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## Assessment of clinical and histopathological aspects of patients with oral submucous fibrosis in the background of oral squamous cell carcinoma

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### Abstract

**Background:** Oral submucous fibrosis (OSF) is one such potentially malignant condition that subjects the oral cavity to a widespread alteration in morphology and physiology. The present study was conducted to assess clinical and histopathological aspects of patients with oral submucous fibrosis in the background of oral squamous cell carcinoma.

**Materials & Methods:** 46 patients diagnosed with OSMF of both genders were included. Demographic and clinical information were recorded. Patients were divided into 2 groups of 23 each. Group I had both OSMF and OSCC and group II had OSCC. Haematoxylin and eosin-stained sections of the OSCC specimens were obtained for histopathological analysis.

**Results:** Primary site was lip in 2 and 1, tongue in 4 and 2, buccal mucosa in 12 and 10, FOM in 2 and 5, palate in 1 and 1, alveolar ridge in 2 and 4. Habits were betel quid in 8 and 3, smoking in 3 and 5, alcohol in 1 and 3 and all in 11 and 12 and lymph node metastasis was seen in 4 and 7 I group I and II respectively. The difference was significant ( $P < 0.05$ ). Early fibrosis had early invasive in 2 and 5, well DSCC in 3 and 14, MDSCC in 2 each and PDSCC in 2 each in group I and II respectively. Intermediate fibrosis had early invasive in 2, Well DSCC in 3, MDSCC in 4 and PDSCC in 1 and advanced fibrosis in early in 2, well DSCC in 1 and MDSCC I 1 in group I. The difference was significant ( $P < 0.05$ ).

**Conclusion:** High degree of prevalence of OSMF was observed among the OSCC patients. A non-significant association was observed in the degree of fibrosis with malignant transformation or the level of histopathological differentiation of the tumor.

**Keywords:** Malignant, oral squamous cell carcinoma, buccal mucosa

### Introduction

Oral submucous fibrosis (OSF) is one such potentially malignant condition that subjects the oral cavity to a widespread alteration in morphology and physiology. The clinical manifestation comprises the classic triad: blanching of the mucosa, burning sensation on irritation with spicy food, and depigmentation of the tongue. These will be followed by depigmentation of the lips and loss of elasticity of the mucosa with development of palpable fibrous bands in the oral cavity, progressing from the anterior region to the posterior region of the mouth. There are also apparent woody changes of palate and tongue, ultimately resulting in loss of mobility of the tongue along with restricted mouth opening<sup>[1]</sup>.

Squamous cell carcinoma (SCC) is the most common malignant neoplasm of the oral cavity. The incidence of oral cancers parallels the longevity, multiplicity, and intensity of carcinogenic exposure. Therefore, the peak incidence tends to arise beyond the 5th decade of life<sup>[2]</sup>. It is generally considered that oral SCC (OSCC) is most common in men in the 6th to 8th decades of life and is rare in patients younger than 40 years<sup>[3]</sup>. Only 1-6% of SCC occurs in patients under the age of 40 years, with the occurrence in children and adolescent being extremely rare. The institutional reported incidences of OSCC in patients younger than 40 years vary at 3.9% of all cases, rising to 6.7% when the arbitrary cut off point is 45 years<sup>[4]</sup>. Characterization of young patients with head and neck SCC is arbitrary. Most authors consider young patients with SCC as those <40 years of age.

In these young patients, the actual influence of carcinogenic factors is widely debated, mainly in terms of tobacco and alcohol [5]. The present study was conducted to assess clinical and histopathological aspects of patients with oral submucous fibrosis in the background of oral squamous cell carcinoma.

**Materials & Methods**

This study comprised of 46 patients diagnosed with OSMF of both genders. All gave their written consent for the participation.

Demographic and clinical information were recorded. Patients were divided into 2 groups of 23 each. Group I had both OSMF and OSCC and group II had OSCC. Haematoxylin and eosin-stained sections of the OSCC specimens were obtained for histopathological analysis. These slides were reevaluated for presence of fibrosis, subepithelial hyalinization, and reduced vascularity as signs of OSMF. Te specimens with fibrosis were further subjected to grading of the severity of fibrosis. The OSCCs with OSF and the ones without were analyzed according to the degree of histological differentiation of the tumour. The excisional biopsies were considered for the identification of lymph node metastasis, in both categories of OSCC patients. Results thus obtained were assessed statistically. P value less than 0.05 was considered

