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Original Article

Epidemiological Profile of Oral and Head-and Neck Tumors at Sebha Oncology Center: A Nine-Year Retrospective Evaluation

Sherifa Jaeidaha[1]*, Wenisa Arrish[2]

[1]*Department of Oral and Maxillofacial Surgery, Dental School of Sebha University, Libya*
[2]*Department of Preventive and Community Dentistry, Dental School of Sebha University, Libya*
***Corresponding Email.** She.jaeidah@sebhau.edu.ly*

Abstract
Head and neck cancers (HNCs) are a significant health care issue worldwide. Insufficient data in Libya makes it difficult to fully comprehend its local impact. This study aims to provide a retrospective analysis of the epidemiology of head and neck cancer among cancer patients at the Sebha Oncology Centre (SOC) over a period of 9 years, and to compare the results locally and regionally. The patient's medical records from 2016 to 2025 were obtained and examined. Age and sex information, as well as the tumor's location, were gathered. The study included 2460 patients' files; 63 patients were diagnosed with head and neck cancers, with a percentage of 2.5%. The most common type of head and neck cancer was non-Hodgkin lymphoma (46%), followed by thyroid gland cancer (22.2%) and oral cancer (9.6%). The tongue and soft palate were the most anatomical sites for oral cancer (3.2% for each). The least frequent kind of HNCs was salivary gland cancer (3.2%). The male-to-female ratio was 0.75:1, with more female patients having thyroid gland cancer and non-Hodgkin lymphoma, and more male cases having nasopharyngeal and laryngeal cancers. Patients ranged in age from 20 to 86, with the majority of cases occurring between 41 and 60, with predominance of females in this age group. The center had a lower rate of oral cancer compared with local and international studies. To increase public awareness of cancer risks, a comprehensive public education program must be established. Such programs are crucial for reducing prevalence, encouraging early detection, and guaranteeing prompt management.
Keywords. *Retrospective Analysis, Head & Neck Cancer, Epidemiology, Sebha Oncology Center, Oral Cancer, Libya.*

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Introduction

Despite important clinical advancements that enable early identification and treatment, head and neck cancers (HNCs) remain a major global public health concern and cause significant morbidity [1]. It includes a wide range of malignancies that impact the upper aerodigestive tract. The oral cavity, pharynx, larynx, nasal cavity, paranasal sinuses, and salivary glands are the anatomical locations where head and neck malignancies are categorized [2]. The most common of the various unique histological patterns for HNCs is squamous cell carcinoma. Tobacco usage, alcohol misuse, and oncogenic viruses, including the Epstein-Barr virus and human papillomavirus, are the main risk factors [3]. In addition to psychosocial disorders, patients with HNC often experience complex issues like breathing, swallowing, and speech difficulties, which further tax healthcare systems [3]. With 1,464,550 new cases and 487,993 deaths, HNC was the third most common cancer globally in the 2020 Global Cancer Statistics. This accounted for 7.6% of all cancer cases and 4.8% of cancer-related deaths (1). HNC has a significant global impact on health [4,5]. There are some regional variations in the prevalence of oral cancer. These rates can differ by up to 20 times amongst nations, age categories, genders, races, and ethnic groupings. Oral cancer is more common in men than in women worldwide, and the risk rises with age, and was the ninth most common cancer location in 2013 [1,6].
Oral cancer incidence in the Arab world varied widely, ranging from 0.5/100,000 in Syria to 10/100,000 in Saudi Arabia's southern regions. In contrast, 2% of all cancer cases in Iraq occurred between 2000 and 2008. The tongue and lips were the most afflicted sites in most investigations, while the distribution of affected sites differed among Arab nations. Interestingly, among patients from the southwestern part of Saudi Arabia, the gingiva and alveolus were the most often impacted sites [7]. Malignant neoplasms of the orofacial region from Libya have not been extensively documented [8]. Oral cancers accounted for 8,152 cancer cases (0.59%) at the National Cancer Institute (NCI), Sabratha, according to a retrospective assessment conducted between 2020 and 2024 [9. A similar study was conducted in Benghazi by Haroun et al in 2021 [10]. Nevertheless, the literature contained no particular information about the southern region of Libya. Sebha Oncology Center (SOC) was formally established in 2016 to diagnose and treat cancer patients in Sebha. A better understanding of the disease's distribution, as well as appropriate early diagnosis, treatment, and prevention, depends on knowledge of the incidence and prevalence of malignant tumors of the head and neck region. The purpose of this study was to describe the epidemiological profile of HNC in this center for cases that were reported between 2016 and 2025.

