Oral carcinoma in the first three decades of life

by K. Ramanathan

BDS (Mal), FDSRCS (Edin), FDSRCS (Eng), AM (Mal)

Head,
Division of Oral Pathology
and Oral Medicine,
Institute for Medical Research,
Kuala Lumpur.

Summary

SEVENTEEN CASES OF oral carcinoma are reported in persons below the age of 30 years. No case of oral carcinoma was reported in the first decade of life. About 24 per cent of cases occurred in the second decade and 76 per cent in the third decade of life. For the whole group, the male: female (M:F) ratio was 1:1.13.

The author has made the observation that round about the age of 30 years, a watershed seems to appear in the pattern and causes of oral carcinoma, especially squamous cell carcinoma, in the Indians. Below the age of 30 years, unknown carcinogens seem to play the major role in causing oral carcinoma. However, over the age of 30 years, it would appear the carcinogens contained in the betel quid, and especially tobacco, play an increasingly dominant role in causing oral carcinoma. The author also states that a majority of the oral carcinoma cases in West Malaysia are preventible. A preventive programme to be effective over the years must begin with the Tamil schools for they are the greatest potential reservoir of preventible oral cancers in this country.

Oral Carcinoma in the First Three Decades of Life

West Malaysia has a population of nearly nine million, consisting of about 50 per cent Malays, 37 per cent Chinese and 11 per cent Indians (Research Paper No. 1). The average life expectancy of the West Malaysian male is 65.8 years and for the female 68.1 years (Research Paper No. 2). On the whole, the country's population is comparatively young. About 70 per cent of the population is below the age of 30 years. Persons in the fourth decade of life form about 10 per cent of the population.

Oral carcinoma appears to be the second commonest cancer (second only to cancer of the cervix uteri) in West Malaysia. Among Indian and Malay males, it occupies first place in the data collected so far (Ungku Omar-Ahmad and Ramanathan, 1968). From time to time, the author noted the reporting of oral carcinoma cases in persons below the age of 30 years. A study of oral carcinoma in this age group is reported. A study of oral carcinoma in the fourth decade of life is recorded elsewhere (Ramanathan, in press, a). A comparative evaluation of these two studies will also be made.

Materials and Methods

This study is based on data obtained from the files of the Division of Oral Pathology and Oral Medicine, Institute for Medical Research, Kuala Lumpur, and for the years 1967-1970. Only

new cases, where the diagnosis had been proven histologically, were included in this study. The term oral carcinoma will be used to mean any malignant tumour of epithelial origin and presenting in the oral cavity.

Malignant oral tumours formed about 33 per cent and oral carcinoma 31 per cent of all specimens received by the division. Between 1967-1970, the division reported in all 753 cases of oral carcinoma. Seventeen cases were reported in persons below the age of 30 years, forming 2.3 per cent of all cases of oral carcinoma (Table 1). Thirty cases were reported in the fourth decade of life, forming 4 per cent of all cases of oral carcinoma. Some of these cases have been reported earlier Ramanathan, 1971; (in press, b)

General Comments

No case of oral carcinoma was reported in the first decade of life. About 24 per cent of cases occurred in the second decade and 76 per cent in the third decade of life. For the whole group, the male:female (M:F) ratio was 1:1.13. A similar ratio was also recorded for the fourth decade group (M:F = 1:1.14). The morbidity rate for oral carcinoma in descending order was the Chinese male, Chinese female, Indian female, Malay female and the Malay male (Table 2). No case was reported in the Indian male.

Second Decade

Four cases of oral carcinoma were reported in the second decade of life (Table 1). All the patients were females. The number, however, is too small to make any valid observation.

A 12-year-old Malay girl had a squamous cell carcinoma presenting as an exophytic growth of the left buccal mucosa (Fig. 1). Another Malay girl, age 15 years, had a squamous cell carcinoma which presented as an exophytic growth of the lower lip (Fig. 2). Squamous cell carcinoma formed about 11 per cent of all malignant oral tumours in children in West Malaysia (Ramanathan and Tan, in press, c). Jones (1965), in his Northern Ireland series, recorded two cases of oral carcinoma in children between 1950-1964. It appears oral carcinoma in children is not that extremely rare in West Malaysia for in the annual reports of the Institute for Medical Research, Lewthwaite (1931) reported a case of oral carcinoma in a Malay boy, age 13 years. In the following year, the same author reported a case of carcinoma of the buccal mucosa in a 2-year-old Chinese baby girl.