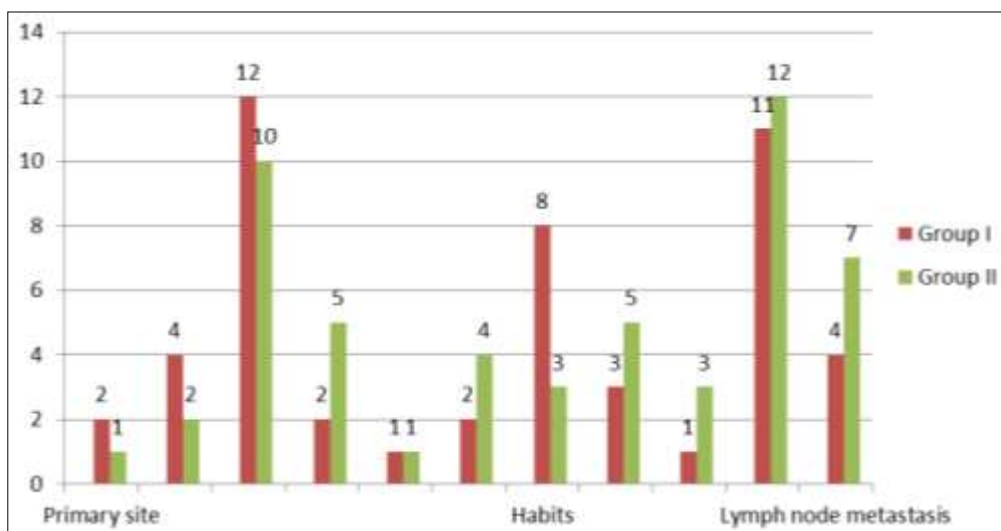
significant.

**Results**

**Table I:** Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Primary site	Lip	2	1	0.05
	Tongue	4	2	
	Buccal mucosa	12	10	
	FOM	2	5	
	Palate	1	1	
	Alveolar ridge	2	4	
Habits	Betel quid	8	3	0.12
	Smoking	3	5	
	Alcohol	1	3	
	All	11	12	
Lymph node metastasis		4	7	0.01

Table I, graph I shows that primary site was lip in 2 and 1, tongue in 4 and 2, buccal mucosa in 12 and 10, FOM in 2 and 5, palate in 1 and 1, alveolar ridge in 2 and 4. Habits were betel quid in 8 and 3, smoking in 3 and 5, alcohol in 1 and 3 and all in 11 and 12 and lymph node metastasis was seen in 4 and 7 I group I and II respectively. The difference was significant ( $P < 0.05$ ).



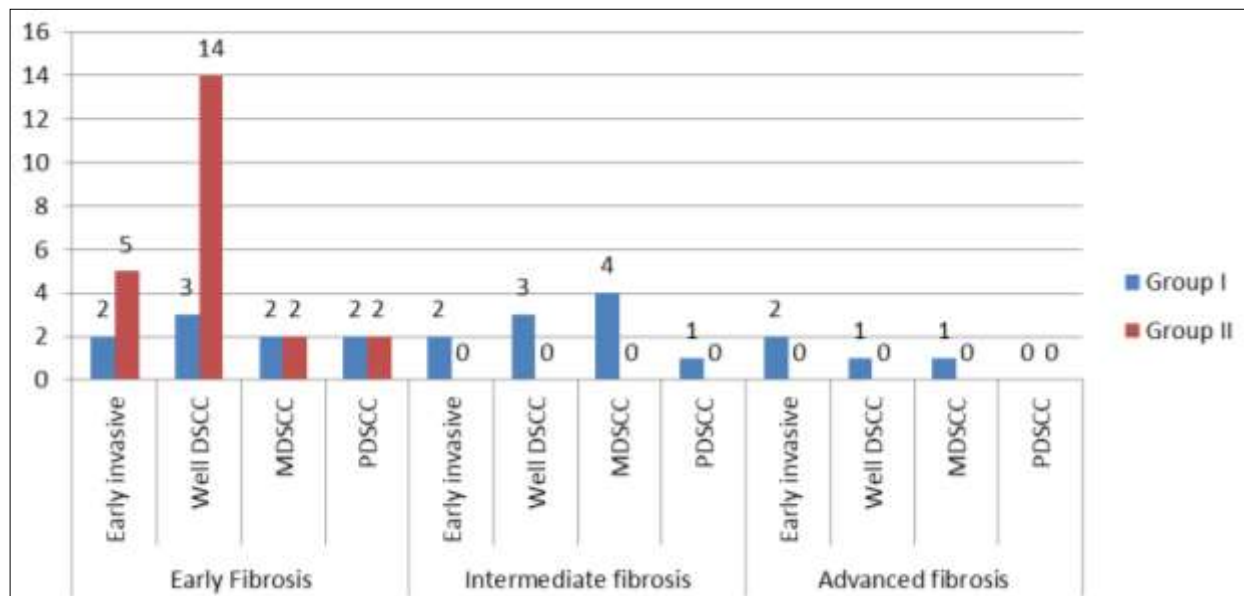
**Graph I:** Comparison of parameters

**Table II:** Degree of fibrosis

Parameters	Variables	Group I	Group II	P value
Early Fibrosis	Early invasive	2	5	0.01
	Well DSCC	3	14	
	MDSCC	2	2	
	PDSCC	2	2	
Intermediate fibrosis	Early invasive	2	0	0.01
	Well DSCC	3	0	
	MDSCC	4	0	
	PDSCC	1	0	
Advanced fibrosis	Early invasive	2	0	0.01
	Well DSCC	1	0	
	MDSCC	1	0	
	PDSCC	0	0	

