

Cancer of the Esophagus and Cardia among Korean A clinical review of 108 patients (1)

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Cancer of the esophagus and cardia has usually been reported as having a poor prognosis. In the majority of cases the main etiologic factors of cancer of the esophagus and cardia remain unknown. The incidence of the disease varies in different parts of the world, but it is particularly common in certain parts of Africa and the Far East. The treatment of Carcinoma of the esophagus and cardia with radiotherapy, radical surgery or both have been tried by many surgeons and radiotherapists in other countries without satisfactory result yet. Particularly, there have been quite few reports on cancer of the esophagus and cardia even with small materials in Korea. In this paper, we will consider a clinical review of 108 patients with particular attention on the some etiologic aspect, age and sex, site of tumor, histological type, esophagographic findings and the therapeutic measures for patients with cancer of the esophagus and cardia occurring among Korean.

Method and Materials

The case note of all patients with carcinoma of the esophagus and cardia seen at the department of thoracic and cardiovascular surgery of National Medical Center (Seoul, Korea) between December 1958 and May 1971 were

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examined. The diagnosis of cancer of the esophagus and cardia was considered complete on radiologic or histologic findings or both in 108 patients. The tumor was classified as cervical, upper, middle, or lower third of thoracic esophagus and cardia according to the level of the upper most part of tumor. The esophageal and cardia tumor extended from pharynx and stomach have been excluded.

Result

Pathology

In 13 cases, histological evidence of the esophagus and cardia was not available. In the remaining cases, 44 were Squamous cell carcinoma, 42 were adenocarcinoma, 7 were anaplastic carcinoma, and 2 were mucoid carcinoma. There were none of primary adenocarcinoma of the esophagus in this material.

Age and Sex

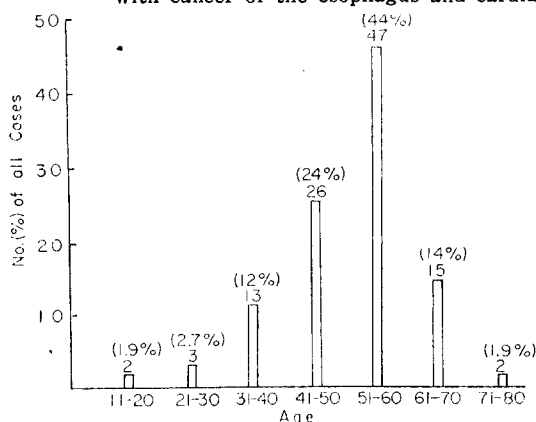
In 108 cases, the age of patient was recorded (Fig. 1). The most patients were between 40 and 60 years of age when first seen at Hospital. The youngest were 15 years of age and the oldest were 74 years of age. The average age were 52 years. Of the patients with carcinoma of the esophagus and cardia, 88 (82%) were male and 20 (18%) were female. Out of 44 patients with Squamous cell carcinoma of the esophagus, 38 (86%) were male and 6 (14%) were female. Of 51 with non-

epidermoid carcinoma of the esophagus and cardia, 38 (75%) were male and 13 (25%) were female.

Site of tumor

Esophagosopic findings were available in 70 cases, esophagographic findings were available in 100 cases, and operative findings were available in 79 cases, to classify the site of tumor. In 8 cases, the site of tumor could not be determined and in the remaining 100 cases, there were cervical esophageal tumor in 1, a upper third tumor of the thoracic esophagus in 4, a middle third tumor in 31, a lower third tumor in 10, and cardia tumor in 54 cases. Out of 108 cases with carcinoma of the esophagus and cardia, 54 cases were carcinoma of the esophagus and the remaining 54 cases were carcinoma of the cardia.

Figure 1. Age distribution of patients presenting with cancer of the esophagus and cardia



Esophagographic findings

In 78 cases, x-ray of esophagus with Barium swallow were available for review and the esophagographic findings in these cases revealed a irregular filling defect of the esophagus and cardia in 58, Stenosis (smooth, annular narrowing) in 13, complete obstruction in 4, and narrowed entire esophagus in 3. With these findings, proximal dilatation of esophagus in 20, diverticula in 1, and bronchoesophageal fistula in 1 case were associated. The smooth

annular type of narrowing in the esophago-cardiac junction were often apt to make misdiagnosis as achalasia by only Roentgenological findings.

