

Oesophageal carcinoma in the horn of Africa

Ten year cumulative experience in two hospitals in Djibouti



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INTRODUCTION: *In this paper we report on our experience of diagnosis, treatment and follow up of cases of cancer of the oesophagus treated in Balbala Cheiko Hospital and in the Djibouti Military Hospital. Oesophageal cancer, mainly squamous cellular type, is the prevalent cancer of the gastrointestinal tract (GIT) observed in our two Hospitals. Djibouti is a small pacific country located in the Horn of Africa in the tropics, bordered by Somaliland in the south, Ethiopia in the southwest, Eritrea in the north and the Red Sea and the Gulf of Aden in the east. Yemen lies across the Gulf of Aden. Djibouti is the principal maritime port for Ethiopia. The country was formerly French Somaliland and it became independent from France in June 1977. It is a multi-ethnic nation with a population of just over 900,000.*

MATERIAL AND METHODS: *From January 2011 to April 2021, we observed 159 patients diagnosed with cancer of the oesophagus: 89 females representing 56 % and 70 males representing 44 %. An Oesophageal Cancer Card (see Annex 1) was completed for each patient. 107 patients (67.30%) reported regularly (twice a week) chewing of khat (see Annex 2) and 68 patients (42,76%) regularly smoked more than 20 cigarettes and drank more than three very hot cups of coffee or tea per day. All patients underwent an oesophagoscopy with biopsy. Squamous Cell Carcinoma (OSCC) was confirmed by histology in all cases, 89 of them being females (64%) which is surprisingly different from data reported in the literature which reports a general prevalence of males. 60 patients (37.7 % of the total) underwent surgery. The Ivor-Lewis operation was the most frequent type of surgery and was done in 44 patients (66.6%).*

RESULTS: *Our ten years experience involved two hospitals serving a large area. Cancer of the oesophagus (OC) was the prevalent gastrointestinal cancer we observed, second only to female breast cancer. There are no facilities in the country for radiotherapy. It is very difficult to report on long term survival because most of patients live in rural areas which are very difficult to reach and they rarely return for medical check-ups. The best survival recorded was a 48 year old Afar male who was still alive 6 years after an Ivor-Lewis operation was performed for squamous carcinoma on 3 April 2014 and checked on September 2020. A further 6 patients (2 males and 4 females, 3 with adenocarcinoma and 3 with squamous cell carcinoma) recently checked are still alive and come in regularly for check-up.*

CONCLUSIONS: *Oesophageal cancer is one of the most frequent cancers found in the Horn of Africa and our experience in Djibouti confirms the data of the literature^{16,28,29}. A peculiarity in our study is the high prevalence in the female population. Our recommendation is to set-up an oesophageal cancer unit (OCU) with a team of specialists: gastroenterologist, surgical oncologist, anaesthesiologists, pathologists, nutritionists and trained nurses who could ensure, not only hospital support, but also the active post operative follow up of patients. The implementation of a National Cancer Register would be mandatory.*

KEY WORDS: Oesophageal Cancer, Ivor Lewis Operation, Follow up, Djibouti

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Introduction

Cancer is increasingly at an alarming rate in Africa ¹, it seems that is slowly becoming the first cause of death in the continent. This increase is possibly magnified by the increase in diagnostic tools available and by improvements in the health services especially in the Horn of Africa and particularly in Djibouti where over the last twenty years many actions have been undertaken to support and strengthen the Public Health Sector. A Faculty of Medicine has been opened, a new Military Hospital, open to all citizens, has been built, it is equipped with all the modern facilities of a general hospital and staffed by Senior Specialists in all main areas. In particular a fully equipped Intensive Care Unit with ten beds was opened, a service of coronarography was incorporated into the Cardiology Unit and last but not least a Pathology Laboratory was opened using Tele-Pathology, implemented with the assistance of an Italian NGO, Pathologists Without Borders, with the technical support of World Connex, an engineering company based in San Marino.

Geographical Data



The Horn of Africa consists of 4 independent Countries: Somalia, Eritrea, Ethiopia and Djibouti, it is home to around 115 million people.

Djibouti is the smallest of the countries of the Horn of Africa with a population of 900,000; it is a multi-ethnic nation: the largest ethnic group is the Somali (60%) followed by Afar (35%) and the other 5% are mainly Yemeni Arabs, and some French, Ethiopians, and Italians. The official languages are French and Arabic. More than 75% of the population live in the towns (predominantly in the capital, Djibouti - Ville). The rural population subsists primarily on nomadic herding. The country has few natural resources and is prone to droughts and floods. There has been an extraordinary increase of the population from around 170,000 people in 1971 to 988,000 in 2020. Health care, particularly outside the capital, is limited by poor infrastructure, shortages of equipment and supplies, and a lack of qualified personnel. In spite of this more than a third of

patients are foreigners, because the services are better than those available in their neighboring home countries. Life expectancy at birth is 62.4 years (2014) male 59.93 years and female 64,94 (est. 2021.) Notably in the period 1955-1960 life expectancy was 42 years. In 2014 the percentage of medical doctors was 0.22/1000 population and in 2017 year the hospital bed density was 1.4 beds /1000 people.

AGE STRUCTURE

0-14 Years	35 %	Male 132.592	Female 132.114
15-64 Years	61.7 %	Male 206.323	Female 260.772
65 and Over	3.3 %	Male 11.349	Female 13.924

Oesophageal Cancer Epidemiology

Oesophageal cancer represents the most frequent diagnosed gastrointestinal cancer in our hospitals. In our experience and according to the data in literature it is one of the most frequent cancers in the Horn of Africa ^{11,29}.

Worldwide it is the 6th most common cause of cancer deaths ¹¹. In the Horn of Africa OC represents a public health problem because of the high prevalence which has been documented ^{3,4,5}.

