

CANCER OF THE LIP

T. SCHRIRE M.A., M.B. (CAPE), F.R.C.S., *Combined Clinic, Groote Schuur Hospital, and Department of Surgery,
University of Cape Town*

The incidence of carcinoma of the lip in South Africa is very high. In the years 1949-56 over 500 cases have been referred to the Radiotherapy Department of Groote Schuur Hospital and, of these, 470 cases are analysed. By far the largest number of cases occur in elderly European males and the lower lip is about 10 times as commonly involved as the upper. Usually one spot only breaks down but we have on several occasions seen multiple, simultaneous and separate car-

cinomas of the lip quite apart from local recurrences of the disease. The record is held by a patient in whom 6 separate carcinomas of the lip have been observed, which ultimately required surgical removal of both lips.

AETIOLOGY

A large proportion of patients have been outdoor workers, and it is our impression that it is the excessive weathering by

the sun and wind associated with the outdoor life that has been responsible for most of the epitheliomas in this situation. Syphilis has not been present in unusual numbers of our cases.

The typical case starts as a small hard nodule which develops slowly on the lower lip, usually to one side of the mid-line. The nodule occurs on the exposed surface near its cutaneous border, is quite painless, and is often unremarked by the

TABLE I. AGE GROUPS OF 366 CONSECUTIVE CASES OF CANCER OF THE LIP

	Under 30	30-39	40-49	50-59	60-69	70-79	80+
Number ..	4	54	65	85	88	47	23
Percentage ..	1	14.7	17.6	23.2	24	13	6.3

patient. Such small epitheliomas are not infrequently found in those patients who come up for treatment for solar keratosis of the face, and who have already got actively growing rodent ulcers.¹ The age incidence of the condition is indicated in Table 1. Because the majority of our patients are of the

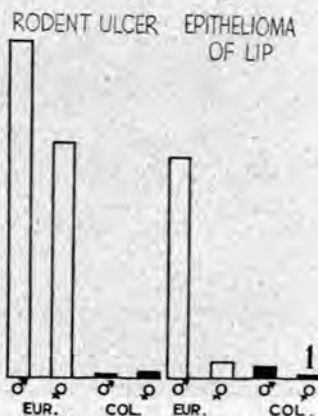


Fig. 1. Series of cases of rodent ulcer and epithelioma of the lip illustrating sex and race distribution.

same race, colouration and diathesis as the typical case of rodent ulcer,¹ namely Afrikaner farmers with fair hair, blue eyes and a soft pale skin, we feel that carcinoma of the lip probably has the same aetiological factors operating on it as the former disease (Fig. 1).

The relative rarity of the disease in women is noteworthy, as is its rarity in the upper lips, this latter being almost

TABLE II. EPITHELIOMA OF LIP: 305 CONSECUTIVE CASES: RACE AND SEX

	European		Coloured	
	Male	Female	Male	Female
Lower ..	249	18	14	3
Upper ..	8	7	4	2

certainly because the upper lip is in the shade, whereas the lower lip gets sunburnt. Of the 305 cases analysed only 2 cases in the upper lips of Coloured women have been observed (Table II).

COURSE

At its first appearance the nodule may be observed either as a small non-ulcerated indurated area which is quite painless, or as a small warty projection, or further as an ulcer which fails to heal, or finally as an area of leukoplakia.

