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Original Article

ADENOCARCINOMA VERSUS SQUAMOUS CELL CARCINOMA: ANALYSIS OF 306 PATIENTS IN UNIVERSITY HOSPITAL

Adenocarcinoma versus carcinoma epidermóide: análise de 306 pacientes em hospital universitário

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ABSTRACT - ***Background*** - Medical literature has recorded a significant and progressive increase in the prevalence of esophageal adenocarcinoma in recent years, and this fact has epidemiological importance in the treatment, in the evolution and prognosis of patients. ***Aim*** - A retrospective study of esophageal tumors in university hospital, analyzing the prevalence of squamous cell carcinomas and adenocarcinomas, their locations, histological types, habits, characteristics, color, sex, age and origin of patients. ***Methods*** - Were reviewed the medical records of surgical patients treated for adenocarcinomas and squamous cell carcinomas of the esophagus in the period 1983 to 2010. ***Results*** – The 306 patients were distributed as follows: 192 (62.7%) patients with squamous cell carcinoma and 114 (37.3%) adenocarcinoma of the esophagus. All patients underwent surgical resection (esophagectomy) with curative intent. Among the cases with squamous cell carcinoma 80.7% were white, 11.5% mulatto, 7.8% black, 88.0% male, 12.0% female, mean age of 54.7 years, 88.0% were smokers and 77.7% were alcoholics. Among patients with adenocarcinoma 92.1% were white, 6.1% mixed race, 1.8% black, 85.1% male, 14.9% female, mean age 57.9 years; 66 , 7% were smokers and 45.6% were alcoholics. ***Conclusion*** - Adenocarcinoma of the esophagus has shown a higher incidence in recent years and this fact has epidemiological importance, in the treatment to be instituted, in the evolution and prognosis of patients.

HEADINGS - Esophageal neoplasms. Neoplasms, squamous cell. Adenocarcinoma. Esophagectomy.

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RESUMO - ***Racional*** - A literatura médica tem registrado aumento progressivo e significativo da prevalência do adenocarcinoma do esôfago nos últimos anos e este fato tem importância epidemiológica nos tratamentos a serem instituídos, na evolução e prognóstico dos doentes. ***Objetivo*** – Analisar dados epidemiológicos dos carcinomas epidermóides e adenocarcinomas. ***Métodos*** - Estudo retrospectivo dos tumores de esôfago em hospital universitário analisando a prevalência dos carcinomas epidermóides e adenocarcinomas, suas respectivas localizações, tipos histopatológicos, os hábitos, as características de cor, sexo, idade e procedência dos doentes. Foram revistos os prontuários dos doentes operados e tratados por adenocarcinomas e carcinomas epidermóides do esôfago no período de 1983 a 2010. ***Resultados*** - Foram estudados 306 doentes assim distribuídos: 192 (62,7%) portadores de carcinoma espinocelular e 114 (37,3%) de adenocarcinoma de esôfago. Todos foram submetidos à ressecção cirúrgica (esofagectomia) com intenção curativa. Entre os casos com carcinoma espinocelular os dados obtidos foram: 80,7% brancos, 11,5% pardos, 7,8% negros, 88,0% do gênero masculino, 12,0% do feminino, média de idade 54,7 anos, 88,0% tabagistas e 77,7% etilistas. Entre os doentes com adenocarcinoma os dados obtidos foram: 92,1% brancos, 6,1% pardos, 1,8% negros, 85,1% homens, 14,9% mulheres, média de idade 57,9 anos, 66,7% tabagistas e 45,6% etilistas. ***Conclusão*** - O adenocarcinoma de esôfago tem apresentado incidência mais elevada nos últimos anos e este fato tem importância epidemiológica, nos tratamentos a serem instituídos, na evolução e prognóstico dos doentes.

DESCRITORES - Neoplasias esofágicas. Neoplasias de células escamosas. Adenocarcinoma. Esofagectomia.