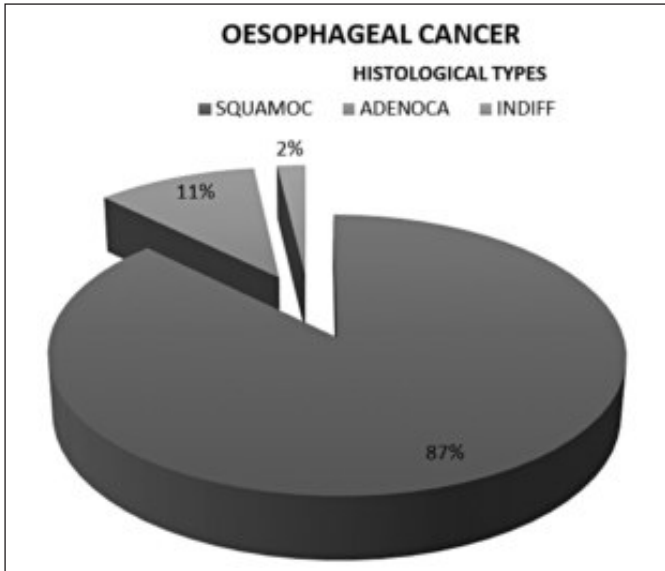
Moreover OC is a devastating disease, only a few patients can be cured, mainly depending on the stage of presentation.

In a significant number of cases treatment is complex, expensive, and protracted ².

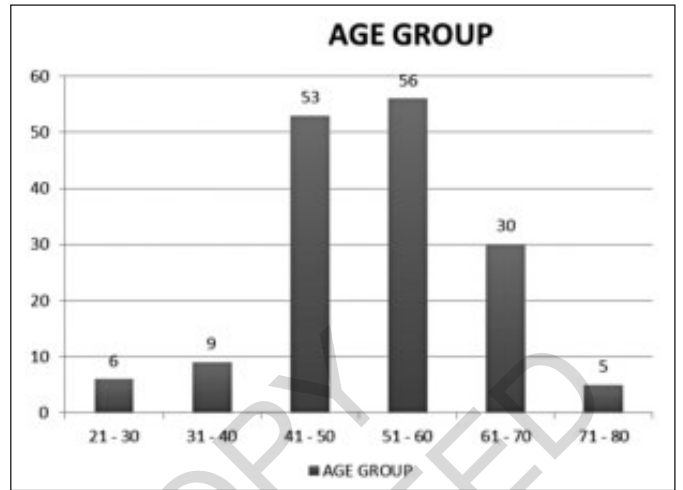
Oesophageal Cancer Experience In Balbala and DMH in Djibouti from 2011 to 2021: materials and methods

In this review we collected various different variables including sex, age, diet, alimentary habits and the chewing of khat. All patients were interviewed, during which the main risks factors for OC, according to the literature, were noted together with the medical, physical, radiological and histological results (Annex 1).

Total oesophageal cancer (oc) cases observed:	n° 159
Subtypes observed:	
Oesophageal squamous cell carcinoma:	n° 139 (87.42%)
Oesophageal adenocarcinoma:	n° 17 (10.70%)
Indifferentiated carcinoma:	n° 3 (1.88%)

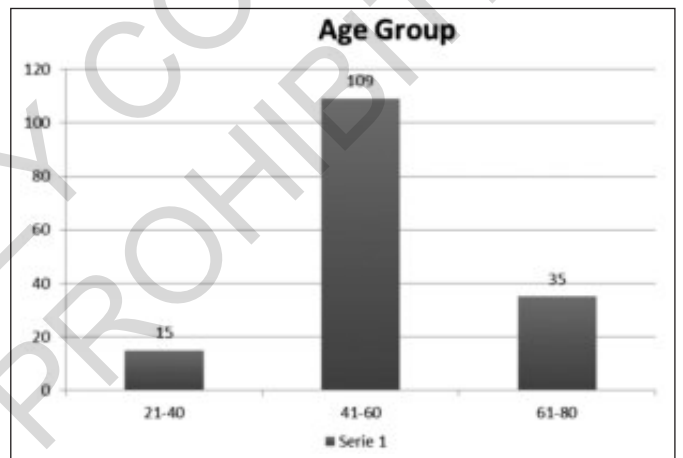
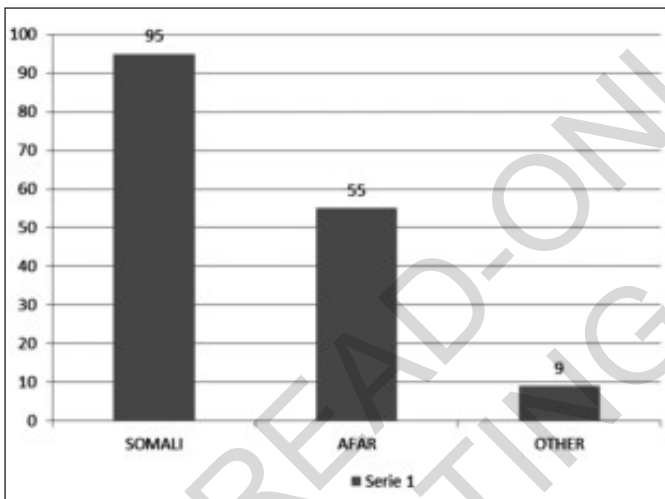


Age group : 20 – 77 mean age : 51.5



Ethnic group:

