

## Cancer Oral Tongue: A Retrospective Epidemiological, Pathological and Clinical Analysis with Correlation to Treatment Outcome

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### ABSTRACT

**Background:** early cancers are managed by single modality treatment (surgical excision of the primary tumor or radiotherapy (3DCRT, IMRT or brachytherapy)) with or without elective neck dissection. While locally advanced resectable disease is managed by surgery (excision of the primary tumor with modified radical neck dissection) followed by postoperative radiotherapy with or without chemotherapy. This should be considered for cases with adverse pathological features.

**Purpose:** this is a retrospective study to analyze the epidemiological, pathological and clinical factors in cancer oral tongue and correlate them to clinical outcomes [response to treatment and survival rates (disease free survival, progression free survival and overall survival)] to explore best options of care for the patients.

**Patients and Methods:** at the Department of Clinical Oncology and Nuclear Medicine, Ain Shams University Hospitals and Nasser Institute, Cancer Center; patients with a histologically confirmed diagnosis of oral tongue cancer were included in this retrospective analysis. The study included 40 cases from Nasser Institute, Cancer Center and 18 cases from Ain Shams University Hospitals. The study period was 6 years from January 2011 to December 2016.

**Results:** fifty eight recorded cases were included in the study and subsequent descriptive analysis was performed. One patient who didn't receive any treatment was omitted from the study.

**Conclusion:** as regard treatment; most of the patients underwent surgery followed by adjuvant concurrent chemo radiotherapy especially in patients with close or positive surgical margins or patients who didn't undergo LN dissection. This affected DFS.

**Keywords:** Cancer Oral Tongue - Lymph nodes - Liver Function Test - Kristen Rat Sarcoma virus.

### INTRODUCTION

Cancer tongue represents about 2% from all new cancer cases, 60% from the oral cavity cancers which is a part from the head and neck cancers; the fifth most common cancer worldwide. Smoking, alcohol, spicy food, nitrosamine in salted fish in china and infections (HPV and chronic syphilis) are the major risk factors. Erythroplakia and leukoplakia are considered precancerous lesions. Mutation in the P53 gene may lead to genetic susceptibility<sup>(1)</sup>.

Patients of South Asian origin are at increased risk. Male to female ratio is (2:1). Squamous cell carcinoma (SCC) is almost the only histological type; well, moderately and poorly differentiated according to the degree of keratinization and presence of cell nests. Commonly presents as a non-healing ulcer for more than 3 weeks, exophytic mass, patch, pain referring to the ear, ankyloglossia and enlarged neck lymph nodes<sup>(2)</sup>.

Core biopsy from the primary lesion, CT Neck and chest with contrast, MRI for better soft tissue definition and even PET CT which has a great value in advanced cases are the investigations which are always needed. Also routine laboratory tests (liver function tests, kidney function tests, complete blood count) are always needed before surgery or before chemotherapy<sup>(10)</sup>.

Early cancers are managed by single modality treatment (surgical excision of the primary

tumor or radiotherapy (3DCRT, IMRT or brachytherapy)) with or without elective neck dissection. While locally advanced resectable disease is managed by Surgery (excision of the primary tumor with modified radical neck dissection) followed by postoperative radiotherapy with or without chemotherapy. This should be considered for cases with adverse pathological features<sup>(3)</sup>.

Locally advanced unresectable disease is managed by definitive radiotherapy with concurrent chemotherapy which may be appropriate for selected cases where cure is still possible. Induction chemotherapy may be considered for selected cases: platinum based e.g.: cisplatin either alone or in combination with Taxanes and 5FU<sup>(4)</sup>.

Biological therapies as Cetuximab can be considered as EGFR is over expressed in 90% of the cases but does not correlate with the clinical response. Mutation in the KRAS gene correlates with poor response to cetuximab. KRAS wild-type status predicts benefit from cetuximab. 95% of the cases are KRAS wild-type<sup>(5)</sup>.

Patients unable to tolerate intensified treatment or those with metastatic disease receive palliative treatment whenever appropriate. Patients with ECOG performance status (3 or 4) are for best supportive care<sup>(6)</sup>.

Five years survival rate is more than 80% for those presenting with early-stage localized disease,

more than 40% for patients with loco-regional nodal involvement and less than 20% for those with distant metastases <sup>(15)</sup>.

**AIM**

This is a retrospective study to analyze the epidemiological, pathological and clinical factors in cancer oral tongue and correlate them to clinical outcomes [response to treatment and survival rates (disease free survival, progression free survival and overall survival)] to explore best options of care for the patients.

**PATIENTS AND METHODS**

**Patient selection**

At the Department of Clinical Oncology and Nuclear Medicine, Ain Shams University Hospitals and Nasser Institute, Cancer Center; patients with a histologically confirmed diagnosis of oral tongue cancer were included in this retrospective analysis. The study included 40 cases from Nasser, Cancer Center and 18 cases from Ain Shams University Hospitals. The study period was 6 years from January 2011 to December 2016.

**Ethical approval:**

The study was approved by the Ethics Board of Ain Shams University and an informed written consent was taken from each participant in the study.

**RESULTS**

Fifty eight recorded cases were included in the study and subsequent descriptive analysis was performed. One patient who didn't receive any treatment was omitted from the study.

**Patients' characteristics**

**Gender and Age:**

Of the total fifty eight patients with cancer oral tongue study population, thirty males (51.7%) and twenty eight females (48.3%) were identified, with a median age of 55 years (range: 32-80 years).

**Table (1): Patients gender distribution**

Gender	No.	%
Males	30	51.7
Females	28	48.3
Total	58	100%

**Table (2): Patients age distribution**

Median	Mean	Range
55	55.25	32-80

**Smoking status:**

Twenty one patients (36.2%) of cancer oral tongue cases were smokers. There was no sufficient data in the recording system about the type of

smoking, the duration of smoking and whether it is active or passive smoking.