The nodule grows and encrustations appear on its surface,

these are repeatedly removed by the patient and later a small ulcer develops. The ulcer is typically carcinomatous in character with everted edges. It secretes a thin, sero-sanguinous discharge which clots and is responsible for the encrustations. It is at this stage, when the ulcer is about 1 cm. across, that the patient often first seeks advice. It is unfortunate that the first type of advice often sought is that of the 'cancer curer', who is recommended by many people in this country, where nodules on the face and lips are common and where many have had experience of these among their immediate acquaintances. The 'cancer curer' treats his clients with escharotics of various kinds, and after the application of these remedies a fulminating reaction occurs and a necrotic sloughing mass is taken out of the wound. This is demonstrated as a cancer with its 'roots'. Once a case has had such treatment we have observed that radiotherapy or surgery will rarely succeed in finally curing the condition, and many of our disappointments give a story of such treatment. It appears that the caustic chemicals used, while they can seldom be relied upon to destroy the carcinoma completely, invariably succeed in damaging the stroma to such an extent that its protective powers are lost. Direct and repeated questioning is often necessary before a patient admits to having had this escharotic type of 'cure'; the cases are by no means exclusively drawn from the less intelligent members of the community.

Left untreated, the ulcer grows and destroys the lip. Secondary nodes appear in the submaxillary and submental glands and later in the deep cervical glands; and these secondary glands enlarge and ultimately burst through the skin so that the primary and secondary ulcers fuse, forming a huge stinking, cancerous crater in whose base the mandible, grey-white and necrotic, is seen. Involvement of the mandible by direct continuity of the primary growth is common and occurs relatively early. The secondary glands do not involve the bone nearly as quickly, their capsule exerting a restrictive effect on the growth. The carcinoma is thus contained within the lymph glands for an appreciable time and, while the glands are often glued to the periosteum of the mandible by inflammatory reaction, the bone itself is invaded from the glands relatively late.

Apart from the extension to the submental and submaxillary glands, another form of lymphatic extension takes place along the lymph channels accompanying the mental artery and vein. In these cases a deposit of carcinoma develops within the mandible. It is recognized clinically by persistent bone pain, worse at night, and a radiograph shows a zone of osteolysis. The bone swells and finally fractures, the carcinoma breaks through into the mouth and an infective osteomyelitis adds to the general misery.

Distant metastases from blood spread are extremely rare, in our experience not more than 1%.

Histological Types. The vast majority of carcinomas were of the squamous and horny type with keratinization; less than 2% were anaplastic. Only a very small number are basal-cell carcinomas and there has been no difference observed in the response of these to treatment.

CLASSIFICATION

Since the lip, by virtue of its anatomical position, is a facial as well as a buccal organ, epithelioma develops on the facial aspect particularly in cases with a rodent ulcer diathesis, and the lesions in these is almost certainly solar in origin; this

group forms the great bulk of our European patients. The classification we propose is as follows:

1. *Cutaneous carcinoma of the lip.* This is external, typically starts at the red margin and, as stated, is the type seen in White patients (Figs. 2 and 3).

2. *Mucous or buccal carcinoma of the lip,* which typically occurs in Coloured patients, and should really be classified



Fig. 2. A typical epithelioma of the lip in a White man. Cutaneous or external variety, prognosis good.

as a variety of cancer of the mouth (Figs. 4 and 5). It is histologically identical with the first variety, both being squamous carcinoma, and once it attains any size, it is also clinically indistinguishable.

3. *Angular cancer of the lip* has long been known to have a sinister significance. We can confirm this from our own experience, but feel that we cannot support the theory, commonly held and taught, that the bad prognosis is due to excessive mobility of the lip at the angles of the mouth, with a better-than-average lymph drainage at that part, which causes cancer cells to be massaged into the lymphatic circulation at an early stage. There is no reason why the lymphatic drainage from the angle of the mouth should be any better than that from the lip itself; indeed this has never been proved. If the lymphatic parallels the blood supply, the lymph supply at the angles is indeed very rich, but is no richer than elsewhere, nor do the angles of the mouth move any more actively than the lips themselves, a fact that can be easily



Fig. 3. A similar case. Growth a little larger, prognosis still good.

observed. A far more reasonable explanation, we submit, lies in the well established and easily proven observation that angular carcinomas usually start on the buccal side of the lip and adjacent cheek, and that the angular lip cancer when it becomes visible is only the top of the iceberg. This type of carcinoma, like the second variety, is also primarily a buccal cancer, and carries the bad prognosis of cancer of the mouth.² The common cancer of the lip in White people is primarily a disease of the skin, and runs the relatively benign course of facial cancers.¹

DIAGNOSIS AND TREATMENT

Diagnosis. A biopsy is always done in all suspected cases, taking a piece of the neoplasm, together with a part of the adjacent normal tissue. Should the lesion be smaller than 0.5 cm. in diameter, a wedge excision-biopsy is performed with a 1-cm. margin on either side and this procedure is curative as well as diagnostic. Lesions that are larger are treated with radiotherapy.