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Methods

A retrospective study was conducted by examining patients' records registered from 2016 to 2025 in the Sebha Oncology Centre (SOC). This study was conducted in accordance with the Declaration of Helsinki for Medical Research Ethics. Patient privacy and confidentiality were strictly maintained during data processing and analysis, and ethical approval was obtained from the SOC administration. All patients from the SOC archive who had been diagnosed with oral, head, or neck cancer were included. The information regarding the patient's age, sex, and tumor site was collected for each selected case. The cases were then divided into groups according to the anatomical site of the cancer. Descriptive statistics were used to analyze the data using the SPSS program version 17.

Results

Out of 2460 cancer cases, 63 patients had a head and neck cancer diagnosis. 2.5% of patients received a head and neck cancer diagnosis (Figure 1).

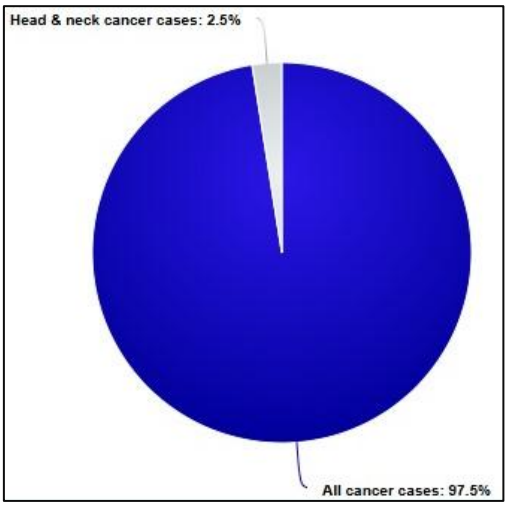

Figure1. Distribution of Cancer Cases and head & neck cancers, 2016–2025

The types of head and neck cancers identified at the center included: Thyroid cancer, non-Hodgkin lymphoma, nasopharyngeal cancer, laryngeal cancer, basal cell carcinoma, salivary gland cancer, and oral cavity cancers (soft palate cancer, tongue cancer, mandible cancer, and gingival cancer). Non-Hodgkin lymphoma (46%) was the most prevalent, followed by thyroid gland cancer (22.2%), oral cavity cancers (9.6%), nasopharyngeal cancer (7.9%), and basal cell carcinoma (6.3%), while salivary gland cancer accounted for 3.2 % of head and neck cancer cases. Malignancies of the tongue and soft palate accounted for 3.2% of all oral cavity malignancies, whereas gingival and mandibular cancers were found in 1.6% of cases for each. There were more female cases of head and neck cancer (57.1%) than male cases (42.9%), with a male-to-female ratio of 0.75:1 (Figure 2) (Table 1).