**Table (3): Smoking status among patients**

Smoking status	No.	%
Smoker	21	36.2
Non smoker	37	63.8
Total	58	100%



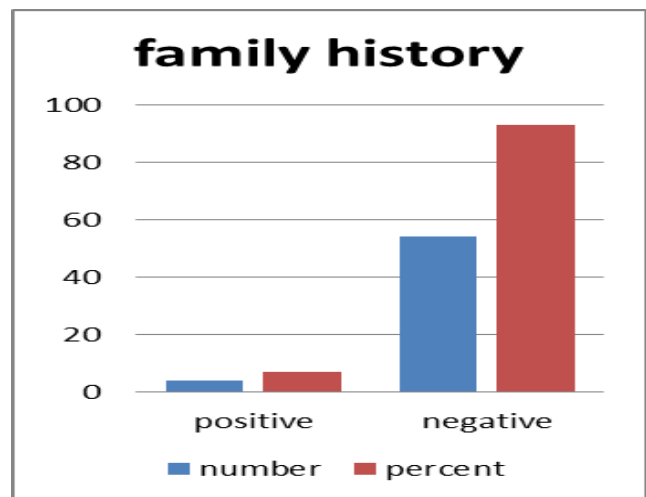
**Figure (1): Smoking status among patients.**

**Family history of other malignancies:**

Four patients out of fifty eight (6.8%) had positive family history of other malignancies. Only one patient out of the four patients had positive family history of cancer oral tongue. The other three patients had positive family history of other malignancies e.g. breast, stomach and lung.

**Table (4): Family history among patients**

Family history	No.	%
positive	4	6.8
negative	54	93.2
Total	58	100%



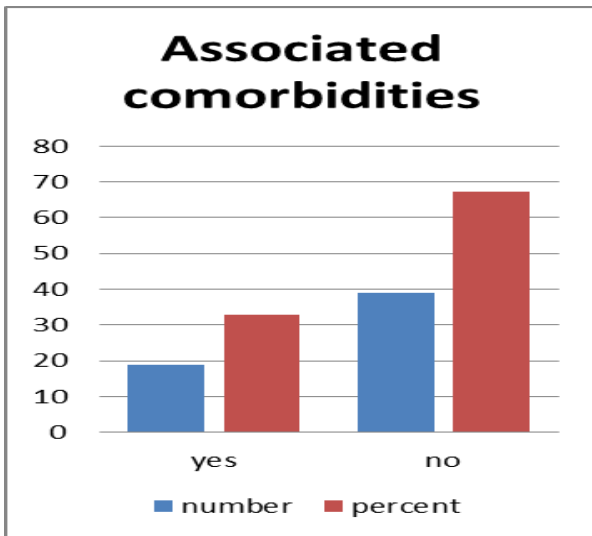
**Figure (2): Family history among patients.**

**Associated comorbidities:**

Nineteen patients out of fifty eight (32.8%) had associated comorbidities. Six of them suffered from diabetes and hypertension. Five of them suffered from hypertension only. Four of them suffered from COPD of various degrees. Two of them suffered from diabetes, hypertension and ischemic heart disease. Two of them suffered from chronic hepatitis.

**Table (5):** Associated comorbidities among patients

Associated comorbidities	No.	%
yes	19	32.8
No	39	67.2
<b>Total</b>	<b>58</b>	<b>100%</b>



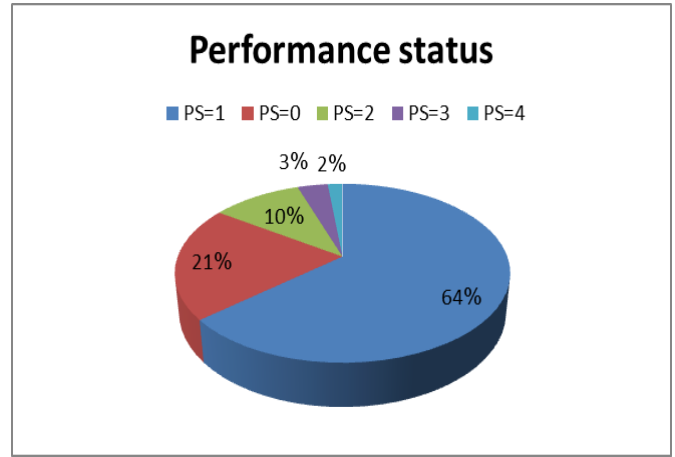
**Figure (3):** Associated comorbidities among patients.

**ECOG performance status:**

ECOG performance status among the cases range from 0 to 4 with the highest percentage thirty seven patients (63.8%) were ECOG 1. twelve patients (20.7%) were ECOG 0, six patients (10.3%) were ECOG 2, two patients were ECOG 3 (3.5%) and only one patient (1.7%) was ECOG 4.

**Table (6):** ECOG performance status among patients

Performance status	No.	%
0	12	20.7
1	37	63.8
2	6	10.3
3	2	3.5
4	1	1.7
<b>Total</b>	<b>58</b>	<b>100%</b>



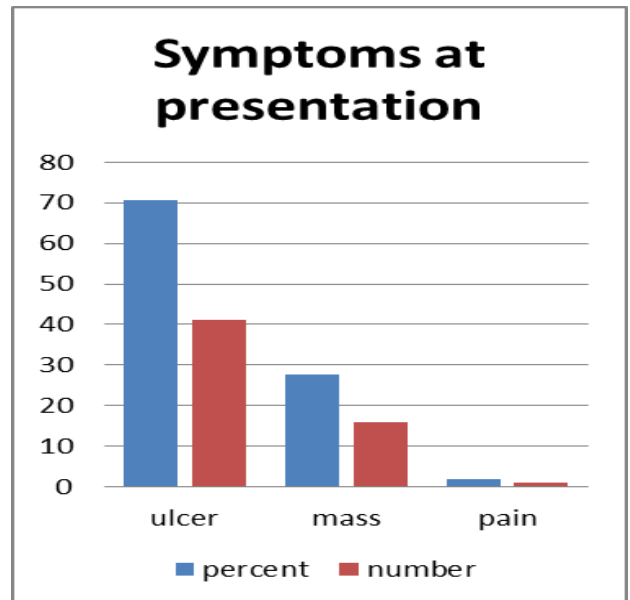
**Figure (4):** ECOG performance status among patients.