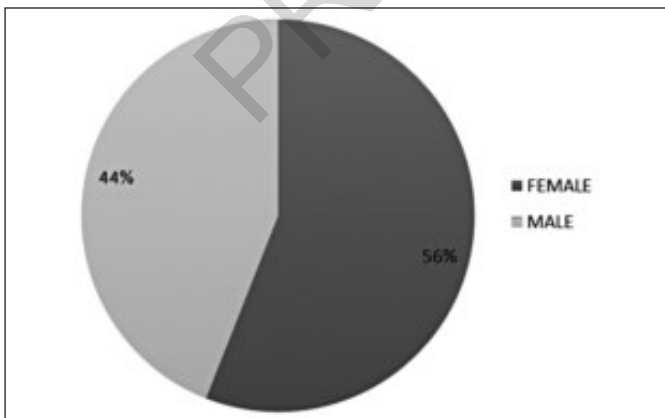
somali: n° 95 (60.89%); afar: n° 55 (32.25%); others: n° 9 (5.76%)



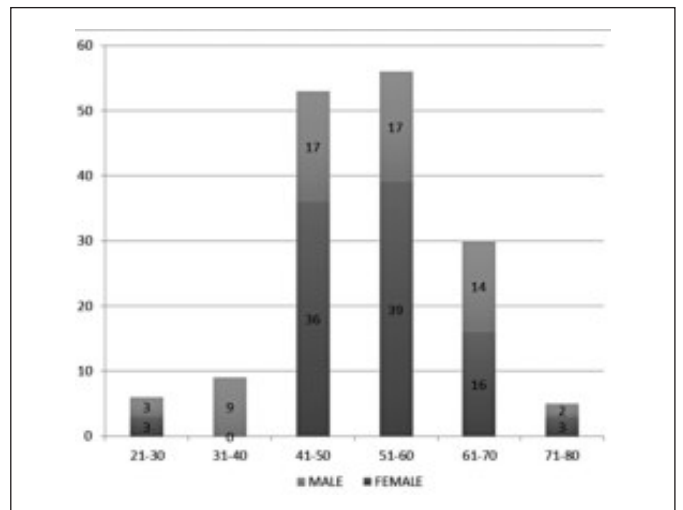
This Graphic regarding AGE GROUPS evidences two aspects: 10% are young patients, 68% are in the age group 41-60 years

Sex group:

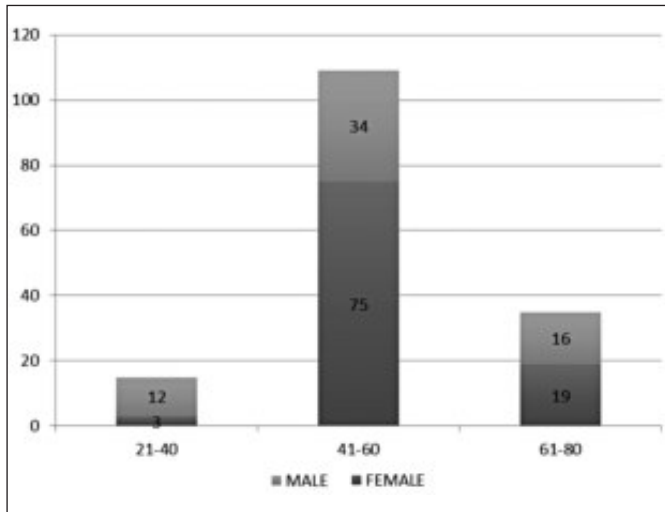
female total cases: n° 89 (55.97%); male total cases: n° 70 (44.03%)



Age sex group

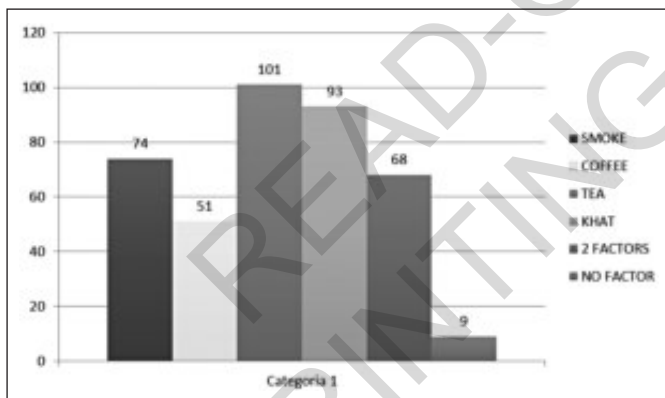


The Age Sex Group shows that in the 40 to 60 years group females are prevalent over males



Analysis of patient's risk factors

Smoke: > 20 A Day: N° 74 (46.54%)
 Khat: 2 times per week: n° 93 (58.59%)
 Coffee: > 3 cups a day: 51 (32.07%)
 Tea: > 3 cups a day: 101 (63.52%)
 Alcohol: 0 (0%)
 Patients who used two substances: 35+33= N°68 (42.76%)
 Patients who used no substances: 5 + 4 = N° 9 (5.66%)



KHAT

A quick note about khat (also called qat), a vegetable drug used in the Horn of Africa. It is a shrub that can become a tree, originating from the Harar Region in Ethiopia, it was introduced in Yemen and in all the Horn of Africa. It contains an alkaloid, cathinone. It is a stimulant causing excitement, euphoria, loss of appetite. The fresh leaves are chewed for a long time to give effect. Chewing of khat is a social custom dating back thousand years³⁶. Since 1980 the WHO considers khat drug abuse but it does not consider khat addiction a serious

problem. In Ethiopia, Somalia, Yemen, Djibouti, Uganda, Kenya the production and sale and use are legal. In Israel it is legal for the population of Yemenite and Ethiopian Jews to use khat, and is considered as a social use.

BMI (Body Mass Index): 10-28 MEAN: 21

The Body Mass Index referred to Djibouti population by World Health Organization⁶ is 22.7 in male, 23.9 in females and total 23.3.