INTRODUCTION

Esophageal cancer in the world is the eighth most common tumor, accounting for 481,000 new cases in 2008 (3.8% of all cancer cases) and sixth as a cause of tumor death with 406,000 deaths (5.4% of total). Geographic variation in incidence is very striking, ranging up to 20 times in high-risk areas of China and low-risk areas in West Africa. Other high-risk areas are east Africa and the central-south Asia and Japan (only men)[7].

National Cancer Institute ofn Brazil in 2010 estimated esophageal cancer in 7,890 new cases in men and 2,740 in women, a total of 10,630 new cases, and the eighth most frequent type of cancer in the Brazilian population[13]. In addition, there is a higher incidence of this type of neoplasia in southern and southeastern Brazil, and the states of São Paulo and Rio Grande do Sul with the highest incidence in the country[13,21].

Smoking and drinking habits are the main agents in Europe and North America, where more than 90% of cases can be attributed to these factors. Smoke chewy is an important factor in the subcontinental India. The consumption of hot drinks such as mate, increases the risk, being responsible for high rates in Uruguay, southern Brazil and northeastern Argentina[6,10,12].

Cancers of the esophagus can be classified according to the histopathological findings in squamous cell carcinoma (SCC) and adenocarcinoma. The first is derived from non-keratinized stratified epithelium, characteristic of the normal mucosa of the esophagus. It is the most common histological type, occurs more often in men from age 50 and affects mainly the middle and lower segments (more than 80% of cases) of the organ. This type of tumor has a close correlation between smoking and alcoholism[3,12].

Adenocarcinoma in the distal esophagus, most often arises from the epithelium of intestinal metaplasia (Barrett's) and, therefore, secondary to chronic gastroesophageal reflux. There is a strong relationship between their incidence and obese (BMI> 30 kg/m^2). This cancer develops in the dysplastic columnar epithelium, mainly in the cardia and esophagogastric junction. Rare variants of adenocarcinomas include mucoepidermoid carcinoma and adenoid cystic carcinoma[4,18,24].

The best treatment strategy for esophageal cancer is to perform esophagectomy; however, other options have been studied in recent years such as neo-adjuvant chemotherapy and radiotherapy[11,22,23].

In recent years, medical literature has recorded significant and progressive increase in the prevalence of esophageal adenocarcinoma[2,9,16,18], and in Brazil there is no concrete epidemiological information about this.

The objective of this paper is to analyze the main characteristics of patients operated at an university hospital for the past 28 years to treat two main types of tumor of the esophagus: SCC and adenocarcinoma.

METHODS

Were reviewed the medical records in order to identify all cases diagnosed with squamous cell carcinoma and adenocarcinoma of the esophagus with curative intent surgery at the Clinic Hospital of University of Campinas – UNICAMP - Brazil from 1983 to 2010. This research was approved by the Ethics Committee in Research of the Faculty of Medical Sciences, UNICAMP.

The characteristics of each patient, histological type and location of the tumor in the esophagus and their frequency over the years were reviewed and analyzed. The characteristics included age, gender, race, origin, alcohol consumption and smoking.

Inclusion criteria were: 1) esophageal cancer patients undergoing surgical resection; 2) histology tumor type squamous cell carcinoma or adenocarcinoma; 3) tumor location in the middle and lower segments of the esophagus. Patients with non localized charts or with incomplete data were excluded.

The total number of patients considered in the study was 306 distributed as follows: 192 (62.7%) patients with SCC and 114 (37.3%) with adenocarcinoma.

RESULTS

The frequencies for color, gender and age of patients are described on Table 1.

TABLE 1 - Color, sex and age (years) of 306 patients analyzed

Prevalence: color, sex and age (years)		SCC		Adenocarcinoma	
Color	White	155	80.7 %	105	92.1%
	Brown	22	11.5 %	7	6.1%
	Black	15	7.8 %	2	1.8%
Gender	Male	169	88.0 %	97	85.1%
	Female	23	12.0 %	17	14.9%
Age (years)	Average	54.7		57.9	
	Standard deviation	8,8		11.8	
	Minimum	18		18	
	Median	55		60	
	Maximum	78		78	

Smoking and alcohol habits prevalence rates are described in Table 2.