**Symptoms at presentation:**

Patients presented with unhealed tongue ulcer; most of cases forty one patients (70.7%), tongue mass in sixteen patients (27.6%) and only one case (1.7%) presented with pain in the dorsal aspect of the tongue.

**Table (7):** Most common symptoms at presentation

Symptoms at presentation	No.	%
Ulcer	41	70.7
Mass	16	27.6
Pain	1	1.7
<b>Total</b>	<b>58</b>	<b>100%</b>



**Figure (5):** Symptoms at presentation.

**Sites of the lesion:**

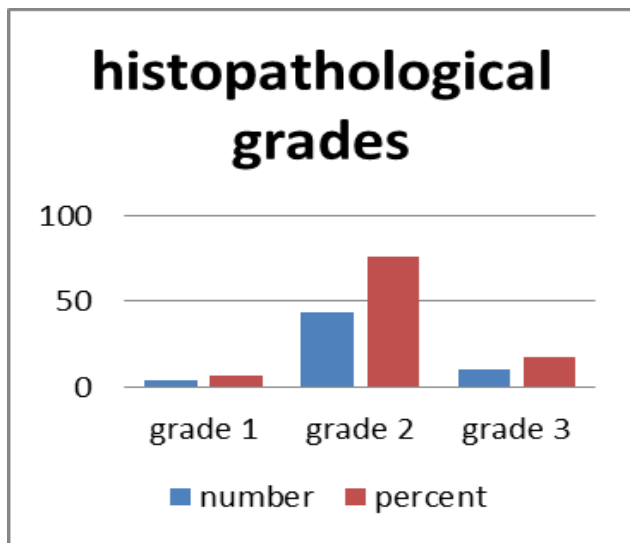
Twenty eight patients (48.3%); lesion was located on the right side of the tongue, eighteen patients (31%); on the left side of the tongue and twelve patients (20.7%); on the midline.

**Histopathology:**

The only histopathological type in the fifty eight cases was squamous cell carcinoma; grade 2 representing the majority of cases 75.9% of cases (44 patients), grade 3 representing 17.2% (10 patients) and grade 1 representing 6.9% (4 patients).

**Table (8):** Histopathological grades

Histopathological grade	No.	%
1	4	6.9
2	44	75.9
3	10	17.2
Total	58	100%



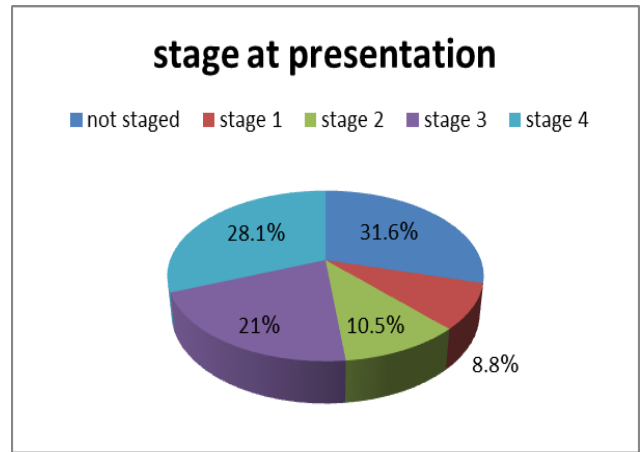
**Figure (6):** Histopathological grades.

**Tumor stage:**

Unfortunately; at time of presentation sixteen patients of total fifty seven (28.1%) couldn't be staged due to insufficient data from the recording system about the patients. Eighteen cases (31.6%) presented at stage 4, six patients (10.5%) presented at stage 2, twelve patients (21%) presented at stage 3 and five patients (8.8%) presented at stage 1.

**Table (9):** Stage at presentation

Stage at presentation	No.	%
Not staged	16	28.1
I	5	8.8
II	6	10.5
III	12	21
IV	18	31.6
Total	57	100%



**Figure (7):** Stage at presentation.

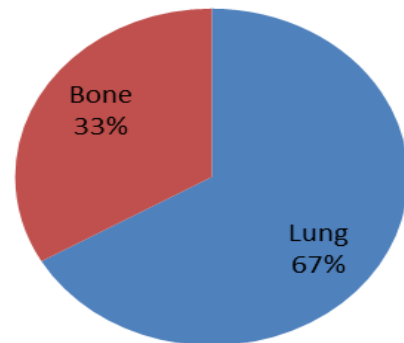
**Sites of metastasis:**

Three cases had distant metastasis. Two cases out of three were metastatic to the lung. One was metastatic from the start and the other one developed lung metastasis during treatment. One case was metastatic to the bone not from the start but during treatment.

**Table (10):** Sites of metastasis

Sites of metastasis	No.	%
Lung	2	66
bone	1	33
Total	3	100%

**Sites of metastasis**



**Figure (8):** Sites of metastasis.

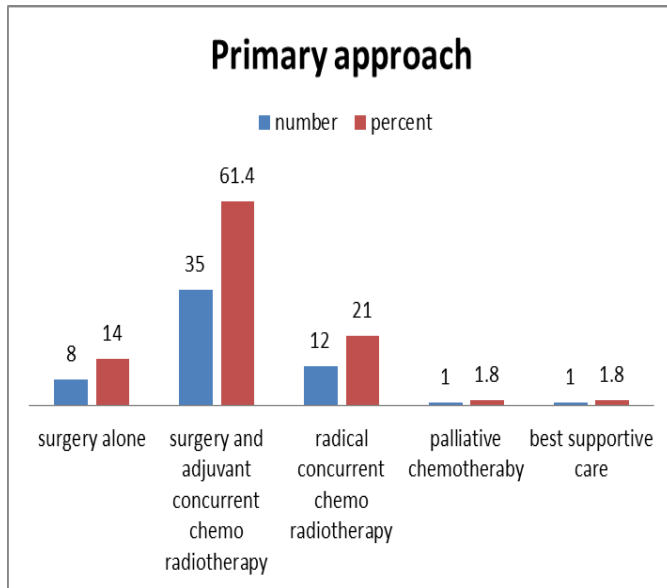
**Treatment:**

**Primary approach:**

Eight patients out of fifty seven (14%) underwent surgery alone, thirty five patients (61.4%) underwent surgery and received adjuvant concurrent chemo radiotherapy, twelve patients (21%) received radical concurrent chemo radiotherapy, one patient (1.8%) received palliative chemotherapy as the tumor was metastatic to the lung from the start and one patient (1.8%) was for best supportive care (PS=4 and very bad general condition).