In our study the number of under-weight patients with oesophageal carcinoma (OC) was in total 94 (59,12%) and 65 (40,88%) were overweight: in particular squamous cell carcinoma was in total 90 (95.74%) of all under-weight patients and 56,60% of all patients, and in this group of patients 57 were female (63.3%) and underweight and had OSCC, and 40 (25,15% of total) belonged to the Somali ethnic group. 17 female patients were under-weight and had OSCC (10,69 % of total) and were from the Afar ethnic group. 33 male patients (36.66%) were under-weight and had OSCC 24 (26,6%) belonged to the Somali Ethnic group while 9 (10%) were Afar. In the group with adenocarcinoma (OAC - 4 patients (4,25%)) the two males were Somali and two females, one was Somali and one was Afar.

The total of patients overweight with OC was 65 (40.88%): OSCC was diagnosed in 52 patients (32.7%

TABLE I - Oesophageal squamous cell carcinoma in underweight patients. Total patients 90/159 (56,60%)

Ethnic	Female = 57	BMI	Male = 33	BMI	Total BMI
Somali	40 (25.16%)	10-22 = mean: 18.45	24 (15.09%)	18-22 = total: 20.18	19.31
Afar	17 (10.69%)	16-22 =mean 20.25	9(5.66%)	13-22 =total 18.25	19.25
Others					
Total	57(35.85%)		33(20.75%)		19.28

TABLE II - Oesophageal squamous cell carcinoma in overweight patients. Total patients 52/ 159 (32.7%)

Ethnicity	Female = 29	BMI	Male = 23	BMI	Total BMI
Somali	18 (11.32%)	24-26 =total 25.33	8(5.03%)	24-32 =total 27.5	26.41
Afar	11 (6.91%)	24-28 =total 26.00	15(9.43%)	24-28 =total 25.14	25.57
Arabic/others					
Total	29 (18.23 %)		23 (14.46%)		25.99

of the total OC): 29 female (18.23% of the total) and 23 male (14.46% of the total). Adenocarcinoma in this group was detected in 10 patients (6.28% of total): 4 female (2 of Arabic Ethnic Group and 2 Somali) and 6 male (6 belonging to Arabic ethnic group). Undifferentiated carcinoma was detected in 3 patients, all male and all belonging to Afar ethnic group. Loss of weight is one of the main characteristics of this disease - a consequence and not a cause of OC.

Diagnostic work up

1) Endoscopy: is the most important diagnostic tool for:
 – histological confirmation of the tumor;
 – passage of the instrument beyond the tumor. When the tumor completely blocks the lumen of the oesophagus, passage will be impossible and usually the patients will not be considered fit for surgery;
 – length of the oesophagus infiltrated by the tumor (in the case when obstruction will not be complete and passage of the Fibroscope will be possible). Usually a tumor will be operable when the length is less than 6 cm;
 – localization - Fibroscopy will localize the proximal extension of the tumor with great precision, measuring the distance from the lower dental arcade.

No passage of the fibroscope was recorded in 83 patients (52,2%)

2) Barium meal (gastrographin): will show the characteristic image of the tumor and is very important if there is a total or partial stenosis. It will show the presence of a tracheoesophageal fistula (Figs. 1-6). Total stenose: n° 80 (50,3%).

3) CT and IRM will complete the diagnostic work up.

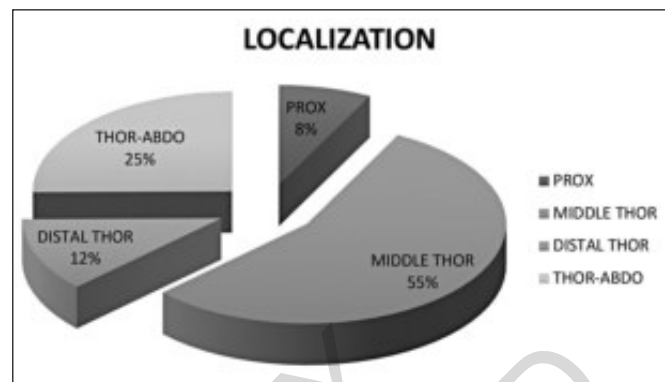
4) Endoscopic Echography was not used.

Distance from lower dental arch: cm 18-38 mean 25
 Scanner tumor length: cm 2>10 mean: 4.88 = 5 cm

TABLE III - Oesophageal cancer localization

Sub-Type	Cervical and Upper Thoracic	Middle Thoracic	Distal Thoracic	Thoraco abdominal	Total
Squamous	12 (7.56%)	85 (53.45%)	18 (11.32%)	24 (15.09%)	139 (87.43%)
Adenoca		2	1	14	17 (10.6%)
Indifferentiated		1		2	3 (1.88%)
Total	12 (7.45%)	88 (55.35%)	19 (11.95%)	40 (25.15%)	159 (100%)

Analysis of the cancer localization (Table III)

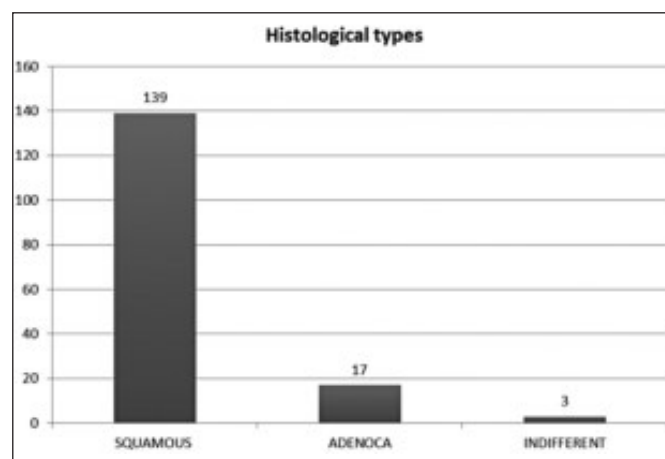


Oesophago – Bronchial fistula: 16 (9.93%) patients presented with a tracheo oesophageal (Fig. 1)