TABLE 2 - Smoking and alcohol consumption in 306 patients with esophageal cancer

Habit	SCC		Adenocarcinoma	
Smoking - absent	30	12.0%	38	33.3%
Smoking - present	162	88.0%	76	66.7%
Alcoholism - absent	49	22.3%	62	54.4%
Alcoholism - present	143	77.8%	52	45.6%

In tumor location, the findings are described on Table 3.

TABLE 3 - Tumor location in cases of SCC

Tumor location	SCC	
Middle third	124	64.6%
Lower third	68	35.4%

Adenocarcinoma location followed the Siewert's classification[20] and the data are on Table 4.

TABLE 4 - Adenocarcinoma location, as Siewert classification[20]

Tumor location	Adenocarcinoma	
Type 1	18	15.8%
Type 2	42	36.8%
Type 3	54	47.4%

The histological grades of SCC and adenocarcinoma are described in Table 5.

TABLE 5 - Histopathological grades of SCC and adenocarcinoma in 308 cases of esophagus cancer

Degree of differentiation	SCC		Adenocarcinoma	
Well	23	12.0%	17	14.9%
Moderate	131	68.2%	61	53.5%
Poorly differentiated	38	19.8%	36	31.6%

The origin of the patients considering the Brazilian geographic state division is shown in Table 6.

TABLE 6 - Origin of patients considering the Brazilian state geographic division

Origin - State	CEC		Adenocarcinoma	
São Paulo (SP)	183	95.3%	101	88.6%
Minas Gerais (MG)	7	3.6%	9	7.9%
Rondonia (RO)	1	0.5%	0	0%
Santa Catarina (SC)	1	0.5%	0	0%
Paraná (PR)	0	0%	2	1.8%
Mato Grosso do Sul (MS)	0	0%	2	1.8%

DISCUSSION

Over the past decade, several authors have reported a progressive increase in the prevalence of adenocarcinoma of the esophagus and esophagogastric junction in Western countries[2,5,8,16] and also in some 16 countries of the East[9]. The main factors involved are chronic and untreated gastroesophageal reflux, smoking and obesity. Infection with Helicobacter pylori and the use of nonsteroidal anti-inflammatory drugs are associated with decreased risk of the disease. However, no daily intake of fresh fruits, vegetables and cereal fiber may increase this risk[5,8,12,18].

The classification of these tumors most commonly used in the literature was proposed by Siewert et al.[20], known as I, II and III - located in the esophagus, gastroesophageal junction and gastric fundus, respectively. It is widely used by authors to guide the operation and reconstruction of the digestive tract to be performed.

Increase in the frequency of the disease has been emphasized in various countries publications. Devesa et al.[4] show increase of 8% to 10% per year in the incidence of esophageal and cardia adenocarcinoma among American men since 1976, growth rate higher than other types of tumors. Blot et al.[2] confirm the previous data, noting that unlike adenocarcinoma of the esophagus and cardia, SCC and adenocarcinoma of the distal stomach show a slight decline trend in incidence over the same period of study .

Pera et al.[16] in the United States concluded that there was an increase from five to six times the incidence of esophageal adenocarcinoma between 1935 and 1974, and between 1971 and 1981. Moreover, less than 10% of patients with adenocarcinoma had Barrett's esophagus before[17].

Siegel et al.[19] in Switzerland emphasize the increase in disease related to gastroesophageal reflux and eating too much fat.