**Table (11):** Primary approach to cancer oral tongue

Primary approach	No.	%
Surgery alone	8	14
Surgery and adjuvant concurrent chemo radiotherapy	35	61.4
Radical concurrent chemo radiotherapy	12	21
Palliative chemotherapy	1	1.8
Best supportive care	1	1.8
Total	57	100%



**Figure (9):** Primary approach to cancer oral tongue.

**Surgical margins status:**

Twenty seven patients out of forty three who underwent surgical removal of the primary tumor (62.8%) had free surgical margins while sixteen patients out of forty three (37.2%) had close (less than 0.5 cm) or positive surgical margins.

**L.N status in patients who underwent L.N dissection:**

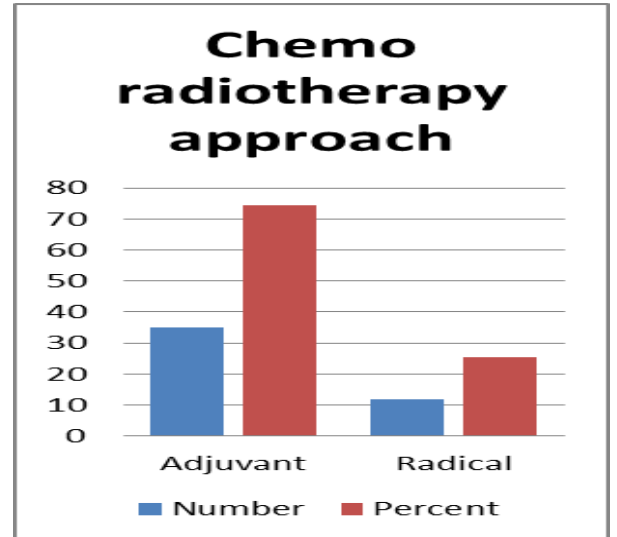
Fifteen patients out of twenty seven patients (55.6%) who underwent LN dissection had free LN while twelve patients out of twenty seven patients (44.4%) who underwent LN dissection had LN involvement.

**Concurrent chemo radiotherapy as a primary approach:**

Forty seven patients out of fifty seven (82.5%) received concurrent chemo radiotherapy as a primary approach. Thirty five of them (74.5%) received it as adjuvant concurrent chemo radiotherapy (following surgery) while twelve of them (25.5%) received it as radical radiotherapy (no surgery at time of presentation as the tumor was locally advanced unresectable).

**Table (12):** Concurrent chemo radiotherapy approach to cancer oral tongue

	Number	Percent
Adjuvant	35	74.5
Radical	12	25.5
Total	47	100



**Figure (10):** Chemo radiotherapy approach to cancer oral tongue.

For those twelve patients who received radical concurrent chemo radiotherapy; ten patients (84%) showed partial response, while two patients (16%) showed progression of the disease; one developed lung metastasis and the other one developed bone metastasis.

**Outcome of the primary approach:**

At the time of study; forty three patients out of fifty seven were treated with curative intent. Twenty nine of them didn't have residual disease or recurrence after the primary approach. Fourteen of them had residual disease or recurrence (no effect on DFS) after the primary approach.

Fourteen patients out of fifty seven had aggressive disease at the time of presentation; the tumor was locally advanced, the tumor was metastatic from the start or the patient had very bad general condition.

They received active treatment which improved the cases either clinically or radiologically and prolonged PFS in ten of them. Four patients out of fourteen showed no improvement with the active treatment; (no effect on PFS). Two of them had locally advanced unresectable disease and although they received radical concurrent chemo radiotherapy they developed systemic spread one to the lung and one to the bone.

One patient who was metastatic from the start to the lung and received palliative chemotherapy showed disease progression. One patient who had very bad general condition and was for best supportive care showed disease progression.

**Secondary approach:**

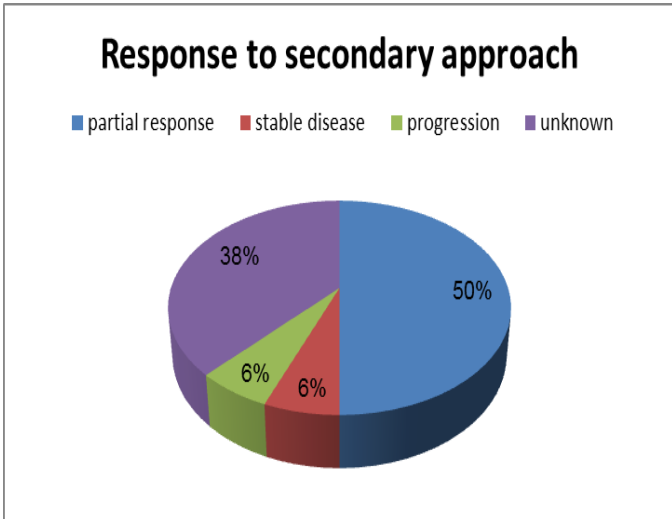
Eleven patients received palliative chemotherapy, four patients received radical concurrent chemo radiotherapy and one patient received palliative radiotherapy on the bony metastasis.