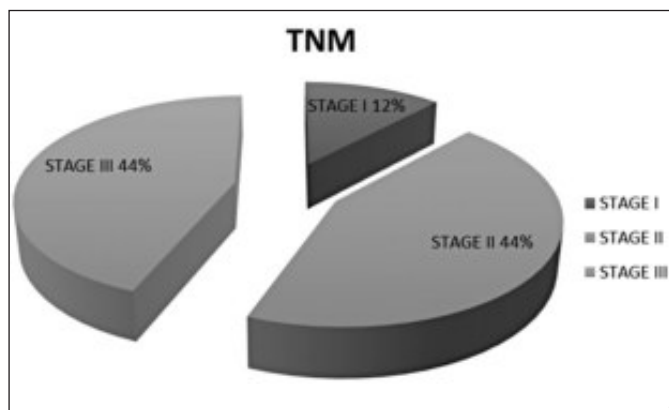
Diagnosis of histological specimens:

oesophageal squamous cell carcinoma: n° 139 (87.43%)
 oesophageal adenocarcinoma: n° 17 (10.7%)
 indifferntiated carcinoma: n° 3 (1.88%)



Surgery: total n° 60 (37.7 %) / 159 patients observed

- Ivor-lewis operation n° 44 (27.67%)
- Oesophagectomy with right colonplasty n° 3 (1.88%)
- Distal oesophagectomy with partial gastrectomy n° 2 (1.25%)
- Distal oesophagectomy with total gastrectomy n° 1 (0.62%)
- Gastrostomy alimentation n° 10 (6.28%)
- Stage – tnm: I n° 6; II n° 22; III n° 22



Resection margins:
 RO = 42 patients
 R1 = 5 patients

Survival

Regular follow-up of patients is very difficult. Most of the patients live in rural areas where communications are quite difficult. We can only report on the few patients who are still alive and come regularly to our outpatients departement (OPD). We do not know what happened to the other patients who underwent surgery. Below we report a list of patients who attend regularly our OPD.

- 1) The longest survival, in our experience, is a 48 years old male patient, A.M., alive six years post an Ivor-Lewis operation performed on 3 April 2014 for squamous carcinoma T1N0MX Stade I checked in September 2020. The cancer was located at middle third and the length was 4 cm.
- 2) F.D., a 42 years old female, operated, for adenocarcinoma located in the distal third of the oesophagus, on 11 May 2015 for a distal oesophagectomy with proximal gastrectomy T3N1MX Stage III B, tumor length 4 cm, alive in October 2017.
- 3) M.M.C., a 46 years old female, operated for adenocarcinoma of the distal third of the oesophagus, tumor length 6 cm, on 3 April 2014 for a distal oesophagectomy and total gastrectomy alive in March 2017
- 4) R.M., a 48 years old female operated on November 2020, for a squamous carcinoma 2 cm length, located at middle third, for oesophagectomy with right colonplasty is alive today, June 2021

- 5) H.S., a 58 years old female operated on 1 April 2018, for a squamous carcinoma located at middle third of the Oesophagus, 4 cm length, for a Ivor-Lewis operation, T2 NOMX, Stade II B, alive in January 2021
- 6) M.H., a 55 years old male, operated on 5 February 2018, for an adenocarcinoma located at middle third, length 4 cm, T2N0MX, Stade II B, alive at 1 March 2021
- 7) A.A., a 55-years-old male with a squamous carcinoma located at middle third, 4 cm length, operated of Ivor-Lewis operation T2N0MX Stade II B R0 Resection margins, alive at 3 February 2021.

ANNEX 1: OESOPHAGEAL CANCER CARD

Djibouti, Service de Chirurgie, H.M.D

PATIENT # _____ Oesophageal Cancer Card STAGE _____

NAME _____ ETHNICITY _____ SEX _____

DATE: _____ POB: _____ Age _____

SCHOOL LEVEL: NONE - READ AND WRITE - BASIC - SUP - DIPLOME - UNIVERSITY

HEIGHT (cm) _____ WEIGHT (kg) _____ TEL _____

History and Risk Assessment

Signs and Symptoms: (Duration _____)

- > Dysphagia Epigastric pain Heart burn Hoarseness of voice Anorexia
- > Vomiting Hematemesis Cough Neck mass (LN) Illicup
- > Pain (Substernal - Abdominal - Back)
- > Weight loss > 10% in less than 6 months

General Past History

- > TB - Diabetic - Cardiac - Asthmatic - Hypertension - Medications
- > History of Cancer (personal or familial)
- > History of Oesophageal diseases:
 - Barrett's esophagus / Plummer-Vinson syndrome / Corrosive strictures
 - Achalasia / Reflux disease / Hiatal hernia

Risk Factors

> FAMILY HISTORY OF K	NO	YES	OESOPHAGE	OTHERS
> ALCOOL	YES	NO		
> SOFT DRINKS	1	2	3	> 3 PER DAY
> TABAC SIGARETTE	<20	>20		
> TABAC SNIF	NO	YES		
> TABAC CHEW	NO	YES		
> OPEN FIRE SMOKE IN HOUSE	YES	NO		
> CAFE	1	2	3	> 3
> TEA	1	2	3	> 3
> FRUITS FRAIS	EVERYDAY	ONCE A WEEK	NEVER	
> LEGUME FRAIS	EVERYDAY	ONCE A WEEK	NEVER	
> HOT SPICY MEALS	NO	YES		
> HOT MEALS				
> PORRIDGE				
> ENGERA	YES	NO		
> WATER DURING MEALS	YES	NO		
> HPV				
> KHAT	NO	YES < 342	> 342	