Perhaps the most remarkable case to be reported in the literature is that described by Frank et al (1936) who described a carcinoma of the tongue in a newborn infant. This was a tumour

TABLE I

AGE GROUP IN YEARS	TYPE	MALAY		CHINESE		INDIAN		TOTAL	%
		M	F	M	F	M	F		
10 — 19	Squamous cell carcinoma	—	2	—	—	—	—	2	50.0
	Malignant pleomorphic adenoma	—	—	—	1	—	—	1	25.0
	Metastatic carcinoma	—	1	—	—	—	—	1	25.0
23.5%	TOTAL	—	3	—	1	—	—	4	100.0
20 — 29	Squamous cell carcinoma	1	1	3	1	—	1	7	53.8
	Adenoid cystic carcinoma	1	—	1	1	—	—	3	23.1
	Mucoepidermoid carcinoma	—	—	1	—	—	—	1	7.7
	Nasopharyngeal carcinoma	—	—	1	—	—	—	1	7.7
	Metastatic choriocarcinoma	—	—	—	1	—	—	1	7.7
76.5%	TOTAL	2	1	6	3	—	1	13	100.0
M : F =				8 : 9				1 : 1.13	

Distribution of oral carcinoma cases by type, race, sex and age groups.

Table 2

AGE GROUPS	MALAY		CHINESE		INDIAN	
	M	F	M	F	M	F
0 — 29 YRS.	0.13	0.26	0.53	0.37	—	0.30
30 — 39 YRS.	1.90	1.60	0.61	2.41	15.18	16.67

NOTE: The incidence per 100,000 people is not an annual rate, and these rates are only for comparison with one another.

Crude morbidity rates for oral carcinoma cases by race, sex and age groups — 1967-70.

about the size of a pea, discovered when a newly-born baby boy refused to nurse. It was situated on the left side of the tongue at the junction of the posterior and middle-thirds of the tongue. In reporting two cases of oral carcinoma in children recently, Jones (1970) made an exhaustive review of the literature on the subject.

An 18-year-old Chinese female had a malignant pleomorphic adenoma involving the left side of the hard palate. Loke (1967), in reporting 670 cases of salivary gland tumours from data obtained from the Institute for Medical Research, Kuala Lumpur, pointed out that the age of onset for the malignant pleomorphic adenomas showed two peaks. One corresponds to 50 years, which is about 10-20 years greater than the average age for benign pleomorphic adenomas. On the other hand, there are those which occur below the age of 20. It would appear from this that although many of the malignant pleomorphic adenomas arise from a preceding long standing benign pleomorphic adenoma, some of them, in fact, may have been malignant from the outset.

Third Decade

About 70 per cent of the cases reported in this age group were Chinese. Squamous cell carcinoma was the commonest carcinoma, forming about 54 per cent. Malignant salivary gland tumours formed about 30 per cent (Table 1).

A 22-year-old Chinese female had metastatic choriocarcinoma involving the palate (Figs. 3,4, 5,6). This case has been reported in detail elsewhere (Ramanathan et al, 1968).

Carcinoma of the Palate

The commonest site for oral carcinoma was the palate (Table 3). In the palate, malignant salivary gland tumours were the most frequent. Six out of the seven cases were Chinese. Loke (1967) has reported the frequency of palatal involvement by salivary gland tumours is low in West Malaysia (5.5 per cent) when compared with Uganda (19.4 per cent) and South Africa (12.9 per cent). An interesting finding is that 46 per cent of the tumours which arose from the palatal glands are malignant, whereas only 29 per cent of parotid and 21 per per cent of submandibular tumours are of this nature.

Adenoid cystic carcinoma (Fig. 7) was the commonest malignant salivary gland tumour to be reported. Loke has commented that these tumours constitute 4.3 per cent of all salivary gland tumours and are most commonly found in the palatal and minor salivary glands. These tumours occur most frequently in the fourth and fifth decades. Loke has also stated that mucoepidermoid carcinoma, which forms about 6 per cent of all salivary gland tumours, has the highest incidence between the second and third decades.

No case of squamous cell carcinoma was reported in the palate or floor of the mouth.

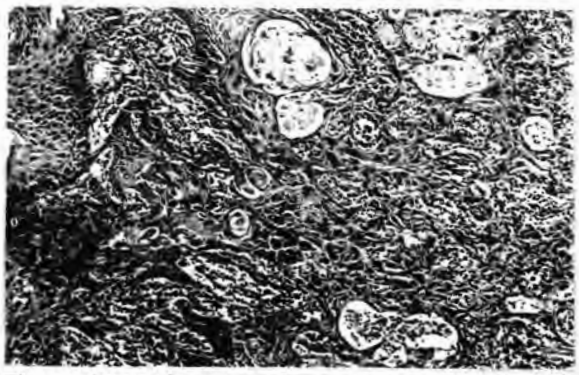

Fig. 1: Photomicrograph shows a squamous cell carcinoma of the left buccal mucosa in a 12-year-old Malay girl. Keratin whorls, pleomorphism of cells and infiltration are evident. (Magnification x 25). H & E.