Esophagosopic biopsy

Esophagoscopy was routinely carried out after esophagographic study in the majority of patients who did not show any distant metastasis. Esophagoscopy was sometimes more than one time in some cases. The case note for esophagosopic finding were available in 70 cases. Of 70 cases, tumor were visible in 53 (76%) and not visible in 17 (24%). Out of 53 cases with visible mass, the result of biopsy were positive in 47 (89%) and negative in 6 (11%) cases. Out of 17 cases without visible mass, the result of blind biopsy were positive in 3 (19%), negative in 9 (52%) and no obtainable specimen (biopsy) in 5 (30%). Of 70 cases with esophagoscopy, histological diagnosis were obtained in 50 cases (71%).

Etiology (Table 1)

The cause of cancer of the esophagus is still unknown in the majority of patients. In this series of 44 cases with Squamous cell carcinoma, the pre-existing disease of the esophagus related to the development of carcinoma were disclosed in 6 cases (13.6%). Of 6 cases with premalignant lesion, a lye stricture were in 4 cases, Reflux esophagitis in 1 case and Epiphrenic diverticula in 1 case. The age were between 15 years and 56 years. 3 were male and 3 were female. Female patients were lye strictures in all. The probable duration between the onset of pre-existing lesion and tumor were 12 years to 40 years in lye stricture cases, 6 years in Reflux esophagitis and 30 years in Epiphrenic diverticula. The site of tumor were corresponded to pre-existing lesions in all patients,

Duration of symptoms

Table 1. Probable premalignant lesions among 44 cases with carcinoma of the esophagus

No. of case	Premalignant lesion	Age/Sex	Duration of (yr) lesion	Site of tumor
1.	Lye stricture	56/F	16	Upper
2.	Lye stricture	53/F	40?	Upper
3.	Lye stricture	15/M	12	Upper
4.	Lye stricture	49/F	20	Middle
5.	Reflux esophagitis	20/M	6?	Lower
6.	Diverticula epiphrenic	55/M	30?	Lower

The duration between the onset of initial symptoms and the time of diagnosis at National medical centre was examined in 84 cases. The majority of patient were already received diagnosis at other hospital and referred to our department with great delay. The shortest duration were 1 month and the longest duration were 3 years. Out of 84 cases, 17 cases (20%) arrived at our hospital within 3 months, 32 cases (38%) arrived within 3-6 months, and 31 cases (40%) arrived within 6-12 months.

Symptoms and signs (Table 2)

In 83 cases, description on subjective symptoms and positive findings on physical examination was only satisfactory to have a review. According to the duration of disease, site of tumor and pathologic type of tumor, the symptoms and signs were variable, but the main initial symptoms were various degree of dysphagia (96%), pain on the retrosternal and xiphoid portion (85%), gradual weight loss (85%) and regurgitation (56%). The few patients complained of sudden hoarseness or palpable mass on the supraclavicular fossa as initial symptoms.

The other symptoms and signs are tabulated on table 2.

Different form of treatment (Table 3)

Out of 108 cases, 82 patients were considered

Table 2. Symptoms & signs

Symptoms and signs	No. of cases	%
Dysphagia	80	96.4
Substernal pain	70	85.0
Weight loss	71	85.0
Regurgitation	46	55.5
Chest discomfort	71	20.5
General malaise	17	20.5
Cough	15	18.1
Indigestion	9	10.8
Anorexia	6	7.2
Melena & hematemesis	10	12.0
Hemoptysis	2	2.4
Hoarseness	1	1.2
Epigastric tenderness & mass	12	14.5
Supraclavicular node, palpable	9	10.8
Hepatomegaly	5	6.0
Ascites	2	2.4
Interscapular area, tenderness	1	1.2
Jaundice	1	1.2
Other adenopathy	3	3.6

as a operable cases (76%) and 24 patients considered as a inoperable cases (24%). Of 82 operable cases, 55 patients were resectable. The resectability to total of 108 cases were 51%. The difference between operability and resectability were 22%. 3 patients who were suitable for surgery refused radical surgery. Out of 55 cases received radical surgery in an attempt to eradicate the esophageal tumor, 15 patients underwent a curative resection (27%), 10 patients received semicurative resection (19%), 22 patients received a palliative resection (40%), and 8 patients could not determine the degree of curability (15%). Some of patients who were considered to be inoperable, nonresectable and noncurative resection, and who refused operation

