Original Article

The Esophageal Cancer

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Summary:

Background: *Squamous carcinoma accounts for majority of esophaged cancinoma .Most patients with esophaged cancer are middle aged or elderly with make to female ratio 2.5:1 .*

Aim of study : *to present a fairly representative picture of the carcinoma of esophagus in yemen.*

Patients& Methods: *Seventy-six patients were treated for carcinoma of esophagus over a 5 – year period by cardiothoracic and vascular surgeon working in Sana'a – Yemen. Amongst them there were thirty one men and forty-five women, with male/female ratio 1:1.45, age incidence (range 38 – 40 year).*

Results:. *Adenocarcinoma was 65% of cases and other 35% was squamous cell carcinoma. The major risk factors were founded chewing quat, silicon particles, thermal injury, diet deficient in vitamin, tannic acid (strong tea and sorghum wheat). The mortality rate was more than 15%, 9% females and 6% males.*

Conclution: *this study showes that acceptable early results for the treatment of esophaged cancer , can be obtained by a surgeon working in hospital with relatively basic facility . the cancer services may well improve long – term outcomes by facilitating both the deliver of multimodality conbined treatment & the performance of large scale clinical trials . Although it is hoped that this will be accompanied by continuing improvement in surgical results.*

Key words: *carcinoma of esophagus, adenocarcinoma, rural region, chewing quat, silicon particles.*

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Introduction

Squamous carcinoma accounts for majority of esophageal carcinoma.[1] Its incidence is highly variable, ranging from approximately 20/100,000 in USA and UK to 160/100,000 in certain parts of South Africa. Most of patients with esophageal cancer are middle aged or elderly with male to female ratio 2.5:1. [2] Marked differences are found between local areas of the same region suggesting that the environmental and lifestyle factors are crucial in the etiology. [3] Adenocarcinoma of esophagus, once an unusual malignancy is diagnosed with increasing frequency and now account 60% of esophageal cancer in UK,in USA has increased factor than that of any other solid organ cancer . [4] Rate about 5-10 % per year. Adenocarcinoma is mainly occured in lower third of esophagus and at the gastro – esophageal junction [5], figure (1).

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They are believed to develop via dysplasia from changes in Barrett's esophagus. It is associated with chronic inflammation secondary to gastro–esophageal reflux and also linked with hiatus hernia and obesity (6), figure (2). The staging of cancer, a combination of C-T scanning and endoscopic ultrasound offers considerably higher levels of accuracy for staging (7), figure (3). Usually present with difficulty in swallowing but local metastasis has already occurred. Poorly localized dysphagia, weight loss, retrosternal pain, anemia, hoarseness, cough (respiratory symptoms due to overspill).

Diagnosis confirmed by:

- Endoscopic plus biopsy cytology.
- Barium swallow, figure(4).
- Resectability and fitness for surgery assessed by:

1. Chest x-ray.
2. Lung function tests (FEV1>1L).
3. Liver ultrasound.
4. Thoracic spiral C-T scanning.
5. Bronchoscopy, laproscopy, ECG, arterial blood gases, exercise test and in selected case echocardiogram.

Treatment:

- Surgery.[8]
- Radiotherapy.[9]
- Palliation.[10],[11] Intubation, endoscopic laser, chemotherapy, radiotherapy, photodynamic therapy.

Operative approaches:

Need 10 cm proximal clearance to avoid submucosal spread.

- Subtotal two – stage esophagectomy (Ivor – Lewis).[12]
- Subtotal three – stage esophagectomy (McKeown).[13]
- Total gastrectomy via thoraco – abdominal approach (Adenocarcinoma).[14] Transhiatal esophagectomy.[15]

PATIENTS AND METHODS:

Seventy-six patients with carcinoma of esophagus were referred to our center over a period of 5 – years from April 1996 – end of January 2001.

The hospital has no formal intensive care unit, but has a six–bed high dependency facility which is used (and appropriately staffed) to ventilate patients for a limited period when necessary.

Patients were routinely assessed pre-operatively by endoscopy plus biopsy, ultrasound of abdomen, and C-T scanning of the thorax.

Patients judged suitable for surgical resection underwent total gastrectomy via thoraco-abdominal approach, Ivor – Lwis, McKeown and transhiatal esophagectomy extended lymphadenectomy was not undertaken.

Post – operatively patients were extubated as soon as possible usually on return to the high dependency unit. All patients received intravenous peri-operative antibiotic prophylaxis against wound infection and continue for 7 – days post-operatively, the parenteral feeding continues till resumption of oral intake.

A gastrograffin swallow was carried out routinely on the 7th post-operative day to confirm patency and integrity of the anastomosis.

No patient had adjuvant post-operative radiotherapy because it is not available in Yemen.

