

# ORAL SNUFF AND CARCINOMA OESOPHAGUS

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## ABSTRACT

**Background:** Carcinoma oesophagus is known to occur worldwide. Various dietary, environmental and genetic factors and certain pre-malignant conditions have been blamed in the causation of carcinoma oesophagus but the exact cause is unknown. This study was conducted to find out the possible role of oral snuff to carcinoma oesophagus.

**Material & Methods:** This descriptive analytical study was carried out in Medical, Surgical and ENT units of Khyber Teaching Hospital and Cardiothoracic unit of Lady Reading Hospital Peshawar from 1995 to 2005.

**Results:** Relation of oral snuff use to carcinoma oesophagus was studied in 100 patients confirmed on endoscopy and biopsy and histopathology. Oral snuff use was found to have very strong correlation ( $P < 0.001$ ) with carcinoma oesophagus. The effect of ingesting snuff also had very strong correlation ( $P < 0.001$ ) and so was the duration (more than 10 years) of use ( $P = 0.004$ ), however, the frequency of snuff use (i.e. number of times per day) did not have any significant effect ( $P = 0.08$ ). A strong correlation of snuff use was also found with squamous cell carcinoma ( $P = 0.001$ ).

**Conclusion:** Oral snuff use is a risk factor for carcinoma oesophagus. Carcinoma oesophagus can be prevented by discouraging its use.

Educating people against snuff use may prevent this harmful & lethal disease. This should be done on individual level by the doctors and on mass level through public media.

**Key words:** Carcinoma oesophagus, Oral snuff, Risk factor, Pakistan.

## INTRODUCTION

Carcinoma oesophagus is known to occur worldwide but in contrast to western countries where colorectal carcinoma is much more common,<sup>1</sup> its incidence is quite high in North West Frontier Province (NWFP) of Pakistan.

Carcinoma oesophagus is more common in males than females but the reverse is true in certain countries. Black people are affected more than the white. No age is exempted but the highest incidence is found in 40-60 years age group. Squamous cell carcinoma is the commonest variety affecting mainly the middle third of oesophagus.<sup>2-5</sup>

Various dietary, environmental and genetic factors and certain pre-malignant conditions are blamed in the causation of carcinoma oesophagus but the exact cause is unknown.<sup>6</sup> It is the 6<sup>th</sup> commonest tumour in males and 5<sup>th</sup> in the females.<sup>7</sup>

Apart from other possible aetiological factors *Naswar* or oral snuff or *Naswar*, a mixture of ash and tobacco, is described as a risk factor. Increased incidence of oral cancer has also been associated with the use of *Naswar* or oral snuff in our population.<sup>8</sup>

This study was conducted to find out the possible role of oral snuff use in the aetiology of carcinoma oesophagus.

## MATERIAL AND METHODS

This Descriptive analytical study was carried out in Medical, Surgical and ENT units of Khyber Teaching Hospital, and Cardiothoracic unit of Postgraduate Medical Institute Lady Reading Hospital Peshawar, during the years 1995-2005.

One hundred patients of carcinoma oesophagus were included in the study. All these patients had carcinoma oesophagus proved on endoscopy and histopathology. Detailed history about the use of snuff was obtained. Patients were asked about the duration of use, ingestion habits and frequency of use.

Results obtained were analyzed and correlation of oral snuff use to carcinoma oesophagus was calculated. Statistical correlation of snuff to the type of carcinoma was calculated by comparing the snuff users and non-users having carcinoma oesophagus.

**RESULTS**

Out of 100 patients; 62 were males and 38 females with a male and female ratio of 1.6:1. The mean age of the patients was 53.8 years (Range 20-70). The commonest age for carcinoma was 4<sup>th</sup> and 5<sup>th</sup> decade.

Squamous carcinoma was more common than adenocarcinoma; 84 patients had squamous cell while 16 had adenocarcinoma. (Table-1)

**Table-1: Sex distribution of histopathological type of carcinoma oesophagus.**

Type	Male	Female	Total
Squamous Cell Carcinoma	51	33	84
Adeno Carcinoma	11	5	16
Total	62	38	100

Forty-six patients were snuff users while 54 were non-users. Squamous cell carcinoma was found to be correlated with high level of significance to oral snuff use ( $p < 0.001$ ). Of the 46 snuff users 45 had squamous cell carcinoma and only one had adenocarcinoma, while in the non-users 39 had squamous cell and 15 adenocarcinoma. (Table-2)

**Table-2: Snuff use and type of carcinoma.**

Group	Squamous cell carcinoma	Adenoma carcinoma
Users (n=46)	45*	1
Non-users (n=54)	39	15
Total	84	16

\* $p < 0.001$  (Highly significant)

