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SHORT COMMUNICATION

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## **Etiology, epidemiology and diagnosis of esophageal cancer**

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### **Abstract**

**The data from the National Cancer Registry in Slovakia showed 306 esophageal cancers in 1999 (288 men and 18 women). There has been a 5-fold increase in the incidence of esophageal cancer among men in the past 30 years as compared to women in whom no significant change occurred. The reported 1999 raw incidence of esophageal cancer (per 100 000) was 11.0 and 0.6 among men and women in Slovakia, respectively. (Tab. 1, Ref. 8.)**

**Key words: esophageal cancer, mortality rate, spinocellular carcinoma, adenocarcinoma.**

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Despite the progress in its diagnosis and therapy, esophageal cancer remains a serious condition with a grim prognosis and high mortality rate. Two main histological types of esophageal cancer are spinocellular carcinoma (SCC) and adenocarcinoma (ACA). Both types predominantly affect men – SCC 2–10:1 and ACA 2–7:1. There are differences in the geographical and ethnic distribution. SCC is common in China, South Africa and middle Asia, however less frequent in Europe. SCC predominates in American blacks over whites by 6:1.

Adenocarcinomas have the opposite preponderance, occurring in whites over blacks at a ratio of 4:1 (1). There is an interesting shift in the distribution of cancer types observed in the past 20 years. While in 1970 ninety percent of all esophageal cancers were SCC, in the past 20 years there has been a striking increase in the incidence of distal adenocarcinoma and carcinoma of cardia, which are currently accounting for 50 % of all new cases (2). These changes seen mainly in the USA and Western Europe have not been observed in Slovakia.

The data from the National Cancer Registry in Slovakia showed 306 esophageal cancers in 1999. 288 men and 18 women were affected. There has been a 5-fold increase in the incidence of esophageal cancer among men in the past 30 years as compared to women in whom no significant change occurred. The reported 1999 raw incidence of esophageal cancer (per 100 000) was 11.0 and 0.6 among men and women in Slovakia was, respectively (Tab. 1).

Esophageal cancer is the tenth most common type of cancer in men and the fifth most common gastrointestinal malignancy. Among men it is more common after the age of 40; the peak incidence is at the age of 50 to 60. Esophageal cancer represents 2.6 % of all types of cancer in men, but only 0.2 % in women (3). Esophageal carcinoma is highly lethal with its mortality rate being close to its incidence. The five-year survival is 5 % (1).

Risk factors include alcohol, smoking, dietary factors and esophageal reflux. In the western world spinocellular carcinoma is closely associated with smoking and alcohol (4). The effect of smoking and alcohol is synergistic and dose-dependent. A low intake of vitamin A, C, riboflavin and diet lacking vegetables, fruits and dairy products have been shown to predispose to esophageal cancer. An increased risk has been reported also in coincidence with the intake of nitrites and hot beverages (5).

**Tab. 1. Esophageal cancer incidence in Slovakia in five-year intervals from 1969.**

Year	Incidence (M)	Incidence (W)
1969	2.0	0.5
1974	3.3	0.5
1979	4.0	0.6
1984	5.8	0.5
1989	7.5	0.8
1994	8.2	0.9
1999	11.0	0.6

Source: Pleško I (National Cancer Registry, NCI Bratislava, Slovakia)



**Fig. 1. Esophageal adenocarcinoma.**

The presence of Barrett's esophagus is considered to be the major risk factor of adenocarcinoma. Chronic irritation secondary to acid reflux damages mucosa and the injury heals through a metaplastic process in which columnar cells replace the squamous ones. Patients with Barrett's esophagus need to be regularly followed by endoscopists.

Additional risk factors include esophageal lye injury, tylosis, Plummer Vinson syndrome and achalasia. The definite role of endoscopic surveillance in these cases is unclear.

Early esophageal cancer is frequently asymptomatic (Fig. 1). Patients with an advanced disease most commonly present with dysphagia – initially to solid food, later to liquids. Weight loss is typical. Odynophagia is less frequent. Gastrointestinal bleeding is rare.

The primary diagnostic tool is endoscopy. The specificity of radiography and endoscopy in advanced disease are similar (6); however endoscopy allows tissue sampling and better evaluation of small lesions. The diagnosis must be confirmed by histological examination. Early carcinoma with the infiltration of mucosa and submucosa is further divided into three types: protruded, superficial and excavated (1). There are four types of advanced carcinoma: polypoid, ulceriform, infiltrative and not classified (7).

The therapy is stage directed. Symptoms, laboratory results, the length or diameter of affected esophagus and the degree of stenosis do not affect the stage of the disease. Computed tomography (CT) and endoscopic ultrasound (EUS) are primary tests to assess the stage of the disease.

Magnetic resonance imaging does not offer significant advantage over CT examination. Other examinations include bronchoscopy to exclude the involvement of the respiratory tree. Several surgical centers perform laparoscopy to detect small hepatic and intraperitoneal metastases. Thoracoscopy can contribute to the nodal staging in the mediastinum. The TNM staging classification (UICC, 1997) is used for the staging of esophageal cancer (8).

**Reference**

- 1. Hildebrand T.** Choroby ezofágu. In: Ďuriš I, Hulín I, Bernadič M (Eds). *Princípy internej medicíny*. Bratislava, SAP 2001.
- 2. Pera M, Cameron AJ, Trastek VF et al.** Increasing incidence of adenocarcinoma of the esophagus and esophagogastric junction. *Gastroenterology* 1993; 104: 510–513.
- 3. Pleško I et al.** Incidencia zhubných nádorov v Slovenskej republike 1999. Bratislava, Národný onkologický ústav, Národný onkologický register SR 2002.
- 4. Vaughan TL, Davis S, Kristal A et al.** Obesity, alcohol and tobacco risk factors for cancers of esophagus and gastric cardia: adenocarcinoma versus squamous cell carcinoma. *Cancer Epidemiol Biomarkers Prev* 1995; 4: 85–92.
- 5. Gao YT, McLaughlin JK, Gridley G et al.** Risk factors for esophageal cancer in Shanghai, China. Role of diet and nutrients. *Int J Cancer* 1994; 58: 197–202.
- 6. Dooley CP, Larson AW, Stace NH et al.** Double contrast barium meal and upper gastrointestinal endoscopy. *Ann Intern Med* 1984; 101: 538–545.
- 7. Duda M, Hildebrand T.** *Nádory jícnu*. In: Mařatka Z et al. *Gastroenterologie*. Praha, Karolinum 1999.
- 8. Sobin LH, Wittekind Ch (Eds).** *TNM klasifikácia zhubných nádorov*. Prešov, RISO-PRINT 1997.

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