Table II, graph II shows that early fibrosis had early invasive in 2 and 5, Well DSCC in 3 and 14, MDSCC in 2 each and PDSCC in 2 each in group I and II respectively. Intermediate fibrosis had early invasive in 2, Well DSCC in 3, MDSCC in

4 and PDSCC in 1 and advanced fibrosis in early in 2, well DSCC in 1 and MDSCC I 1 in group I. The difference was significant ( $P < 0.05$ ).



**Graph II:** Degree of fibrosis

### Discussion

Tobacco is considered the most potent risk factor for oral cancer [6]. A recent International Agency for Research on Cancer evaluation affirmed that chewing betel quid without tobacco is also carcinogenic to humans, and the areca nut, a common component of many chewing habits, is carcinogenic to humans [7]. Use of new products, blends such as pan masala and gutkha, is increasing not only among men but also among children, teenagers, and women. These are readymade pan mixtures developed by local tobacco companies in Southeast Asia and India. There are at least 50 different brands in the Indian market. All forms of tobacco use are associated with oral cancer. However, maximum risk was found among smokeless tobacco users, and it was reported that smokeless tobacco has a higher risk factor than smoking tobacco [8]. It was interesting to note that among patients who consumed smokeless tobacco, the risk was strongly determined by gutkha followed by tobacco flake consumption. This is probably due to the combined effect of the ingredients present in them. The risks attached to the use of many of these products are very high, because most of the ingredients are extracts and concentrates [9]. In the last few decades, small, attractive, inexpensive sachets of betel quid substitutes have become widely available [10]. The present study was conducted to assess clinical and histopathological aspects of patients with oral submucous fibrosis in the background of oral squamous cell carcinoma.

In present study, we found that primary site was lip in 2 and 1, tongue in 4 and 2, buccal mucosa in 12 and 10, FOM in 2 and 5, palate in 1 and 1, alveolar ridge in 2 and 4. Habits were betel quid in 8 and 3, smoking in 3 and 5, alcohol in 1 and 3 and all in 11 and 12 and lymph node metastasis was seen in 4 and 7 I group I and II respectively. Siriwardena *et al.* [11] assessed the effects of demographic features, habits, and histopathological features in the transformation of OSF to OSCC. OSMF was detected in 130 (48%) out of 273 OSCC patients. The mean age of presentation among OSF-positive patients was 57.7 years, while patients diagnosed only with OSCC had a comparatively higher age, 59.5 years. In the below 50 years of age group, presence of OSF with OSCC was less (40%). In the OSF-positive group, male to female ratio was 3.2:1. The common primary sites were buccal mucosa and tongue in both groups. Betel quid chewing was present in

more than 95% of the sample. Betel chewing, smoking, and alcohol consumption were present in 26.15% of OSF-positive patients. Degree of fibrosis was neither associated with the level of histological differentiation of the tumor ( $p = 0.195$ ) nor associated with the malignant transformation ( $p = 0.373$ ). Lymph node metastasis was not seen in 76.63% and 68.54% of the patients with and without OSF, respectively.

We observed that early fibrosis had early invasive in 2 and 5, well DSCC in 3 and 14, MDSCC in 2 each and PDSCC in 2 each in group I and II respectively. Intermediate fibrosis had early invasive in 2, Well DSCC in 3, MDSCC in 4 and PDSCC in 1 and advanced fibrosis in early in 2, well DSCC in 1 and MDSCC I 1 in group I. Acharya *et al.* [12] in their study all cases of OSCC were scrutinized. Clinicopathological features of patients aged 40 years (young patients) at the time of the initial diagnosis were compared to patients aged >40 years (older patients), and there was twice the number of older than younger patients. In a span of 5 years, there were 82 (24.6%) young patients (40 years) out of 333 OSCC patients reported, and the majority were males. The bulk of OSCC patients had chewing habits of tobacco and areca nut products, and the percentage of patients using commercially available pan-tobacco products among young patients were higher compared to older patients. Exophytic growth was a common morphological presentation in OSCC patients, but young patients showed a significantly higher endophytic presentation compared to older patients. There was no significant difference between study participants when histopathological grading systems of Broder and Anneroth *et al.* were applied.

### Conclusion

Authors found that high degree of prevalence of OSMF was observed among the OSCC patients. A non-significant association was observed in the degree of fibrosis with malignant transformation or the level of histopathological differentiation of the tumor.

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