Preventive Treatment aims at removing areas affected by leukoplakia and areas that show recurrent ulceration and break down repeatedly. A biopsy is always done in these cases and if the condition proves to be pre-malignant only, we advise *excision with advancement*. This operation consists of excising the affected mucous membrane and sliding it forward from the inside of the lip to the red margin. In effect, the operation removes the pre-malignant area of mucosa and

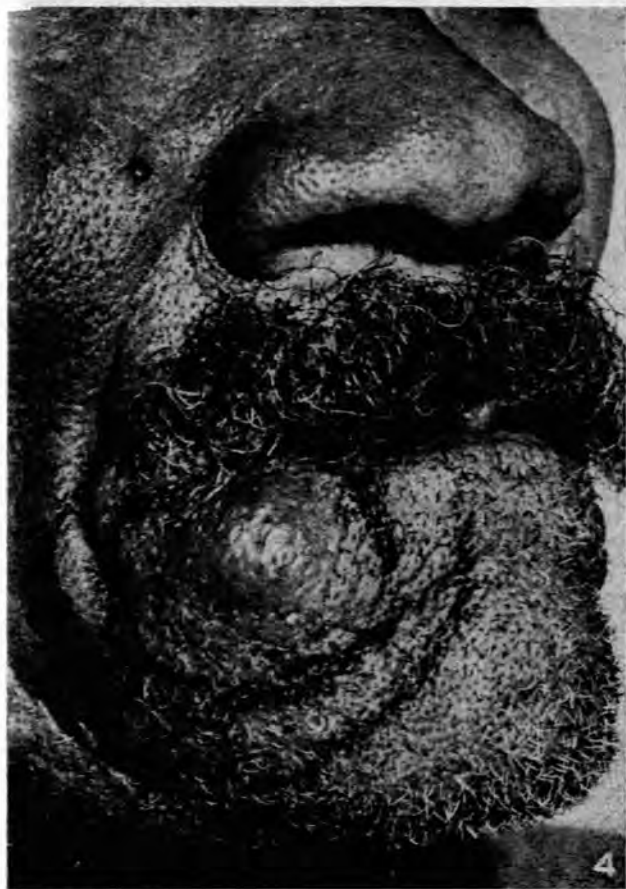


Fig. 4. A typical case in a Coloured male, second variety, showing oedema and swelling as a first sign.



Fig. 5. The same case with lip everted to show the ulceration within.

replaces it with fresh mucosa from the unexposed part of the lip. We are indebted to the plastic surgeons who frequently perform this operation for perfecting the technique so that very little deformity is caused. The portion of tissue that has been removed is always examined microscopically, and should carcinoma be found in it, appropriate radiotherapeutic treatment is directed to the lip.

Radiotherapy in divided doses up to 5,000-6,000 r is the treatment of choice in the vast majority of cancers of the lip and is applied either by means of deep X-ray therapy or by means of a radium sandwich applicator. The reaction that occurs is followed by desquamation and later the tumour disappears. In many cases a hard nodule persists at the site of the original lesion. All cases are kept under observation, but as many of our patients live in inaccessible places up to several hundreds of miles away, the nodule is excised if still present at the return visit after 2 months. In a large proportion of such excisions the residual induration is fibrous only and no neoplasm is found on section. It is impossible to differentiate such innocent fibroses from residual malignancy by clinical palpation alone, and the removal of all suspicious nodules is therefore justifiable.