<p>> Endoscopy</p> <ul style="list-style-type: none"> • Distance • Macroscopic • Histo No <p>> TOGB</p> <p>> CT scan</p> <p>> Others</p>	
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Pathology reports show the following cancer features
 > Macroscopically (Ergating - Ulcerative - Annular - Polypoid - Diffuse)
 > Microscopically (Adenocarcinoma - Squamous cell carcinoma - Others)
 > TNM Staging

Tumour Grades	Nodes	N0		N1	N2	N3
		G1	G2,3	< 3	3-6	> 6
T1 Mucosal		1A	1B	2B	3A	3C
T2 Muscular	Lower E	1B	2A	2B	3A	3C
	Upper & Middle E	2A	2B			
T3 Adventitia	Lower E	1B	2A	3A	3B	3C
	Upper & Middle E	2A	2B			
T4 a Pleura, Pericardium, Diaphragm.		3A		3C	3C	3C
T4 b Aorta, Vertebras, Trachea		3C				

- Stage 0 = High Grade Dysplasia N0 M0, grade 1 or X, any location
- Stage 4 = M1(Distant Metastasis)



Fig. 2: Fistula oesophagus - trachea

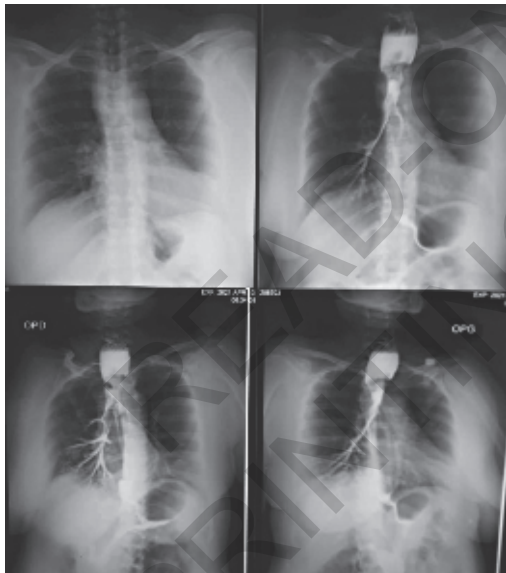


Fig. 3-6: Oesophagus X-Ray with gastrograhpyn. Demonstrated the passage of gastrograhpyn from pharyngeal esophagus to trachea.

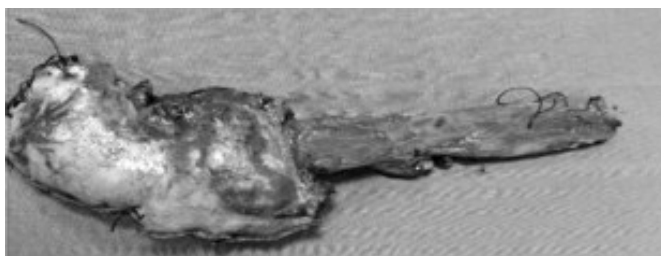


Fig. 7: Ivor - Lewis operation: anatomical specimen

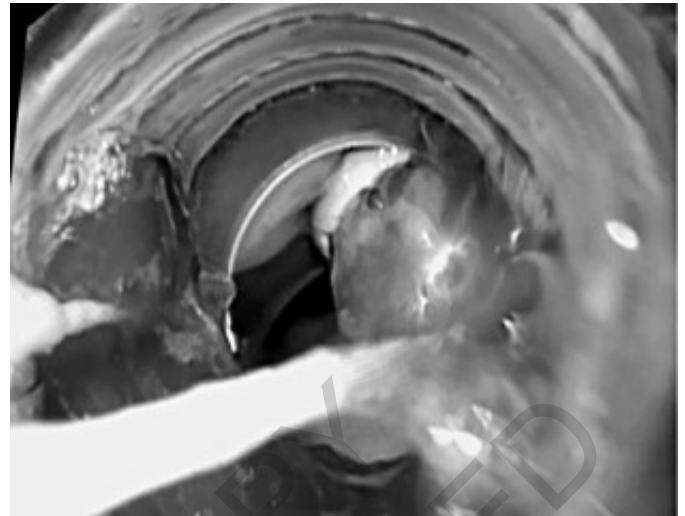


Fig. 8: Endoscopic Mucosectomy; histological diagnosis: squamous cell carcinoma.

Analysis of Ivor- Lewis esophagectomy in our experience

The Ivor-Lewis Esophagectomy¹⁸ (ILE) uses thoracic and abdominal approaches to replace the esophagus with the stomach³⁴ and it is considered a classic operation for the treatment of carcinoma of the oesophagus^{7,8}. A Mikulitz pyloroplasty was always done during the abdominal phase.

Regarding local clinical standards we performed ILE as a synchronous two-stage procedure with laparotomy for gastric mobilization and gastric pull-up via a right postero lateral thoracotomy through the IV or V intercostal space. The intestinal continuity was done by an end-to-end anastomosis involving the distal end of the remaining oesophagus and the gastric fundus. In the vast majority of cases with a single layer of 000 Vycril interrupted stitches.

The Heineke-Miculitz Pyloroplasty consisting of a longitudinal incision of the Pylorus and reconstruction with a perpendicular suture. We always perform a pyloroplasty because during esophagectomy for cancer is inevitable to sacrifice the Vagus nerve bilaterally. Denervation of the pylorus after esophagectomy is considered the principal factor responsible for delayed gastric conduit emptying²⁵ and risk of the mediastinal mass syndrome. The time of the thoracic incision or of the intraoperative rearrangement of the patients into a lateral decubitus position for thoracotomy, was used with right lung exclusion with one lung ventilation with Carlens tube placement. Two fields lymph node dissection was performed as the standard procedure during oncologic esophagectomy, lymph node dissection was completed as a three field procedure following international recommendations²⁰. Usually at least 10 lymph nodes were removed. Two thoracic drainage tubes and one in abdomen were left at end of operation.

