as a rule, the temperature increased during an exacerbation of the disease).

To understand the results obtained, it is necessary to return to the understanding of the term “deforming bronchitis”. Deforming bronchitis, by definition, A.I. Strukova and IM Kodolova (1970) [10], is the final stage in the development of chronic bronchitis. It is characterized by chronic recurrent inflammation of predominantly medium and small bronchi with involvement of the endo-, meso- and peribronchial wall layers, resulting in cicatricial stenosis of the bronchus. When deforming bronchitis violated mucociliary clearance, phagocytic activity of alveolar macrophages decreases, vessels undergo changes and

favorable conditions are created for the development of bleeding, pneumonia, pulmonary heart disease and pulmonary heart, hypertensive disease and other types of pathology, including the organs of the gastrointestinal tract [2, 5, 7, 8, 11, 15, 16, 17, 19, 20, 22]. Distortion of local immune reactions up to the development of secondary immunodeficiency contributes to the occurrence of complications [9], therefore mortality from obstructive respiratory diseases will occupy the fourth place among the leading causes of death in the world [11].

### **Conclusions and prospects for further research.**

1. The most common form of deforming bronchitis in patients with bleeding is atrophic bronchitis, the primary dystrophic form (46.8%).

2. Diagnosis of bronchitis in the early stages of its development and timely treatment begun open ways to reduce the prevalence of this disease and its complications.

This situation requires the creation of new effective ways to treat this pathology, which will be the prospects for further research.

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