**Response to secondary approach:**

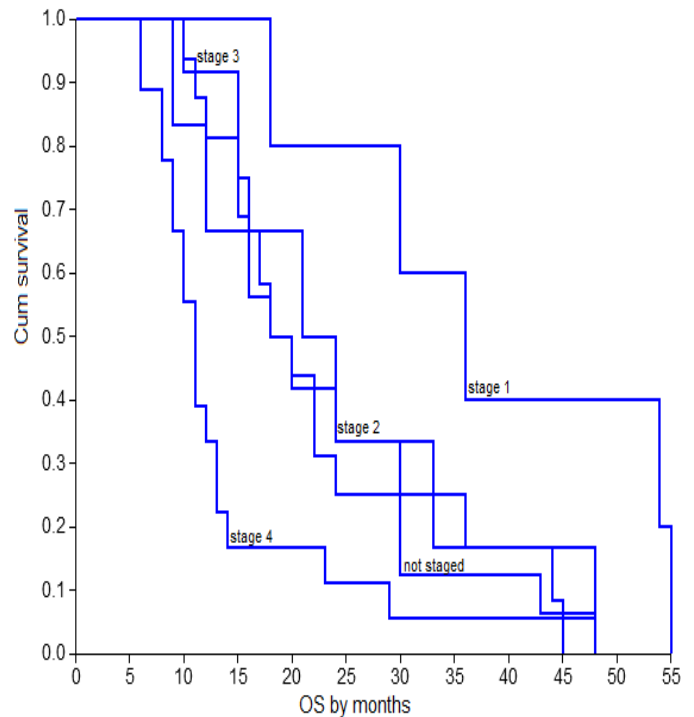
Eight patients (50%) showed partial response, one patient (6%) had stable disease, one patient (6%) showed progression and six patients (38%) were unknown.

**Table (13):** Stage at presentation and OS

Stage	OS				Chi-square test	
	<=18 months		>18 months		$\chi^2$	P-value
	No.	%	No.	%		
Not staged	8	25	8	32	9.754	0.045*
I	1	3.12	4	16		
II	2	6.25	4	16		
III	6	18.75	6	24		
IV	15	46.88	3	12		
<b>Total</b>	<b>32</b>	<b>100.00</b>	<b>25</b>	<b>100.00</b>		

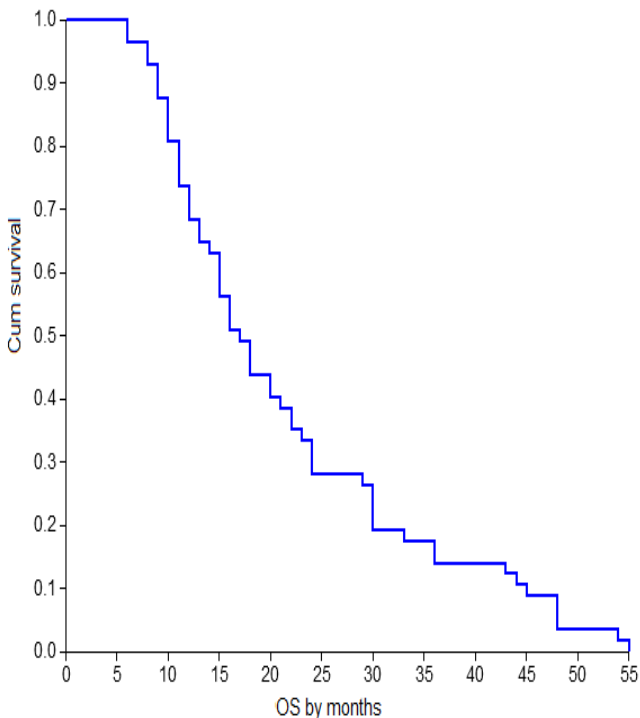


**Figure (11):** Response to secondary approach.



**Figure (13):** Stage at presentation and OS.

Patients who received adjuvant treatment had longer OS and that was statistically significant.

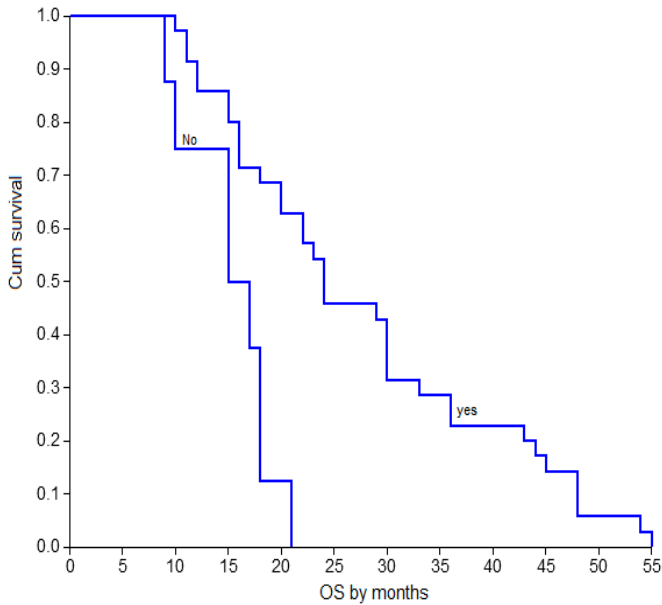


**Figure (12):** Kaplan Meier graph for OS.

The stage at presentation had a significant correlation with the OS.

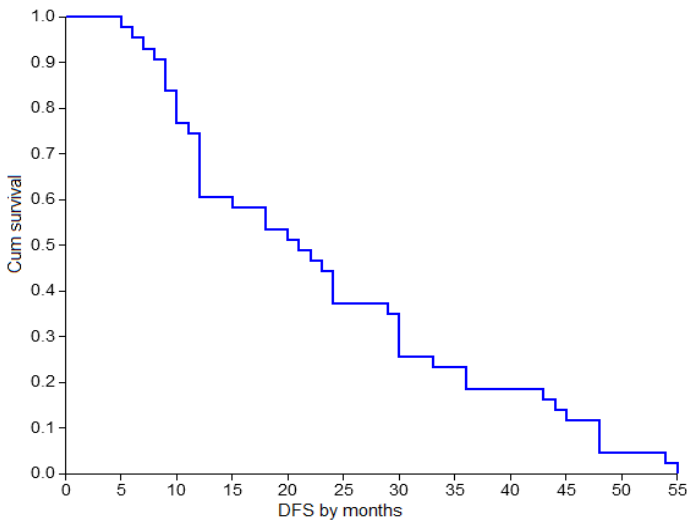
**Table (14):** Correlation between adjuvant treatment and OS

Adjuvant treatment	OS category				Chi-square test	
	<=18 months		>18 months		$\chi^2$	P-value
	No.	%	No.	%		
Yes	11	61.11	24	96	8.412	0.004*
No	7	38.89	1	4		
<b>Total</b>	<b>18</b>	<b>100.00</b>	<b>25</b>	<b>100.00</b>		



**Figure (14):** Correlation between adjuvant treatment and OS.

At the time of study; fourteen patients out of forty three who were treated with curative intent had residual tumor or loco regional recurrence. DFS was assessed in those patients who were treated with curative intent.