RESULTS:

Seventy-six patients were recruited to study were screened and treated. Were "45"women and "31"men, table (1), with a median age of '59" year (range 38 to 80).

Were 90% of patients from south and west of Yemen and 10% from north and middle of Yemen, from those were 80% from rural region and 20% from urban region. Almost all patients are low socio-economic status, with similar lifestyle. Chewing quat (especially quat that spatter with chemical pesticidial materials) silicon particles "release from rock – stone dishes and container by the effect of high temperature of fire", the diet deficient in vitamins, and diet contain tannic acid (strong tea, sorghum wheat). The women are obese and multi parous.

The location of tumor were "50" patients 65% in cardia and lower third esophagus (Adenocarcinoma), "30" women and "20" men. Tumor stage in "30" T1N0, "12" T2N1,"6"T3N0,"2"T3N1, were "22" patients 29% in middle third (squamous cell carcinoma), "12" women and "10" men. Tumor stage in the "14" T1N0,"7" T2N1,"1" T3N0 were "4" patients 5% in upper third (cervical part of esophagus, post-cricoid carcinoma) (squamous cell carcinoma) "3" women and "1" man. Tumor stage in "3" T1N0,"1" T2N1, table (2) and (3).

Esophagectomy done with three patients sustained intra-operative complications underwent incidental splenectomy because of splenic damage. All made good post – operative recoveries.

There were (Twelve death), one with anastomotic leak, the leak became apperant on the 5th post-operative day and she died. There were no symptomatic anastomotic strictures during the period of follow–up. Seven women and five men died 15% of cases .six from seven women from Adenocarcinoma and one from squamous carcinoma (post – cricoid carcinoma).

Three men form five from adenocarcinoma and two from squamous carcinoma (post – cricoid carcinoma), table (4).

One women died post-operative immediately due to cardiac arrest, five died (three women, two men) during first month post-operatively (one from five due to anastomotic leak and mediastainitis, other four due to sepsis). Six patients died during (1-18 months) post-operative from recurrent disease or bronchopneumonia exacerbated by malnutrition, table (5) (6).

The median post-operative hospital stay was 15-days (range 10-21 days). A median of "14" months post-operatively (range 8-20 months) were followed – up the patients .two year overall survival was 35% the death due to local recurrence, distant metastasis, heart failure, cerebrovascular accident, failed to progress and progressive cachexia and debility.

Table (1): Sex incidence

Sex	Number	Percentage
Female	45	59.2%
Male	31	40.8%
Total	76	100%

Table (2): Esophageal carcinoma on location of tumor

Post –operative / time	Number
Immediately	1
1-30 days	5
1 m-18 months	6
Total	12

Table (3): Tumor stage/grade relation to location and sex incidence

Sex	Cardia/lower third		Middle third		Upper third		Total / sex	
Female	30	39.4%	12	15.7%	3	3.94%	45	59.2 %
Male	20	26.3%	10	13.15%	1	1.3%	31	40.8 %
Total	50	65.7%	22	28.85%	4	5.24%	76	100 %

Table (4): Mortality rate related to location and sex

Tumor	Location	Total	Female	Male	T1N0	T2N1	T3N0	T3N1
Adenocarcinoma	Cardia/ lower	50	30	20	30	12	6	2
Squamous carcinoma	Middle	22	12	10	14	7	1	///
Squamous carcinoma	Upper/ post cricoid	4	3	1	3	1	///	///

Table (5): Time of death

Sex	Number	%	Cardia/lower 1/3	Middle 1/3	Upper 1/3
Female	7	9.2	6	///	1
Male	5	6.2	3	///	2
Total	12	15.4	9	///	3

Table (6): Cause of death in both sexes

Cause of death	Number	Female	Male
Cardiac arrest	1	1	0
Anastomotic leak	1	1	0
Sepsis	4	2	2
Recurrent local disease / bronchopneumonia	6	3	3
Total	**12**	**7**	**5**

DISCUSSION:

There is little available information of this disease; no series have been reported from Yemen .the paucity of accurate data make it very difficult to assess the true size of the problem.

The intention is to present a fairly representative picture of the carcinoma of esophagus in Yemen.

Because surgical resection remains the cornerstone of treatment for esophageal cancer [16] the results of surgery are critical in determining the overall fate of patients with this disorder [17].

It could be argued that the relatively favorable results obtained in the present series are a statistical accident resulting from the relatively small number of cases involved. The incidence of esophageal carcinoma 4.2/100,000, with female more than male, Adenocarcinoma more than squamous cell carcinoma.

