

# Head and neck squamous cell carcinoma in Hajjah, Yemen

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## ABSTRACT

**Objective:** Incidence of head and neck squamous cell carcinoma seems to be relatively high in Yemen but not well documented. The purpose of this study is to analyze the clinical profile of the Yemeni patients of squamous cell carcinoma of the head and neck and to evaluate the possible relationship to kath chewing.

**Methods:** With the help of a special protocol, all the patients of head and neck squamous cell carcinoma seen between October 1997 and December 1998 at the Ear, Nose and Throat and Dermatology Clinics of Saudi Hospital, Hajjah, Yemen Republic were subjected to detailed analysis. The diagnosis was confirmed by histopathologic studies in all the cases.

**Results:** All the 36 patients (23 male and 13 female)

were Yemeni nationals, aged 18 to 80 years (median age 50 years). Thirty patients were Kath addicts. The tumor was localized to the oral cavity in 17 (47%) patients, oropharynx in 1 (3%) patient, nasopharynx in 15 (42%) patients and larynx in 3 (8%) patients.

**Conclusion:** The incidence of head and neck squamous cell carcinoma seems to be relatively high, especially the oral squamous cell carcinoma, all of whom had a habit of kath chewing, which may be considered as an important contributing factor.

**Keywords:** Head, neck, squamous cell carcinoma, kath.

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Information on cancer statistics is important for better planning and to ensure the most economical use of professional and financial resources toward tumor control within a certain region.<sup>1</sup> To our knowledge, no such study has been previously published from Yemen, although Makki<sup>2</sup> studied 74 cases of oral squamous cell carcinoma (SCC) from the Hudaida region and attributed kath and shamma abuses as major contributing factors. We carried out a study of 36 patients with head and neck SCC, seen at the Ear, Nose and Throat (ENT) and Dermatology clinics of the Saudi Hospital at Hajjah, Yemen Republic, between October 1997 and December 1998. An analysis of these cases is presented.

**Methods.** With the help of a special protocol, all the 36 patients of head and neck SCC were subjected

to detailed analysis. Special emphasis was given to history of addictions like kath chewing, shamma and smoking. The nasopharynx was examined with Hopkin's rigid nasopharyngoscope 30° and 70° and the larynx was examined with Hopkin's larynx telescope 90° and flexible nasopharyngolaryngoscope. The diagnosis was confirmed by histopathologic studies in all the cases.

**Results.** The tumor was localized in the oral cavity in 17 (47%) patients, oropharynx in 1 (3%) patient, nasopharynx in 15 (42%) patients and larynx in 3 (8%) patients. All the patients were Yemeni nationals and the majority of them were residents of Hajjah Governorate. There were 23 males and 13 females. The age of the patients ranged between 18 years and 80 years (median age 50 years). Median

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**Table 1** - Sex and age incidence.

Type of SCC	Age Groups								TOTAL								
	11 - 20		21-30		31-40		41-50		51-60		61-70		70>		M	F	Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F			
Oral SCC				3	2	2	1	3	1	1	2	1	1	10	7	17	
NPC	2		2	1	4		2	1	1		1		1	1	10	5	15
Oropharyngeal SCC												1			1		1
Laryngeal SCC						1		1				1		3			3
<b>TOTAL</b>	<b>2</b>		<b>2</b>	<b>1</b>	<b>7</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>5</b>	<b>1</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>23</b>	<b>13</b>	<b>36</b>	

SCC - squamous cell carcinoma; NPC - nasopharyngeal carcinoma

age of oral SCC was 55 years, that of nasopharyngeal patients was 40 years and in cases of laryngeal SCC, it was 56 years (Table 1). Social status of the patients was low in 28, low-middle in 4 and middle class in 4. Thirty patients were kath addicts and in addition, 24 patients had the habit of using shamma and 15 were smokers.

**Presenting complaints and associated complaints.** Table 2 shows the frequency of clinical features in different tumors as presenting or associated complaints. Among the cases of oral SCC the most common presenting complaint was mass in the tongue, while the associated complaint was cervical lymphadenopathy. In cases of

nasopharyngeal carcinoma (NPC) the most common presenting and associated complaints were neck swelling and headache and in cases of laryngeal SCC the most common presenting complaint was hoarseness of voice.

**Cervical lymphadenopathy.** Cervical lymphadenopathy was observed in 11 patients of oral SCC, 1 patient of oropharyngeal SCC and 12 patients of NPC, while it was not observed in any of the cases of laryngeal SCC.