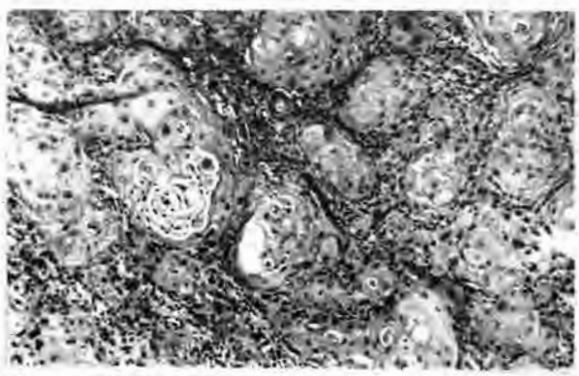

Fig. 2: Photomicrograph shows a squamous cell carcinoma of the lower lip in a 15-year-old Malay girl. Numerous keratin whorls are evident. (Magnification x 25). H & E.

Table 3

RACE	SEX	TONGUE	GINGIVA	BUCCAL MUCOSA	PALATE	FLOOR OF MOUTH	LIP	MANDIBLE	TOTAL
MALAY	M	—	S.C.C.-1	—	A.C.C.-1	—	—	—	2
	F	S.C.C.-1	—	S.C.C.-1	—	—	S.C.C.-1	M.C.-1	4
CHINESE	M	S.C.C.-3	—	—	N.P.C.-1 M.E.C.-1 A.C.C.-1	—	—	—	6
	F	S.C.C.-1	—	—	M.P.A.-1 A.C.C.-1 M.C.C.-1	—	—	—	4
INDIAN	M	—	—	—	—	—	—	—	0
	F	—	S.C.C.-1	—	—	—	—	—	1
TOTAL		5	2	1	7	—	1	1	17

A.C.C. — Adenoid cystic carcinoma.
M.P.A. — Malignant pleomorphic adenoma.
M.C. — Metastatic carcinoma.
M.C.C. — Metastatic choriocarcinoma.
M.E.C. — Mucoepidermoid carcinoma.
N.P.C. — Nasopharyngeal carcinoma.
S.C.C. — Squamous cell carcinoma.

Distribution by race, sex, type and anatomical site of oral carcinoma cases in the first three decades of life.

Carcinoma of the Tongue

The tongue was the commonest site for squamous cell carcinoma (Table 3). Four out of the five patients were Chinese. The five cases formed part of a study of 111 cases of carcinoma of the tongue, i.e. 4.5 per cent. Venables and Craft (1967), in a study based from the records of the Westminster Hospital, London, reported 13 cases under 30 years of age between the years 1925-1966. During this period, a total of 819 cases of carcinoma of the tongue was treated in the department, giving an incidence for this age group of 1.6 per cent. The tongue continued to be the commonest site for squamous cell carcinoma in the fourth decade of life in this country.

Clinical Features

Squamous cell carcinoma presented about equally as an exophytic growth (Fig. 8) and as an ulcer with raised indurated margins (Fig. 9) in the first three decades of life. However, in the fourth decade of life, about 65 per cent of the cases presented as an ulcer and 35 per cent of the cases as an exophytic growth. Most of the malignant salivary gland tumours presented as a firm swelling (Fig. 10).

Duration of Symptoms

About 56 per cent of the patients had symptoms for over six months (Table 4). In contrast, about 62 per cent of oral carcinoma cases in the fourth decade of life had symptoms for less than 3 months. There is really a need to consider seriously carcinoma in the differential diagnosis of oral conditions even in the young. Moreover, public education to seek prompt treatment for oral conditions is desirable. Venables and Craft (1967) have also stressed that although carcinoma of the tongue is rare below the age of 30 years, it is important that the medical and dental profession be aware of its existence to enable early treatment, and it is disturbing that the average delay before diagnosis was 5.3 months.

Observations

When the studies of oral carcinoma in the first three decades and fourth decade of life are

Fig. 3: A Chinese female, 22 years, with metastatic choriocarcinoma involving the palate.

Fig. 4: Radiograph shows most of the anterior part of the hard palate destroyed and teeth displaced.

evaluated together, the following observations could be made: —

(1) Round about the age of 30 years, a watershed seems to appear in the frequency of types, race and sex incidence, anatomical sites of involvement, clinical features and the causes of oral

Fig. 5: Photomicrograph shows neoplastic tissue alongside areas of heamorrhage. (Magnification x 50). H & E.