The predisposing factors include chewing quat, silicon particles, thermal injury, diet deficient in vitamins "A and C", tannic acid. The mortality rate is high >15% due to many causes:

- Late referral.
- No formal intensive care unit.
- No radiotherapy facility.
- Patients low socio-economic status, unable to cover the cost of proper pre-operative management.

In conclusion, the present study has show that acceptable early results for the treatment of esophageal cancer, can be obtained by a surgeon working in hospital with relatively basic facilities.Longer term follow – up and the assessment of larger number of patients will be required to determine whether this translates into equally long term survival rates. The cancer services may well improve long-term outcomes by facilitating both the delivery of multi-modality combined treatment and the performance of large –scale clinical trials. Although it is to be hoped that this will be accompanied by a continuing improvement in surgical results.

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LEGENDS:

Quat is a tree that is growing in Yemen, Ethiopia, and Somalia. The farmer uses pesticidal chemical material to make the tree grow faster for financial purpose.

Quat had many effects on health social, economic environment. Quat leads to delay evacuation of the content from esophagus to the stomach, which lead to prolong time of contact of chemical material to the mucosa of esophagus.

Figure 3: TNM staging of esophageal cancer

Stage	Tumor	Node (N)	Metastases (M)
0	Tis: high grade dysplasia	0	0
1	T1: invasion of lamina propria / submucosa	0	0
2	T2: invasion of muscularis propria	0	0
3	T3: invasion beyond muscularis propria(adventitia)	1	0
4	Invasion of adjacent structure	1	1

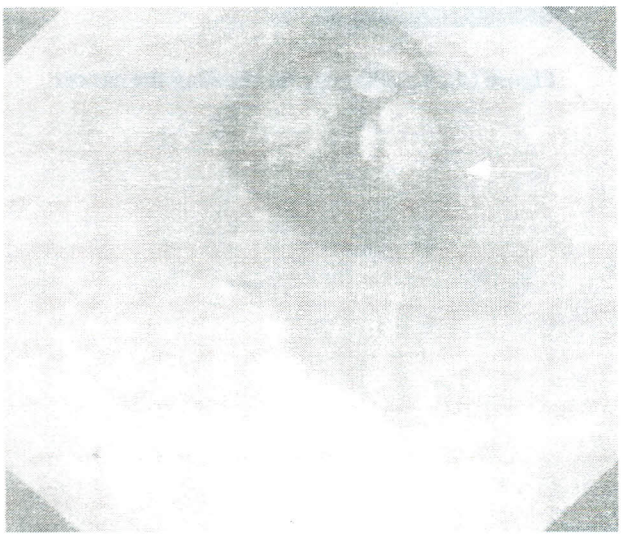
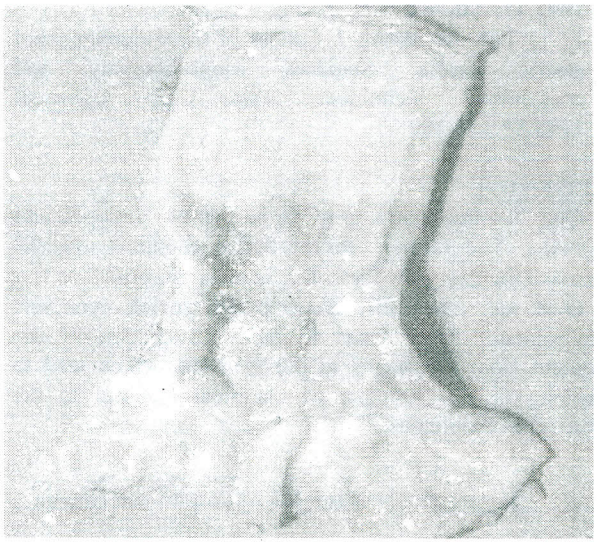


Figure (1): Adenocarcinoma of lower esophagus.



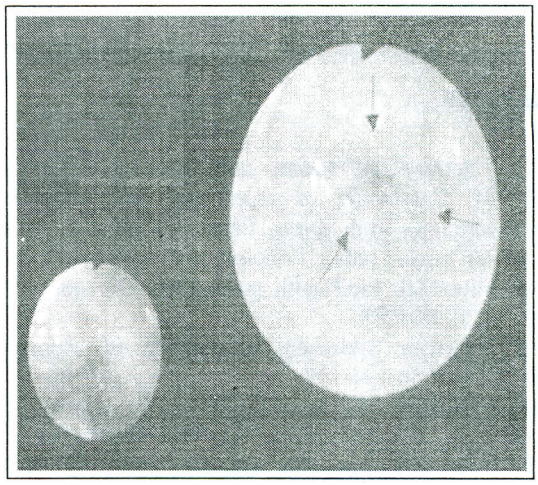


Figure (2): Small esophageal cancer

Figure (4): Esophagogram showing the cancer.