In the postoperative phase, patients were treated following the principles of an “enhanced recovery after surgery” protocol with extubation as soon as possible, early enteral nutrition and mobilization at the earliest convenience. The duration of post-operative naso-gastric tube placement has been 24-48 hours.

To provide adequate nutrition during the postoperative phase we administered directly via central venous catheter Total Parenteral Nutrition for one week, because the TPN has been shown to improve wound healing and reduce postoperative complications compared to nil-by-mouth after surgery^{9,10}, and enteral feeding route that is less invasive and potentially associated with a lower incidence of severe complication before the surgery only when the general nutritional condition of the patient is poor¹². The patient’s hospital stay usually from nine days to two weeks. The discharge of the patients is possible only after X Ray gastrographin demonstrating no leakage. The patients take liquid or semiliquid dietary one week after operation.

Results

The Ivor Lewis operation was performed on the majority of operable patients. Our experience is in line with the data from the main scientific publications on the subject, morbidity was as high as 90%, particularly frequent were pulmonary atelectasis, pneumonia, pleural effusions and pulmonary embolism¹⁹.

We never observed “mediastinal mass syndrome” caused by the presence of the stomach in the thorax, possibly because we routinely performed a pyloroplasty on every patient.

Anastomotic leakage after esophagectomy in our experience is about 30%.

The location of anastomotic leakage (intrathoracic or cervical), the size and circumference of the defect and the extent of contamination indicated the most appropriate treatment strategy.

The “conservative” treatment, nil by mouth, antibiotics, enteral or parenteral feeding for an average of 14 days has been successful in all cases. In our series the fistulae were very small, probably the pyloroplasty reduced the risk of reflux and anastomotic tension. Removal of the intercostal drains was done always after a gastrograffin study showed the absence of leakage and that the anastomosis was functioning well. Intercostal drains in case of fistulae help to maintain a proper drainage and avoid a massive contamination of the Mediastinum with a consequent mediastinitis.

Discussion

Esophageal squamous cell carcinoma (ESCC) is the most common type of esophageal cancer observed in female

patients referred to Cheiko Balbala Hospital and to the Military Hospital in Djibouti. This observational data is in contrast to the incidence rates of ESCC in the majority of African countries and world-wide where the majority of patients are male.

Djibouti falls in what is described in the literature as “The Oesophageal Cancer Belt”. The risks factors could be multiple. The possible interactions of the local dietary consumption and environmental triggers², a low water intake during meals¹³, no tobacco smoke and the chewing of khat, poor oral hygiene, intake of hot beverages such as tea¹⁴, have been observed in our experience. Very hot tea and other beverages¹⁷ were classified as probably carcinogenic to the esophagus and in the IARC Monograph Series because recurrent thermal injury on the oesophageal mucosa is caused by hot drinks¹⁵. Tylosis Syndrome, an autosomal dominant disorder associated with palmar/plantar hyperkeratosis and Fanconi Anemia¹⁶ have never been observed. The Ivor Lewis operation was performed (Fig. 7) and the esophagus was replaced with the stomach in the majority of operable patients^{19,32,33,35}. Nasogastric tube (NGT) has been one of the most controversial issues in the perioperative care of esophagectomy. Historically NGT was widely applied in postoperative decompression and drainage to decrease the risk of pulmonary and anastomotic complications. We use NGT routinely for 24 to 48 hours post operatively, in fact it does not seem that early removal increases the risk of adverse events including anastomosis leak and pulmonary complications²¹. Keeping a NGT for a long time may cause direct irritation to the nasal and nasopharyngeal mucosa, which leads to pain, nausea and discomfort and can affect the breathing. Anastomosis leak, is one of the most serious complications in esophagectomy, it develops in 8-11% patients postoperatively^{22,23,24,31}. Theoretically, bilateral vagotomy during esophagectomy inevitably impairs the propulsion function of the gastric tube, making patients susceptible to gastric distension and delayed emptying. This condition can be associated with an increased incidence of complications including aspiration pneumonia and anastomotic leakage.

In our opinion pyloroplasty on every patient is mandatory as it will help gastric emptying, even if a fistula develops it will be easier to treat, the tension in the stomach will be lower.

Research based on the Society of Thoracic Surgeons Database data showed that cervical anastomosis was significantly more susceptible to anastomosis leak than intrathoracic anastomosis due to longer distance from the vascular supply origin^{26,27}. Moreover, a retrospective study in Mayo Clinic including 432 patients found that the linear stapled anastomosis technique can decrease not only anastomosis leak rate, but also stricture rate compared to hand-sewn technique²⁷. Other factors, including diabetes, smoking, congestive heart failure, hypertension and peripheral vascular disease, were identified to be

associated with higher anastomosis leak rate²⁶. All these factors might compromise the microvascular supply of the anastomosis site, which is widely believed to be the most important pathogenesis of anastomosis leak. A strategy for the treatment of anastomotic leakage^{26,28} after esophagectomy is only possible taking into consideration the clinical conditions of the patient and although there is no currently available evidence to uniform the approach to the problem³⁰ we believe that removing the thoracic drains only when the Gastrografin Swallow shows a patent anastomosis with no leakage, performing a pyloroplasty in all patients and using a parenteral or enteral nutrition in every case may not reduce the incidence of leakages, but it will improve their resolution.

Conclusions

Esophageal cancer is one of the leading carcinoma diagnoses with a high cancer-related mortality and a rapidly growing incidence over the past years world-wide. ESCC is one of the most prevalent and deadly cancers that afflicts the Horn of Africa, and it is certainly one that puts the most vulnerable populations at risk.