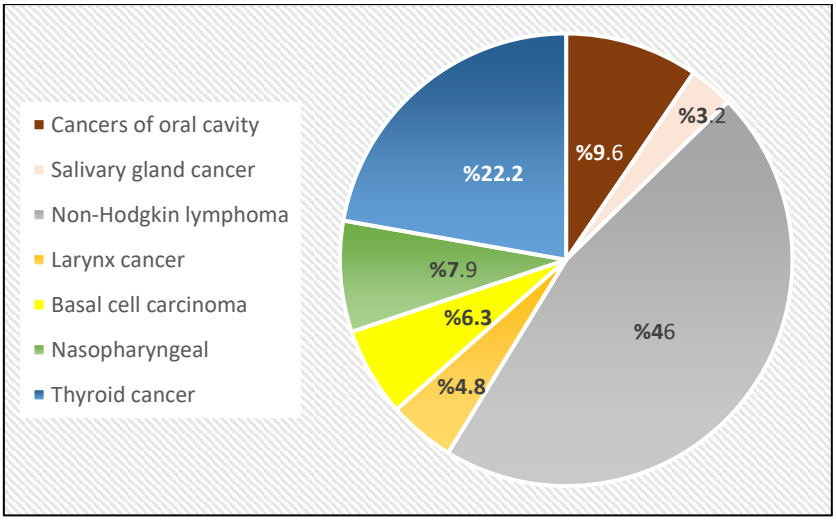

Figure 2. Distribution of types of head and neck cancer at Sebha Oncology Centre
Table 1. Frequency of types of head and neck cancer at the Sebha Oncology Center

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Cancer type		Female	Male	Frequency	Percent (%)	
Oral cavity cancers	Gingival cancer	0	1	1	1.6	9.6
	Tongue cancer	1	1	2	3.2	
	Mandibular cancer	1	0	1	1.6	
	Soft palate cancer	1	1	2	3.2	
Salivary gland cancer		0	2	2		3.2
Non-Hodgkin lymphoma		17	12	29		46.0
Larynx cancer		0	3	3		4.8
Basal cell carcinoma		2	2	4		6.3
Nasopharyngeal		2	3	5		7.9
Thyroid cancer		12	2	14		22.2
Total		36	27	63	Female 57.1 Male 42.9	100.0

Figure 3 showed that non-Hodgkin lymphoma was the most prevalent type in both genders, followed by thyroid cancer and oral cancer in females and oral cancer, nasopharyngeal, and laryngeal cancers in males. Furthermore, oral cancer was equally common in males and females, while all occurrences of salivary gland cancer were in males. Patients with head and neck malignancies ranged in age from 20 to 86, with the majority of cases occurring between the ages of 41 and 60 (Figure 4).