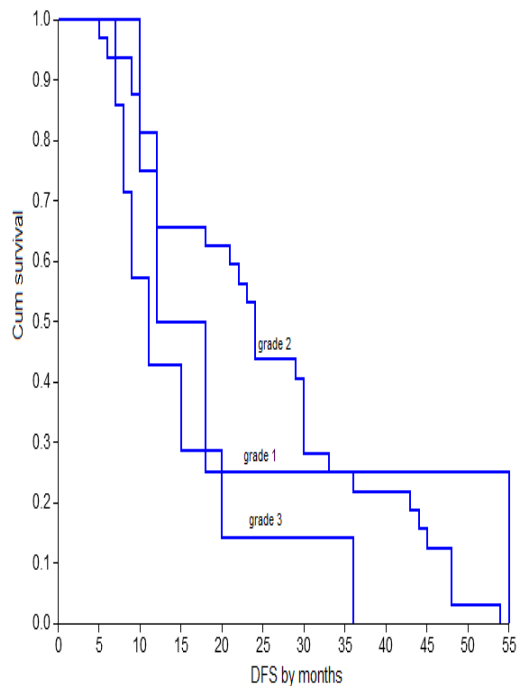
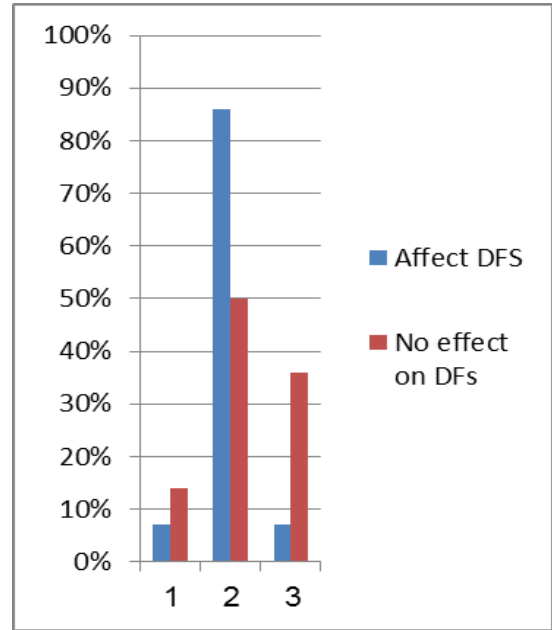


**Figure (15):** Kaplan Meier graph for DFS.

Tumor grade had a significant correlation with DFS.

**Table (15):** Correlation between grade and DFS

Grade	DFS				Chi-square test	
	No effect on DFs		Affect DFS		x2	p-value
	Count	%	Count	%		
1	2	14.3	2	6.9	7.034	0.029
2	7	50	25	86.2		
3	5	35.7	2	6.9		
<b>Total</b>	14	100	29	100		

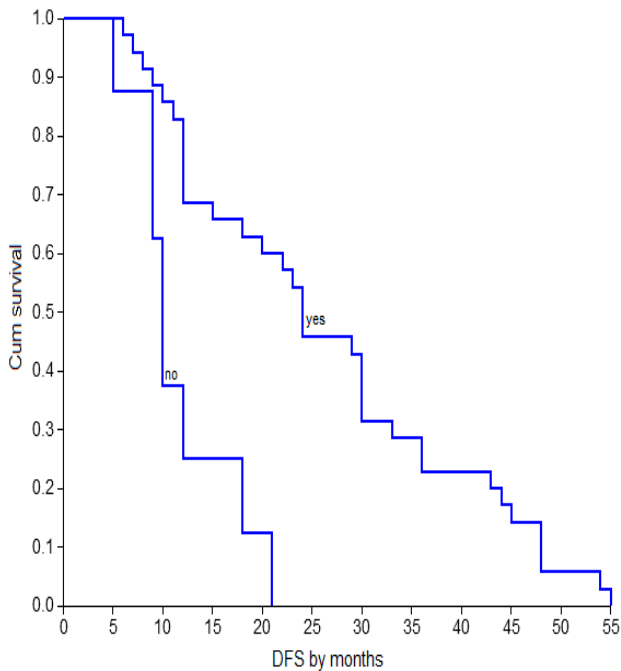
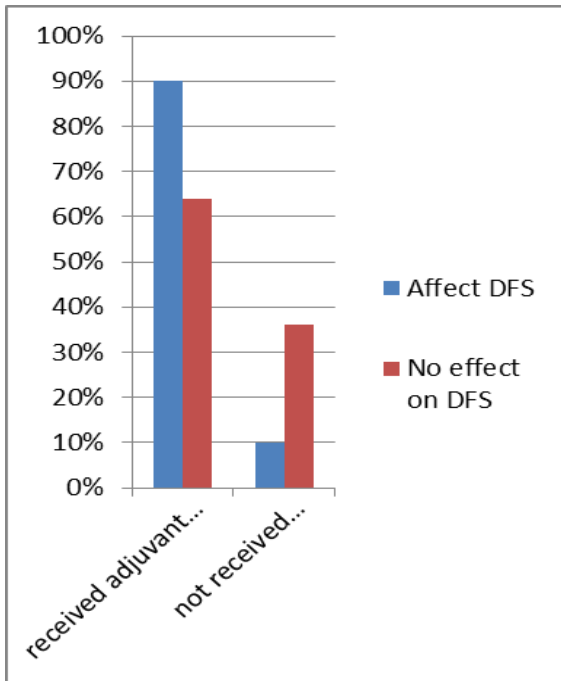


**Figure (16):** Correlation between grade and DFS.

Surgery followed by adjuvant concurrent chemo radiotherapy had a significant correlation with DFS rather than surgery alone.