Table 4	
DURATION	NUMBER OF CASES
Less than 3/12	2
3/12 — 6/12	5
6/12 — 1 yr.	2
1 yr. — 2 yrs.	4
More than 2 yrs.	3

Duration of symptoms.

carcinoma especially squamous cell carcinoma in the Indians (Table 2). Below the age of 30 years, unknown carcinogens seem to play the major role in causing oral carcinoma. However, over the age of 30 years, it would appear the carcinogens contained in the betel quid and especially tobacco play an increasingly dominant role in causing oral carcinoma. This would explain the approximately 55-fold increase in the incidence of oral carcinoma in Indians in the fourth decade of life.

Many of the Indian patients acquire the habit of chewing the betel quid with tobacco in adolescence or early adult life. Besides the age at which this chewing habit was first acquired, other factors that influence the induction period are the duration of chewing of each quid, the number of quids chewed each day and whether the patient sleeps with the quid in the mouth. If the betel quid with tobacco was kept in the mouth during sleep, the risk of developing oral cancer was as high as 63 times that for non-chewers (Hirayama, 1966). There also appears to be an association between the anatomical site of the oral cancer and the

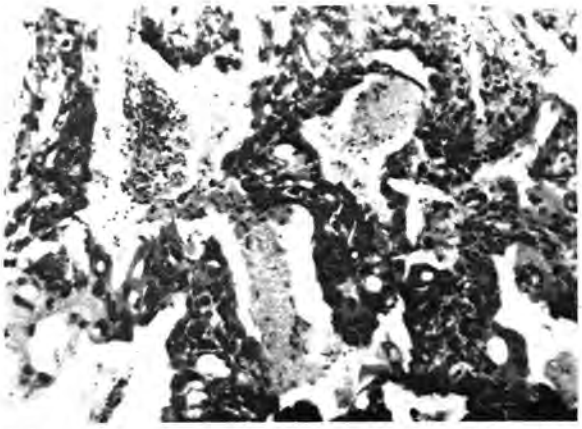

Fig. 6: Photomicrograph shows epithelial cells forming syncytial masses of irregular outline. A few cells resembling Langhans' cells are evident. (Magnification x 120). H & E.

Fig. 7: Photomicrograph shows an adenoid cystic carcinoma consisting of rounded, ovoid or irregularly shaped masses of cells in a rather scanty connective tissue stroma. Numerous cystic or alveolar spaces are present in the cell masses, giving rise to the cribriform effect which is a very characteristic feature of this tumour. (Magnification x 25). H & E.

Fig. 8: Squamous cell carcinoma of the tongue presenting as an exophytic growth.

place where the betel-quid with tobacco was habitually kept.

Similar observations have been made by Marsden (1960) and Wahi et al (1965) in their studies of oral cancer in Indians. Marsden (1960), in a study of 219 cases of oral carcinoma in Indians, reported that oral carcinoma was rare before the age of 30 years. The incidence rises rapidly after 30 years, to a maximum between 50 and 60 years. Wahi et al (1965), in their study of 1,916 cases of oral and oropharyngeal cancers from Uttar Pradesh, North India, also reported that oral carcinoma was uncommon below the age of 30 years. The incidence rate showed an upward trend from 30 years onwards and the peak incidence was between 50 to 54 years of age.

(2) If the habit of chewing the betel quid with tobacco were to be discarded by the Indians, then the incidence of oral carcinoma in them would probably be as low as the incidence in the Malays and Chinese. A majority of the oral carcinoma cases in this country are thus preventible (Ungku Omar-Ahmad and Ramanathan, 1968). Perhaps there is no other cancer in this country for which a preventive programme could be soundly planned and implemented. An increasingly large number of the younger generation of Malays have discarded the habit of chewing the betel-quid. A study of the reasons for this change in social habit will be valuable. A preventive programme to be effective over the years must begin with the Tamil schools for they are the greatest potential reservoir of pre-

Fig. 9: Squamous cell carcinoma of the buccal mucosa presenting as an ulcer with raised indurated margins.

ventible oral cancers in this country.

(3) Malignant salivary gland tumours were most commonly reported in the Chinese. The palate was the commonest site of involvement.

Fig. 10: Malignant salivary gland tumour of the palate presenting as a firm swelling.

Adenoid cystic carcinoma, muco-epidermoid carcinoma and malignant pleomorphic adenoma were reported. In these two studies, no case of malignant salivary gland tumours was reported in the Malay female or in the Indians.

Acknowledgement

I wish to thank the Editor, Oral Surgery, Oral Medicine and Oral Pathology for the use of Figures 3,4,5 and 6.

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