Wayman et al.[28] report that in the UK between 1984 and 1993 were recorded a total of 22,300 cases of esophageal and gastric cancers in a population estimated at 6.7 million inhabitants. While in this period the incidence of gastric cancer decreased from 12.8 to 10.5 cases, esophageal cancer increased from 4.6 to 5.4 cases per 100,000 inhabitants. And the incidence of adenocarcinoma of the cardia in the proportion rose from 29.1% to 52.2%. These authors emphasize the importance of considering adenocarcinoma of the esophagogastric junction as being distinct from the adenocarcinoma of stomach, aiming future epidemiological analysis. Triboulet et al.[26] also reported elevation of the disease in France.

Naves et al.[14] in Argentina, analyzed the endoscopic biopsies of patients with esophageal tumors at various times and found that men constitute 75.6% of adenocarcinomas and 57.1% of SCC. The average age of patients with adenocarcinoma was 66 years and 67.9 years in SCC and concluded that there was an increase of 10% in the incidence of

adenocarcinomas in the analyzed periods. Andreu Garcia emphasizes the rise of adenocarcinomas in Chile and Colombia1.

Hashibe et al.[6] analyzed the esophageal cancers in nursing homes in Romania, Czech Republic, Poland and Russia, relating them to alcoholism and smoking. They concluded that the continued ingestion of alcohol and tobacco increase the risk of SCC, in meantime, alcohol consumption did not increased the incidence of esophageal adenocarcinomas.

Kusano et al.[9] in Japan reviewed a total of 6953 patients operated for advanced gastric adenocarcinomas in the period 1962 to 2005, and 520 patients had adenocarcinoma of the esophagogastric junction. These authors observed 2.3% incidence of adenocarcinoma of the junction in the period 1962 to 1965 and increased to 10.0% in the period 2001 to 2005. Other data provided by the authors was the increase in proportion of Siewert type II tumors of 28.5% (1962 a1965) to 57.3% (2001 to 2005), while the Siewert type I tumors with its incidence remained close to 1%.

In India, Tony et al.[25] reviewed 476 cases of cancer of the distal esophagus of both histological types (SCC and adenocarcinoma) in the period 1985 to 2004 and confirmed consistent pattern of change in frequency and histology of the period, an increase of adenocarcinoma statistical significance of the esophagogastric junction. In addition, there was no change in the pattern of incidence of SCC of the distal esophagus during the study period.

Olsen et al.[15] studying esophageal adenocarcinoma and esophagogastric junction in Australia found that these patients have respectively body mass index and high acid reflux respectively 23% and 36%, compared with control groups. The final conclusion of these authors was that the occurrence of these tumors could be completely prevented by keeping BMI within the normal range, avoiding smoking and controlling the symptomatic gastroesophageal reflux.

Wang et al.[27] in China report that, epidemiologically, junctional adenocarcinoma has very similar geographical distribution in relationship to SCC, especially in the provinces of Linzhou (Linxian), Henan Provice and regions north of the country, which has the world's highest incidence of SCC. Both histological types in these areas are referred by the people as equal tumors due to the symptom of dysphagia being the same. It also probably emphasize that adenocarcinoma is a distinct entity, since the incidence of Barrett's esophagus in the country is very low.

This paper aimed to review the frequency of the two histological types of esophageal cancer, the more prevalent, the main symptoms, their origin,the profile of patients treated and operated in a university hospital.

Both groups showed similar distribution as color, gender and age being the most common esophageal cancer in individuals with white skin, male and after the sixth decade of life. In addition, was highlight the personal history of smoking and alcohol consumption in both groups[6,21]. The most frequent histological sub-type in both was moderately differentiated (adenocarcinoma - 53.5%, SCC - 68.2%). In adenocarcinoma, the most frequent type was III of the Siewert classification (47.4%), followed by the type II (36.8%). The most frequent site of SCC was in the middle segment of the esophagus (64.6%).

Another aspect observed was the origin of the patients, both city and state were they came from. The vast majority were referred to the hospital from metropolitan region of Campinas, consequently, the vast majority came from the state of São Paulo.

CONCLUSION

Adenocarcinoma of the esophagus has shown a higher incidence in recent years and this has epidemiological importance in the treatment to be instituted in the evolution and prognosis of patients.

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