Out of 46 snuff users 32 patients had history of using it for more than 10 years while 14 used it for less than 10 years, and a significant correlation ( $p = 0.004$ ) was found for the duration of snuff use to carcinoma oesophagus. Frequency of snuff use was grouped as ten  $\geq 10$  times/day or  $< 10$  time/day, and no significant correlation for the frequency of use could be established to carcinoma oesophagus ( $P = 0.08$ ). Habit of ingestion of snuff had significant effect on squamous cell carcinoma ( $p < 0.001$ ). (Table-3)

There was no predilection of snuff users to any segment of oesophagus. The segment of oesophagus involved was statistically not significantly different (upper 1/3<sup>rd</sup> oesophagus ( $P = 0.8$ ), middle ( $P = 0.5$ ) and lower 1/3<sup>rd</sup> ( $P = 0.2$ ) in the snuff users

**Table-3: Pattern of snuff use.**

Snuff use (n=46)	Male 38	Female 8	Total 46	p-value
a. Duration:				
– Less than 10 years	9	5	14	0.004 (Significant)
– More than 10 years	29	3	32	
b. Frequency of use:				
– Less than 10 times/day	23	5	28	0.0.08 (Non-significant)
– 10 times or more/day	15	3	18	
c. Ingestion of Snuff				
– Yes	37	8	45	$< 0.001$ (Highly significant)
– No	1	0	1	

**Table-4: Histopathological break up with reference to sex and site of involvement.**

Finding	Male	Female	Total	Percentage
Squamous Cell Carcinoma:	51	33	84	84
a. Upper 3 <sup>rd</sup> of Oesophagus	4	6	10	10
b. Mid 3 <sup>rd</sup> of Oesophagus	29	23	52	52
c. Lower 3 <sup>rd</sup> of Oesophagus	18	4	22	22
Adenocarcinoma:	11	5	16	16
a. Upper 3 <sup>rd</sup> of Oesophagus	0	0	0	0
b. Mid 3 <sup>rd</sup> of Oesophagus	0	0	0	0
c. Lower 3 <sup>rd</sup> of Oesophagus	11	5	16	16

and non-users. Adenocarcinoma was exclusively found in the lower 1/3<sup>rd</sup> of the oesophagus. (Table-4)

## DISCUSSION

Male preponderance for carcinoma oesophagus is well established<sup>9-12</sup> and is also noted in our study. It is also known that squamous cell carcinoma occurs much more frequency than adenocarcinoma of the oesophagus<sup>14-17</sup> and the same patterns was observed in our study.

Various etiological factors have been implicated in carcinoma oesophagus including alcohol, hot drinks, smoking, contamination of food, and dietary habits etc.<sup>18-20</sup> World Health Organization has included snuff as one of the risk factor for carcinoma oesophagus.<sup>21</sup>

Snuff use is quite common in NWFP. It is strongly correlated to carcinoma oesophagus. Carcinoma oesophagus carries a grave prognosis partly because the diagnosis is usually made at a late stage. Educating people against snuff use may prevent this dreadful disease. This can be done on individual level by the doctors and on mass level through public media.

Addiction of oral snuff or *Naswar* was found in 62% of the patients in our study where as 2% were cigarette smoker and 1% pan chewer. Snuff may be an important aetiological factor in the causation of carcinoma oesophagus as such or it may enhance the carcinogenic effect of other risk factors which have been implicated in the causation of carcinoma oesophagus, because WHO has accepted *Naswar* as carcinogenic.<sup>22</sup>

In the present study, Snuff use ( $P < 0.001$ ) and snuff ingestion ( $P < 0.001$ ) was strongly correlated to carcinoma oesophagus. Although the frequency of use was not significantly correlated ( $P = 0.08$ ), but the duration of snuff use did show a significant correlation ( $P = 0.004$ ). Although, snuff use did not significantly correlate to the segment of oesophagus involved by carcinoma, however a strong correlation was observed with squamous cell carcinoma ( $P = 0.001$ ), but Chi square test showed high value (80.39) for Squamous cell carcinoma and lower value (19.45) for adenocarcinoma.

In view of their belonging to poor profession, almost all my patients were unable to get well nourished diet, to avoid ingestion of spicy foods and to give up bad dietary habits. They were not in a position to keep themselves clean, avoid exposure to dust, smoke, fumes and to restrain from addiction like snuff, etc. I think these were some of the risk factor which predisposed my patients to carcinoma oesophagus. Review of the literature<sup>23-26</sup> also shows that carcinoma oesophagus is

more common in individuals with occupations where monthly income is low and exposure to smoke, dust, and fumes is frequent.

## CONCLUSION

Oral snuff use is a risk factor for carcinoma oesophagus. Carcinoma oesophagus can be prevented by discouraging its use.

Educating people against snuff use may prevent this harmful and lethal disease. This should be done on individual level by the doctors and on mass level through public media.

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