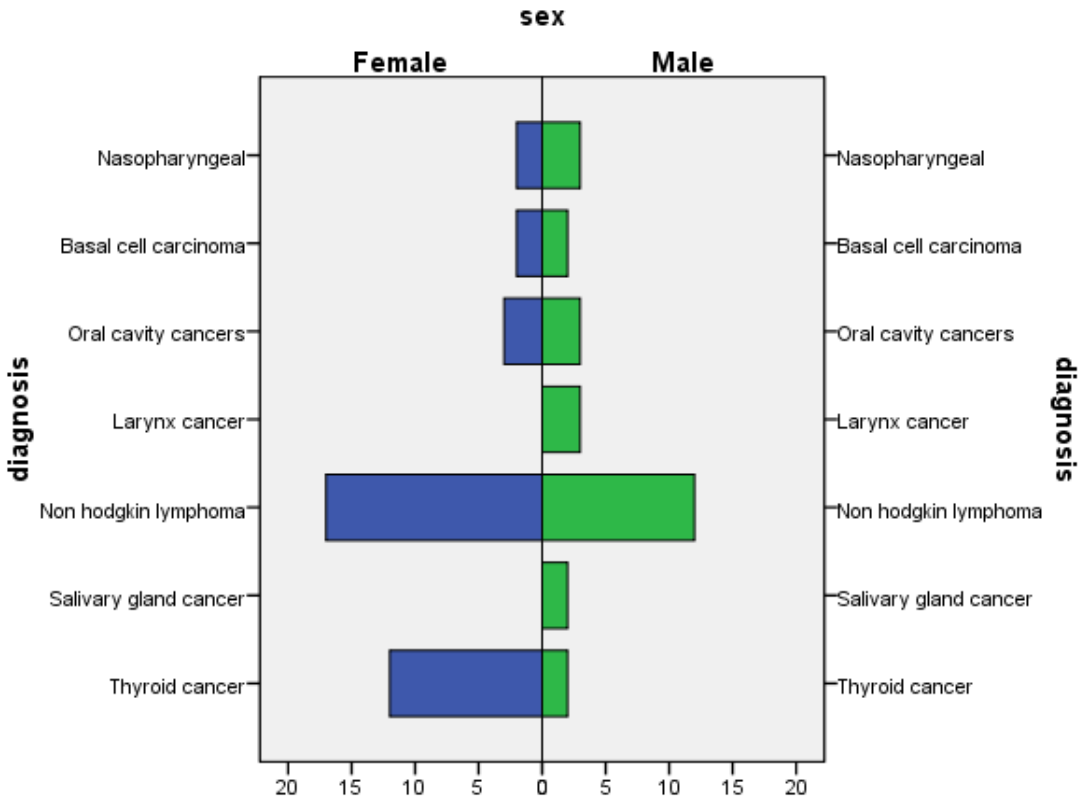

Figure 3. Distribution of types of head and neck cancers by sex

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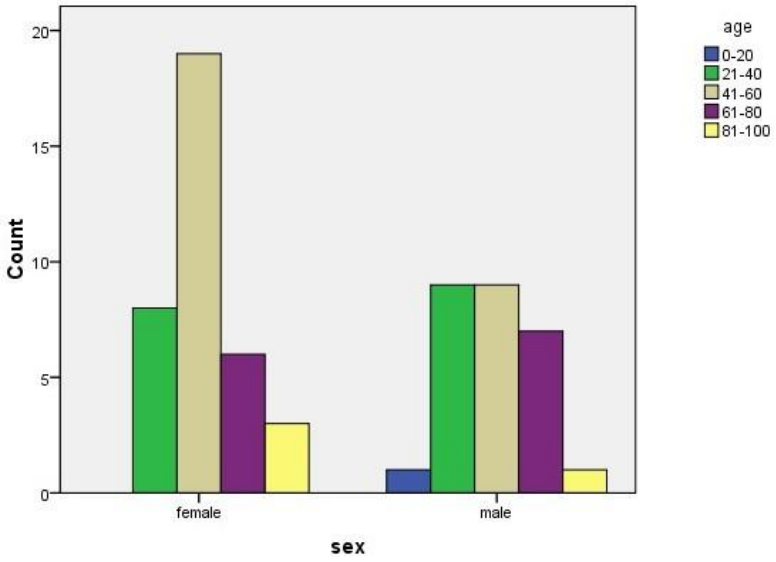

Figure 4. Distribution of head and neck cancer with sex & age

Discussion

The prevalence of head and neck cancer at Sebha Oncology Center (SOC) was 2.5%, consistent with previous findings in Libya and North Africa [5,9-11]. This rate is lower than the 4.8% (2006) and 5% (2007) reported by the Sabratha National Cancer Institute [12,13]. Overall, these figures represent a substantially lower burden compared to high-incidence regions such as the US, India, and the UK (4.8%) [1].

According to this paper, 46% of all head and neck cancers in our sample are Non-Hodgkin Lymphoma (NHL). In comparison to past global averages, this result is comparatively high. Current epidemiological trends can be used to contextualize this high local prevalence: non-Hodgkin lymphomas are becoming more common in several areas, and during the past 20 years, incidences have climbed by up to 35% in various countries [14]. However. A local study conducted in Benghazi found that lymphoma makes up a small percentage of oral cancers (6.4%) [10]. Furthermore, 22.2% of patients had a thyroid gland diagnosis, with women representing the majority (85.7%). Numerous worldwide studies support this finding [15]. Thyroid and oral cancers are the most frequent head and neck cancers, according to a study done in Bhutan. Furthermore, all head and neck cancers, except the thyroid gland, are more common in men than in women [16].