Table 3. Therapeutic measures

Total cases..... (108)	Operable 82 (76%)resectable	55 (51%)
	non resectable	24 (22%)
	operation refused	3 (3%)
	Inoperable 26 (24%)		
Radical surgery... (55)	Curative resection.....	15 (27%)	
	Semi curative resection	10 (18%)	
	Palliative resection	22 (40%)	
	Curability not determind.....	8 (14%)	

received radiotherapy in other institute.

Discussion

The incidence of carcinoma of the esophagus varies in different parts of the world. The number and percentage of carcinoma of the esophagus in National medical centre, Seoul, Korea, between December 1958 to August 1969, were 59 cases (3.8%) among the total of 1562 primary malignant tumors in male which was confirmed by histological examination of surgical specimen, biopsy and autopsy materials (per Wetteland 1970)¹¹. Korean pathological association (1968)² announced that the frequency array of carcinoma of the esophagus were 1.5% of total malignant tumors in Korean.

Choe et al (1973)³ reported a clinico-pathological result on 49 cases of esophageal carcinoma which were 0.8% of total malignancy and 4.2% of all gastro-intestinal tract malignant tumor examined at pathological department of Severance medical school. Ackerman & del Regato (1954)⁴ reported that the proportion of male cases is particularly high in Chinese whereas carcinoma of the esophagus makes up about one half of all neoplasms of the alimentary tract. Burrell (1957)⁵ noted a very high incidence of this condition reaching 73 per 100,000 in some part of the Transkei. Robin (1967)⁶ noted that carcinoma of the esophagus occupies 4% of cause of the death due to all malignant

tumor in Europe. In the department of general surgery, National medical centre¹⁴, they have seen about 1,000 cases of Stomach cancer in the past 13 years whereas in the department of thoracic surgery, we have seen about 108 cases between January 1959 and May 1971. In conclusion, carcinoma of the esophagus is not so frequent in Korea as in the neighbour country China.

Carcinoma of the esophagus is a predominant tumor in male developing 3-11 times more than female (Kock, ackerman)^{4, 7} In this series, male out-numbers female with the ratio of 4.4:1 which is similar to the other Korean report (Choe, Kim)^{3, 8}. The peak age were 6th decade in Europe and 5th decade in Korea (Kock, Choe, Kim).^{3, 7, 8} In a series of 267 cases in United States the youngest patients was 35 years old (Akkerman & del Regato 1954)⁴. The present series disclosed a mean age of about 52 years in both sexes and 16.7% of patients were below the age of 40. The youngest patient encountered in this series⁹ was 15 year old boy who had swallowed lye at the age of 3 years and developed a squamous cell carcinoma at the site of the stricture 12 years later. Choe et al.³ reported a youngest age of 18 years in his series.

The basic etiology of carcinoma of the esophagus is still unknown but a particularly high incidence has been reported in patients with paterson Kelly syndrome, achalasia, corrosive esophagitis and so called short-

esophagus type of a hiatal hernia, There are an unusually high incidence among the Chinese and the South Africa Bantu which has been related to the dietary and alcoholic habits of these peoples. Among present series of 44 cases with carcinoma of the esophagus, 4 cases with lye stricture, 1 case of Reflux esophagitis and 1 case with epiphrenic diverticula developed cancer of the esophagus. There are 3 reports of carcinoma of the esophagus complicated with chronic lye stricture (Kinman, Shin & Wetteland 1968, Kim et al 1972)^{8, 9)}. Yu et al.¹¹⁾ recently found out 5 cases of carcinoma of the esophagus among 350 cases with chronic lye stricture who visited at the department of thoracic surgery, N.M.C. Carcinoma involving the esophagogastric junction or cardia, though Often of gastric origin, are usually included in any discussion of neoplasms of the esophagus. While malignant lesions can occur at any level of the esophagus, 48.7% arise at the cardia, 25.1% at the mid third, 18.2% at the lower third, and 8.0% at the upper third of esophagus (major) clinic). In this series, as well as another reports from Korea (Kim, Choe)^{3, 8)}, the anatomical location of esophageal carcinoma and cardia is almost similar to the other reports.