The treatment of a patient with this condition is very complex, it implies a difficult and long surgical operation, followed by a high morbidity and mortality, and a long hospital stay. The cost of this treatment is very high, whilst early diagnosis, in most cases, could mean surgery is avoided and the tumor could be treated by a mucosectomy done on an outpatient basis under Flexible Oesophagoscopy and a mild sedation (Fig. 8).

In Djibouti the etiology of Esophageal squamous cell carcinoma is probably multi-factorial. The incidence is strongly influenced by lifestyle of the population and other exogenous factors still under evaluation. The importance of various dietary factors will need to be more fully investigated, in our patients there was no conclusive evidence about the causes of ESCC. Further studies will be needed to assess the role of various dietary substances example the presence of nitrosamines or the role of HPV infection etc.

From our experience we can state regarding pathogenesis that:

- 1) The chewing of khat (*Catha Edulis*) in the pathogenesis of Esophageal cancer is not clear;
- 2) The alcohol (Ethanol) did not play any role in our series.

In conclusion we can say that the diagnosis of ESCC is late in most patients.

The only curative treatment option in earlier, limited stages (Union Internationale Contre le Cancer (UICC) – stages I and II).

The recommendation arising out of our experience and from this study is that will be necessary, considering the size and the importance of the problem to create a multidisciplinary “Esophageal Cancer Unit” with the involve-

ment of general practitioners, gastroenterologists, oncologist surgeons and anesthetists.

The aim will be to continue and improve the treatment of patients, to continue to study the causes of this disease, and last but not least to diagnose the oesophageal cancer at an earlier Stage.

Riassunto

Dal 2011 al 2021 nei due Ospedali di Gibuti, l'Ospedale Italiano oggi ridenominato Ospedale dello Sceicco di Balbalà e l'Ospedale Militare, abbiamo osservato 159 pazienti con cancro all'esofago. La diagnosi è stata effettuata, dopo uno screening clinico ottenuto con la somministrazione ad ogni paziente di una Carta del Cancro dell'Esophago, con la indagine endoscopica e con conferma istologica dei prelievi. La istotipizzazione ha evidenziato in 139 pazienti (87.42%) trattarsi della forma squamocellulare, della forma adenocarcinoma in 17 di essi (10.7%) e della forma indifferenziata in 3 (1,88%). La endoscopia ha permesso anche di accettarne la operabilità e la scelta del trattamento chirurgico. Uno dei criteri di operabilità è stata la permeazione del tumore con l'endoscopio che ha consentito anche di verificare la lunghezza del segmento esofageo interessato. La diagnostica è stata completata con la TAC torace addome e pelvi con m.d.c. . Il ricorso al pasto baritato con gastrografin è stato necessario per confermare la presenza di una fistola esofago-tracheale che nella nostra esperienza ha interessato 16 pazienti (10.06%). Il trattamento chirurgico è stato possibile solo in 60 pazienti (37.7%) : l'intervento di IVOR-LEWIS è stato realizzato in 44 pazienti, mentre la esofagectomia con colonplastica destra (3 pazienti), la esofagectomia distale con gastrectomia subtotale in 2 pazienti, e la esofagectomia distale con gastrectomia totale in un paziente; la semplice gastrostomia per alimentazione nel 6.28% dei casi osservati, pari a 10 pazienti. Nella IVOR-LEWIS abbiamo effettuato una anastomosi esofago-gastrica confezionata a mano, a punti staccati, nelle anastomosi cervicali e con suturatrice meccanica nelle anastomosi a livello dell'esofago medio. L'anastomosi è stata sempre accompagnata dalla piloro-plastica secondo Heineke-Mikulitz. La linfadenectomia ha garantito la rimozione di non meno di 10 linfonodi. Il sondino-naso gastrico è stato rimosso dopo 48 ore e tutti i pazienti per una settimana si sono giovati di una Nutrizione Parenterale Totale. Le complicanze che segnaliamo sono quelle riportate in letteratura: la deiscenza anastomotica stimata nel 30% dei casi ha prolungato il ricovero ma non ha richiesto alcun reintervento chirurgico perché di piccole dimensioni e risolta con trattamento medico. Tutti i pazienti sono stati estubati il giorno dopo e sottoposti a ginnastica respiratoria. CONCLUSIONI: Il carcinoma squamocellulare ha rappresentato nella nostra esperienza il sottotipo più frequente del carcinoma dell'esofago nel sesso femminile dei 159

pazienti che abbiamo osservato in due ospedali dello Stato di Gibuti, il più piccolo, ma sicuramente il più all'avanguardia in campo sanitario dei paesi che fanno parte del Corno d'Africa. Le cause che abbiamo analizzato sono molteplici e legate pure ad abitudini etniche consolidate nei secoli. Un ruolo da definire è il consumo di Qat ("l'alcool dell'Islam"): l'uso di bevande troppo calde è ritenuto avere un ruolo causticante sulla mucosa esofagea che favorisce l'azione carcinogenetica del fumo. La diagnosi è spesso tardiva anche se l'impiego più diffuso della endoscopia ha portato anche nella nostra esperienza ad una mucosectomia endoscopica di una lesione risultata carcinoma squamocellulare.

La tattica chirurgica che abbiamo adottato ci permette di dire che almeno sette pazienti ad oggi sono viventi ed in buone condizioni generali di salute, e la sopravvivenza post-operatoria certificabile risale ad oltre sei anni dall'atto chirurgico. Si sottolinea che il follow-up dei pazienti è molto difficile: anche se la distanza dall'Ospedale potrebbe sembrare un fattore di poco conto in Africa le distanze rappresentano un elemento fondamentale.

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