**Table (16):** Correlation between adjuvant treatment and DFS

Treatment	DFS				Chi-square test	
	No effect on DFS		Affect DFS		x2	p-value
	Count	%	Count	%		
<b>YES</b>	9	64.3	26	89.7	4.013	0.045
<b>NO</b>	5	35.7	3	10.3		
<b>Total</b>	14	100.00	29	100.00		



**Figure (17):** Correlation between adjuvant treatment and DFS.

At the time of study fourteen patients out of fifty seven had aggressive disease at the time of presentation; the tumor was locally advanced unresectable, the tumor was metastatic or the patient had very bad general condition.

They received active treatment which improved the cases either clinically or radiologically and prolonged PFS in ten of them (71.4% of the total). Four patients (28.6% of the total) showed more progression even with the active treatment; (no effect on PFS).

Active treatment definitely improved progression free survival as 71.4% of patients who received active treatment improved either clinically or radiologically.

**DISCUSSION**

At the time of study fourteen patients out of forty three who were treated with curative intent had residual tumor or recurrence after surgery (Treatment had no effect on DFS).

At the time of study fourteen patients out of fifty seven had aggressive disease at the time of presentation; the tumor was locally advanced, the tumor was metastatic or the patient had very bad general condition.

They received active treatment which improved the cases either clinically or radiologically and prolonged PFS in ten of them (71.4% of the total). Four patients (28.6% of the total) showed no improvement; (Treatment had no effect on PFS).

In our study; the median age of the studied population was 55 years (range: 32-80) and male to female ratio was 1:1. In Labib *et al.* (7) study in the National Cancer Institute (NCI), Cairo University during the period from 1st of July to 31st of December 2010 designed to determine the epidemiological characteristics of Oral and Pharyngeal cancer where cancer oral tongue represented more than one third of the cases (36.6%) and included 71 patients; The mean age of the patients was (56.85±14.21) years, (range 25-82 years) and male to female ratio was 1.4:1.

The mean age for cancer patients in the National Cancer Institute (NCI), Cairo University, in 2005 was 57 & 60 years for males & females respectively, this may be due to increase in total life expectancy at birth among Egyptians (68.2 years in 2000 to 70.3 years in 2009). In Yemen the mean age of patients with oral cancer was 51.1 years (for males was 52.1 years & for females was 50 years), which was lower than that in the study (7).

This may be due to the difference in the total life expectancy at birth between Yemen and Egypt (63 years in Yemen in 2009, which is lower than Egypt 70.3 years), also the availability of additional risk factors among young people in Yemen (tobacco & khat chewing). In Syria the mean age was 54 years (for males was 56 years & for females was 50 years). In Syria the proportion of males & females were (62.6% and 37.4%) respectively. In Libya (male to female ratio was 1.41: 1) and in Yemen the ratio was (1.16: 1) with slightly higher ratio among the population of the North of Jordan (1991-2001), it was 1.77: 1. But the ratio was much higher in a study done in Brazil; it was (5.4/1). Predominance of males may be due to higher exposure to risk factors (smoking & occupational) (8).

Regarding to smoking status; in our study 36% of the patients only were smokers although smoking is well known risk factor of cancer oral tongue and 7% of the patients had positive family history of malignancies "one patient had positive family history of cancer oral tongue and the other



three patients had positive family history of other cancers".

In *Labib et al.* <sup>(7)</sup> study; (63.4%) of the patients were smokers and (9.9%) of the patients had positive family history of oral tongue cancer while (14.1%) had positive family history of other cancers.

Performance status is an indicator of a patient's global ability and it correlates with overall survival. In our study 63.8% of patients had ECOG P.S (1), 20.7% had ECOG P.S (0), 10.3% had ECOG P.S (2), 3.5% had ECOG P.S (3) and 1.7% had ECOG P.S (4). P.S at time of presentation didn't appear to have a statistical correlation with PFS (p=0.113) nor DFS (p=0.349).

In our study; squamous cell carcinoma was the only histopathological type. In other countries; SCC represented (66%) in Jordan, (56%) in Kuwait, (63%) in Nigeria, and (83%) in USA of cancer lip and oral cavity.

In Syria SCC represented (85.5%) of cancer of lip and oral cavity, but in China SCC represented (53.9%), and in Libya squamous cell carcinoma (50.6%) was the most common neoplasm, followed by muco-epidermoid carcinoma (15%) and adenoid cystic carcinoma (8.7%) <sup>(9)</sup>.

The most common grade was grade 2 (76%) followed by grade 3 (17%) then grade 1 (7%). Grade 3 tumor may have a significant correlation with the mortality as 50% of the patients who died during treatment because of the complications of the cancer had grade 3 tumors. Tumor grade had a significant correlation with DFS (p=0.029) but didn't appear to have a statistical correlation with PFS (p=0.354).

Unfortunately; at time of presentation sixteen patients of total fifty seven (28.1%) couldn't be staged due to insufficient data from the recording system about the patients. Eighteen cases (31.6%) presented at stage IV. In *Fazlipur and Masomi* <sup>(10)</sup> study which included Twenty eight patients with tongue cancer in oncology department of Ahwaz University School of Medicine, Iran, during 2003-2007 years; the results showed that early stage (I, II) represented (39.3%) of the patients while late stage (III, IV) represented (60.7%) of the patients. In *Tonchev and Vladimirov* <sup>(11)</sup> study which included 383 patients in university hospital "st.george", plovdiv, bulgaria, from 2004 till 2013; two-thirds of patients were diagnosed with stages III-IV advanced cancers.