**Cranial nerve involvement.** Abducent was involved in 2 and vagus in 2 cases of NPC.

**Direct extension into other areas.** Direct extension into other adjacent areas was observed in

**Table 2** - Frequency of occurrence of clinical features.

Localization of tumors	Clinical features	Presenting complaints number of patients	Associated complaints number of patients
Oral squamous cell carcinoma	Mass of tongue	8	
	Ulcer of tongue	3	3
	Pain in mouth	1	
	Headache	3	
	Swelling and ulceration of buccal mucosa	1	1
	Pain and difficulty in swallowing	1	
	Growth of lower lip	2	
	Leukoplakia		2
	Cervical lymphadenopathy		12
	Oropharyngeal squamous cell carcinoma	Growth of right tonsil	1
Cervical lymphadenopathy		1	1
Swelling of right side of face and neck		1	1
Nasopharyngeal carcinoma	Neck swelling	7	5
	Headache	7	
	Nasal obstruction	2	3
	Decreased hearing	2	2
	Dysphagia	1	1
	Hoarseness of voice	1	2
	Pain in eye	2	2
	Epistaxis	2	2
	Swelling of palate		1
	Vertigo		1
Laryngeal squamous cell carcinoma	Hoarseness of voice	3	
	Difficulty in breathing	1	
	Difficulty in swallowing	1	

10 patients of oral SCC, 1 patient of oropharyngeal SCC, 10 patients of NPC and 1 patient of laryngeal SCC. Out of these 10 NPC cases 5 had direct extension to nose, 2 to adjacent intracranial region, one each to retropharyngeal space, orbit and oropharynx including palate.

**Distant metastasis.** Apparently no distant metastasis was observed, but in the absence of proper investigations, it cannot be excluded completely in some of the cases.

**Oral SCC.** The tongue was the most common primary site in the oral cavity (12 cases), followed by the lower lip (2 cases), and one case each of gums, floor of the mouth and buccal mucosa. Histopathology revealed well differentiated SCC in 12, moderately differentiated SCC in 4 and poorly differentiated SCC in 1 patient. Cervical lymphadenopathy was observed in 65% of the cases.

**Oropharyngeal SCC.** Histopathology of this patient revealed poorly differentiated SCC. There was extensive local extension to soft palate, right side of the face and right ear and huge cervical lymphadenopathy.

**Nasopharyngeal carcinoma.** Histopathology of all the 15 cases revealed undifferentiated carcinoma. Cervical lymphadenopathy was observed in 80% of the cases.

**Laryngeal SCC.** Histopathology revealed moderately differentiated SCC in 2 cases and well differentiated SCC in one. Supraglottic location was noticed in 2 patients and glottic in one. Cervical lymphadenopathy was not observed in any of the patients.

**Discussion.** Head and neck cancers (of oral cavity, pharynx and larynx) make a big contribution to the burden of cancer in developing countries.<sup>3</sup> They constitute 7% of all cancer patients in Turkey.<sup>1</sup> In a Saudi Arabian study from Riyadh,<sup>4</sup> SCC of head and neck constituted 11% of all cancer cases and 80% of all SCC. The incidence of these cases seems to be relatively high in Yemen, but it is difficult to predict the exact incidence in the absence of proper medical documentation. Makki<sup>2</sup> reported 74 cases of oral carcinomas from Hudaida in 1975 (seen over a 2 year period). We have seen these 36 cases within a 15 month period. To our knowledge, no other report from Yemen is available.

The male to female ratio in our patients is 23:13. Similar male preponderance was observed in Saudi Arabian cases.<sup>4,5</sup> A much higher male ratio was observed in Turkish studies.<sup>1,6</sup> The median age in our patients was 50 years which almost coincides with the results of the previous studies.<sup>1-6</sup> In the present study, oral SCC were the most common (47%) of all the SCC of the head and neck. A high incidence of oral SCC was also reported from southern Saudi Arabia.<sup>4,5</sup> Among the 201 cases of oral cancers reported from Gizan,<sup>5</sup> 56 were Yemeni nationals. A