In this present study, oral cancer (9.6%) was one of the most frequently diagnosed head and neck malignancies, with the tongue and soft palate being the most impacted areas, which constitute 2.3% of cases for each. The tongue is often identified as the predominant anatomical site for oral cancer in earlier Libyan literature, which is mostly congruent with these findings. This finding supports the regional pattern that indicates lingual tissues are more exposed to local risk factors [9,17,18]. The tongue and lips were the most afflicted areas in most investigations; however, the distribution of affected sites differed throughout Arab nations. Interestingly, among patients from the southwestern part of Saudi Arabia, the gingiva and alveolus were the most often affected sites [19]. According to global burden of Disease report, the most common anatomic site for oral cavity cancer was the lip [20].

In the present study, nasopharyngeal cancer (7.9%) comes after oral cancers in terms of its frequency. Males were more likely to develop nasopharyngeal than females (60%). According to the Global Burden of Disease (GBD) Study 2019, Libya is one of the countries that have lower incidence of nasopharyngeal cancer compared to its neighboring Arab nations [21]. The incidence of basal cell carcinoma in this study (6.3%) aligns with findings from a Pakistani report, which recorded a frequency of 6.6%. Four cases of basal cell carcinoma (BCC) were found in the current study, with an equal distribution of males (n = 2) and females (n = 2). This is to a moderate extent different from a recent study conducted in Libya in 2025 that found a marked (64.7%) female preponderance, and the most impacted anatomical areas of BCC were the nasal dorsum (44.1%) and the infraorbital region (30%) [22].

Like the global trend [20], the larynx cancers came after oral cancers and nasopharyngeal in frequency (4.8%), and as has been reported by the national Libyan registry, Libya has a lower incidence of larynx cancer than Tunisia and Morocco according to worldwide comparisons [21. Among head and neck cancers, salivary gland cancer was the least common (3.2%). This result is in line with a global burden of disease study that found salivary gland cancer to be the least common neoplasm among HNC, accounting for about 6% of these tumors. This result, however, is at odds with a Togolese study that found salivary gland tumors to be the most common kind of HNCs (28.2%) [23].

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The distribution of head and neck cancer types showed that thyroid and NHL were the most prevalent HNCs in women, while oral, nasopharyngeal, and larynx cancer were the most common HN malignancies in men. This pattern is comparable to a study conducted in Thailand, where the most prevalent head and neck cancers in men were oral cancer (Age Standardized rate ASR 4.6 per 100 000), nasopharyngeal (ASR 2.8), and laryngeal (ASR 2.7), whereas the most common cancers in women were thyroid (ASR 5.1) and oral cancer (ASR 3.2) [24]. Male prevalence of HNCs decreased and female prevalence increased throughout the 36 nations in the 2007–2018 data set [20]. Oral cancer is more common among women, according to two studies from Yemen and Saudi Arabia [19].

In individuals over 60, sex differences in the incidence of head and neck cancer are particularly pronounced in the lower part of the upper aerodigestive tract, which includes the larynx and hypopharynx [25]. The study's findings are in line with data from both domestic and foreign sources showing that the most common age of onset was between 41 and 60 [1,10. According to multiple studies, 4-6% of oral and oropharyngeal cancers now occur in people under 40, and Human Papilloma Virus (HPV) infection seems to be the reason for this [26-28]. It is crucial to consider the several limitations of our study when assessing the outcomes. First, the study's retrospective methodology may bring biases such as incomplete data. Second, prevalence and incidence statistics cannot be accurately deduced from a single hospital record, even though these records were frequently used in HNC research, and information from them may be suggestive of the disease's regional distribution.

Conclusion

To conclude, this study offers insightful information about the epidemiological profile of head and neck malignancies at Sebha Oncology Center. The tongue and soft palate emerged as the principal anatomical locations for oral cancer. The most prevalent head and neck cancers were non-Hodgkin lymphoma, thyroid gland, and oral cancer. The predominance of non-Hodgkin lymphoma and thyroid gland cancer indicates a varied oncological burden. Males were more likely to develop laryngeal and nasopharyngeal cancers, but females were more likely to develop thyroid cancer and NHL. The least common type of HNCs was salivary gland cancers. And those between the ages of 41 and 60 are the most affected age group for HNCs, with a notable female predominance throughout this time.

Conflict of interest. Nil

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