Histologically, carcinoma of the esophagus were squamous cell type in the majority. Adenocarcinoma usually arises from esophagocardia junction and rarely develops in the esophagus. Undifferentiated carcinoma develops in the esophagus and cardia in few number of patients, Kim et al.⁸⁾ reported 30 cases with carcinoma of the esophagus and cardia and the ratio of epidermoid to adenocarcinoma were 3 : 1. Choe et al.³⁾ also reported 49 cases with carcinoma of the esophagus and cardia which showed epidermoid in 42, un-

differentiated in 1 and adenocarcinoma in 6. Kock (1967)⁷⁾ reported adenocarcinoma in 68, squamous cell carcinoma in 68, and undifferentiated in 7 among 143 cases. In this series, the ratio of squamous to adenocarcinoma were 1:1, there were no single adenocarcinoma in the esophagus, and there were few undifferentiated carcinoma in the esophagus.

There is at present no clear evidence to indicate whether surgery or radiotherapy is a more satisfactory form of treatment for cancer of the esophagus. A carefully controlled prospective trial is indicated to attempt to resolve this problem¹²⁾. Our policy is to reserve surgery for those who do not have evidence of metastasis nor of any serious medical condition such as severe bronchitis or hepatic insufficiency and who are not in poor general condition. Preoperative irradiation could not apply in this series. Patient who are not suitable for surgery and who undergo palliative resection are offered radiotherapy in the form of ⁶⁰Co. Though the resectability (51%) in the present series seems to be not low in contrast to 26.7% (Kim)⁸⁾ 58.2% (Kock)⁷⁾ and 43% (Boyd), the rate of curative resection (27%) is still quite low in the present series in contrast to 55% (Kock)⁷⁾ 66% (Johannessen)¹³⁾, because of the delay to hospital visit and economic difficulties in many cases.

Summary

We made some aspect of clinical review on 108 cases with carcinoma of the esophagus and cardia which was histologically diagnosed in the department of thoracic surgery, National medical centre, Seoul, during the period from December 1958 to may 1971.

The following results were obtained.

1. Among 108 cases with carcinoma of the

esophagus and cardia, Squamous cell carcinoma were in 44, adenocarcinoma in 42, Anaplastic carcinoma in 7, mucoid carcinoma in 2 and unknown in 13 cases. There was no adenocarcinoma in the esophagus in origin.

2. Among 108 cases, 88 were male and 20 were female. The mean age was 52 years in both sexes and 67% of patients were 40 to 60 years of age. There were 2 cases who were under 20 years of age. The youngest were 15 years of age and the oldest were 74 years of age.

3. The anatomical site of tumors are similar to the other reports which showed 54 in cardia, 46 in esophagus, and 8 in the site undetermined. Among 46 cases with carcinoma of the esophagus, mid third tumor were in 21, lower third tumor in 10, and upper third in 5.

4. 6 out of 44 cases with carcinoma of the esophagus had the probable premalignant lesions such as lye stricture in 4, reflux esophagitis in 1 and diverticula in 1 case.

5. Main symptoms were dysphagia, weight loss, substernal and epigastric pain and regurgitation. The duration of symptoms according to complaint of dysphagia in 84 cases ranged from 1 month to 3 years. The duration of less than 3 months were only 20%, of 4 to 6 months 38%, 6 to 12 months 37% and more than 1 year 4.8%.

6. Esophagographic findings examined in 78 cases showed irregular filling defect with narrowing of the lumen in 58, smooth annular stenosis in 13, complete obstruction in 4, narrowed entire esophagus in 3, complete obstruction with bronchoesophageal fistula in 1, diverticular with stenosis 1, and proximal dilatation was associated in 20 cases.

7. Esophagoscopy biopsy in 70 cases, obtained the histological diagnosis in 50 (70%) out of 70 cases.

8. Out of total of 108 cases, operability were 82(76%), resectability were 55(51%). Among 55 cases with resection, curative resection were in 15 (27%), semicurative in 10 (18%), palliative resection in 22 (40%) and no determination in 8 cases (15%)

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