Turkish study revealed only 9% of oral cancers among the head and neck SCC.<sup>6</sup> The most common oral SCC in this study was that of the tongue (70.5%). The next was of the lip SCC (12%) and 1 (6%) in each of gums, buccal mucosa and floor of the mouth. Makki's study of oral SCC from Hudaida showed 65% in buccal mucosa, 30% in the tongue and 5% in the lower lip. In a study from Turkey<sup>6</sup> the most common primary site of oral SCC was the lip. The incidence of positive neck nodes was 65% in our cases of oral SCC, which was almost similar to Makki's study, while it was lower (42%) in a Turkish study.<sup>6</sup> As described in the previous studies<sup>1,6</sup> the incidence of oropharyngeal SCC was rare, we also had only one patient (3%) with involvement of the tonsil. Nasopharyngeal SCC constituted the second most common (42%) SCC of the head and neck in the present study. Incidence of these cases was also high in Saudi Arabian studies<sup>4,5</sup> but lower than the present study. Out of 27 cases reported from Gizan, 10 were Yemeni nationals. Cases of NPC were also reported recently from Jordan, but the incidence was low (1% of all malignancies).<sup>7</sup> In a Turkish study<sup>6</sup> the incidence was low (10% of all head and neck SCC). In the Chinese population of North America, the incidence of NPC is very high (18% of all malignant tumors). Among the Chinese of Taiwan, NPC is the most common cancer in males and the third most common cancer in females.<sup>8</sup> Cervical lymphadenopathy was observed in 80% of our cases of NPC, while in the previous study<sup>6</sup> it was seen in a lower percentage of cases. The incidence was higher in males (M:F::2:1) in our cases as also seen in the Chinese study.<sup>8</sup> In our study 8% of the cases had laryngeal SCC. An almost similar incidence was observed in a study from Gizan<sup>5</sup> (out of 19 cases, 8 were Yemeni nationals). In a Turkish study<sup>6</sup> 71% of cases had laryngeal SCC among the head and neck SCC and 5% of all cancer patients. The incidence of laryngeal SCC varies from country to country. In the USA it constitutes 1% of all new cancer diagnoses.<sup>9</sup> Supraglottic to glottic ratio was 2:1 in the present study. There is a geographical variation with regard to the involved region of the larynx. In the USA, Australia and Japan, glottic cancers are more common than supraglottic, while in Yugoslavia and Finland supraglottic are more common.<sup>10,11</sup> In Turkey also supraglottic is more common.<sup>6</sup>

The incidence of head and neck SCC, especially that of oral SCC seems to be high in Yemen. This may be related to the habit of chewing kath. All the patients of oral SCC in our study were addicted to kath chewing from childhood. In addition, 10 patients also had the habit of using shamma (snuff chewing) and 5 of smoking. Although smoking and tobacco chewing are known carcinogenic agents<sup>12,13</sup> the habit of chewing kath seems to be a major contributing factor in Yemeni patients of oral SCC. Soufi at al<sup>14</sup> also observed that oral cancers in the Asir

region of Saudi Arabia occur mostly among patients who have been long term kath users. A Riyadh study<sup>4</sup> also revealed the highest incidence of oral cancers in the Southern region of Saudi Arabia and similar observations were recorded in the study from Gizan.<sup>5</sup> These observations also favor the causative role of Kath as many of their reported patients were Yemeni nationals. Makki<sup>2</sup> in her study of oral SCC has also stressed the importance of Kath. Ninety percent of her patients were also kath addicts and she correlated that most of the oral SCC were in buccal mucosa and lateral sides of the tongue which comes directly in contact with the kath.

The incidence of NPC also seems to be high in Yemen, which may be related to genetic factors as also reported in Chinese cases.<sup>15</sup> We presume that kath chewing may also be an indirect contributing factor in these cases.

Kath (*Catha Edulis*) is a large shrub which grows in East Africa and Southern Arabia. Its leaves contain psychoactive ingredients known as cathinone, which is structurally and chemically similar to d-amphetamine and cathinone. Fresh leaves contain both ingredients. It produces a mild cocaine or amphetamine like euphoria and generates intense thirst, causes insomnia and loss of appetite.<sup>16</sup> In addition it also causes stomatitis, esophagitis, gastritis and constipation.<sup>17</sup> We presume that kath chewing might be having direct deleterious effects by continuous irritation, especially in cases of oral SCC and indirectly in all SCC of head and neck by causing malnutrition leading to lowered immunity which may enhance the local inflammatory process.<sup>16</sup> The incidence of head and neck SCC in Yemen seems to be quite high, especially the oral SCC. All of these patients had the habit of chewing kath from childhood, which may be considered as an important contributing factor.

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