In *Labib et al.* <sup>(7)</sup> study; the cases presented at early stages (I & II) were higher 67.7% (8.5% & 59.2%) than those presented in advanced stages (III& IV) 32.4% (28.2% & 4.2%).

In China, (19.74%) were diagnosed at stage I, (32.46%) were diagnosed at stage II, (22.59%) at stage III, and (25.21%) were diagnosed at stage IV, so stage I was higher than the study, this may be due to higher awareness of Chinese population and health provider than in Egypt <sup>(12)</sup>.

In our study; the stage at presentation didn't appear to have a statistical correlation with DFS (p=0.088). In *Hsiao et al.* <sup>(13)</sup> study which included 70 patients with oral tongue cancer seen between December 1999 and December 2005 at oncology department of Tzu Chi General Hospital, Chiayi, Taiwan; results showed that with definitive treatment the estimated 5-year survival rates range from 50% to 70% for stages I and II and from 15% to 30% for stages III and IV.

Lung is the commonest site of distant metastasis followed by bone <sup>(16)</sup>. In our study results; three cases had distant metastasis. Two cases out of three were metastatic to the lung. One was metastatic from the start and the other one developed lung metastasis during treatment.

One case was metastatic to the bone not from the start but during treatment. In *Labib et al.* <sup>(7)</sup> study; metastasis to a distant site occurred in 9.6% of patients.

At the time of study; our results showed that adjuvant concurrent chemo radiotherapy improved DFS and it was statistically significant (p=0.045). (62.8%) of the patients who underwent surgical removal of the primary tumor had free surgical margins while (37.2%) of them had close (less than 0.5 cm) or positive surgical margins. This may be due to the unqualified surgeons who were general surgeons not oncology surgeons. Although LN dissection especially in advanced cases and surgical margins status are well known to affect DFS, in our study results; LN dissection and surgical margins status didn't appear to improve DFS and it was statistically insignificant (p=0.060), (p=0.887) respectively.

At the time of study; our results showed that palliative treatment improved PFS in 71.4% of patients with metastatic or locally advanced cancer oral tongue.

Twelve patients with locally advanced unresectable cancer oral tongue received radical concurrent chemo radiotherapy. Ten patients (84%) showed partial response, while two patients (16%) showed progression of the disease; one developed lung metastasis and the other one developed bone metastasis.

In *Nguyen et al.* <sup>(14)</sup> study which included 48 patients with locally advanced cancer tongue who received concurrent chemo radiotherapy at the Veteran Affairs North Texas Health Care System, Dallas, Tex between December 1999 and September 2004; At a median follow-up of 23 months, the 3- and 5-year survival for the whole group were, respectively, 52% and 41%. There were 12 (25%) loco regional failures (6 local failures alone and 6 local and regional failures). Distant metastases developed in 8 patients (5 alone, 3 associated with loco regional failures).

In *Sessions et al.* <sup>(15)</sup> study which included 332 patients with oral tongue cancer treated in the Departments of Otolaryngology-Head and Neck Surgery and clinical oncology at Washington University School of Medicine (St. Louis, MO) from 1957 to 1996 found that local resection with clear margins had significantly improved the overall 5-year disease free survival rate (DFS) in 57% of the patients. In treating locally advanced disease, surgery followed by adjuvant concurrent chemo radiotherapy produced a more significantly improved DFS than only one treatment modality.

In *Ma'aita* <sup>(16)</sup> study which included 118 patients from 1989 until 1998 at the Oncology Departments of King Hussein Medical Center, Amman, Jordan; Patients treated with surgery alone (5-year survival rate 62%), and those treated with postoperative radiotherapy (5-year survival rate 81%) did better than patients treated with radiotherapy alone (31%).

In our study results; mortality was higher among females as the three cases who died because of the complications of the cancer were females. Age didn't appear to have significant correlation with the mortality as two patients out of the three (66%) who died because of the complications of the cancer were less than 50 years old.

In *Tsai et al.* <sup>(17)</sup> study which included 1,712 patients who were treated in the four institutions constituting the Chang Gung Memorial Hospitals (CGMH) from 2004 to 2013, results showed that the male patients had significantly poor survival than the female patients. Elderly patients were likely to face the worst survival rate amongst the tongue cancer patients after having been treated by radical surgery.

## CONCLUSION

In our study; the median age of the patients was 55 years old (range: 32-80) and male to female ratio was 1:1. Although smoking is well known as an important predisposing factor (36%) only of the patients were smokers. Small percentage of patients (7%) had a familial genetic component. All cases were squamous cell carcinoma. The most common symptom at presentation was unhealing ulcer in (70.7%) and most of the cases were squamous cell carcinoma grade 2. The majority of our patients (63.8%) had good ECOG performance status (1) and (31.6%) of the patients were presented to us with stage IV disease. As regard treatment; most of the patients underwent surgery followed by adjuvant concurrent chemo radiotherapy especially in patients with close or positive surgical margins or patients who didn't undergo LN dissection. This affected DFS. Patients who were presented with locally advanced disease received radical radiotherapy while patients with poor PS or metastatic disease received palliative treatment which improved PFS. Most of the patients with loco regional recurrence were

presented to us after surgery with LN deposits. They received either concurrent chemo radiotherapy (those who didn't receive it as an adjuvant treatment) or palliative chemotherapy.

## RECOMMENDATIONS

The junior medical staff should be educated about the importance of taking a detailed medical history from the patients as the medical history was deficient in a great number of cases and contacting the patients who lost the follow up.

The recording system should be changed from written sheets to computerized system as the data were missing in many cases and the oncology centers should be connected to each other as many patients were treated in more than one center and the data about the prior treatment were deficient.

All patients should be managed by MDT as many patients were treated with no cooperation between the medical staff. This gave rise to better DFS in patients who were treated with curative intent and PFS in patients who were presented with locally advanced or metastatic disease.

The patients should be aware of the importance of follow up visits which should include clinical examination and CT imaging at regular intervals (every three or four months in the first 2 years then every 6 months) for early detection of loco regional recurrence.

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