Surgery is indicated in the following conditions: (1) When radiotherapy has failed, (2) when a 'cancer paste' has been used, (3) when glands are invaded and palpable, and (4) when the mandible is involved. The surgery performed is a wedge

excision, and if the apex of the wedge is carried down to the point of the chin and a margin of 1 cm. is left on either side of the tumour it is possible, with adequate mobilization, to draw the edges together in most cases without further plastic manoeuvres. The plastic surgeons have evolved various methods whereby larger portions of the lip can be removed with immediate reconstruction; these are to be described in a subsequent paper.⁴

Lymph Glands. Of our cases, 6% presented with invaded glands at the first visit. The treatment of the invaded lymph glands by radiotherapy has not been an unqualified success; we feel that surgery offers a far better chance of cure here, and all cases where the lymph nodes become firmly enlarged are treated by surgery. After radiotherapy a transient swelling of the submental and submaxillary glands, probably inflammatory, is to be expected, but this soon subsides and within 4-6 weeks the glands return to normal. The patients are observed at 2-monthly intervals for the first 6 months and later these intervals are increased to 3-4 months until an annual visit is reached; instructions are given that any sign of swelling in the neck should be reported immediately. Should the glands become clinically suspicious, surgery is undertaken.

We believe, as a result of several disappointing experiences with supra-hyoid clearance alone, that a total clearance of the neck glands, including the submental glands, will

alone suffice for safety. Removal of the internal jugular vein and the sterno-mastoid and clearance of the anterior and posterior triangles of the neck (Crile's operation) is the surgical procedure of choice. The mortality of both operations is negligible and the safety factor of the more extensive procedure is, we think, much greater. Diathermy is used throughout the operation because it is considered that this will prevent local implantation of carcinoma cells.³ The operation takes a little over an hour.

After this operation, it is imperative to keep the patient under observation in case he develops metastases on the opposite side. Should this happen, although it is rare in cases of lip carcinoma, an identical clearance is performed on the second side. The removal of both jugular veins, if an interval of 1 month elapses between the two operations, seems to lead to no difficulties with the venous return. In the ordinary way it is not considered practical to perform a total neck clearance in every case of carcinoma of the lip, because not every case develops secondary glands and there is no way that one can tell by examination of the primary whether metastases will occur or not. If the patient can be kept under regular observations and if he is intelligent enough to report at the first sign of swelling in the neck, the procedure can well be postponed. However, for the patients who live far away, and who cannot be persuaded to return betimes, a prophylactic clearance is advisable.

When the mandible has become invaded, more extensive operations are necessary and the invaded bone must be ruthlessly sacrificed. Our disappointments always occur because of recurrences in the stump of the mandible and we think this is due to insufficient removal of bone. Once the bone is invaded the whole of the alveolar canal is suspect, so that any excision must include the mandibular foramen of the side involved; if the symphysis menti is grossly invaded, both sides of the mandible, to include both mandibular foramina, should be removed. Repair after these extensive excisions is by a multi-staged series of operations and is carried out by the plastic surgeons attached to the Clinic.

Tracheotomy. Whenever the symphysis menti with the genioid tubercles require to be sacrificed or when the attachment of the geniohyoglossus to the mandible has been freed, the tongue falls back and an immediate temporary tracheotomy should be done before the patient leaves the table. This manoeuvre is life-saving and obligatory and the tracheotomy may be allowed to close after a few days.

PROGNOSIS

It will be observed from the analyses that have been presented of rodent ulcer,¹ of cancer of the lip and of cancer of the mouth,² that cancer of the lip lies about midway between the two other neoplasms in its seriousness and prognosis. It is less serious than cancer of the mouth but more serious than rodent ulcer. Metastases develop rather more slowly than in the case of cancer of the mouth, and both the surgeon and the patient receive ample warning from the development of en-

larged hard glands that the time has come to perform further surgery. Nevertheless, much misery is caused by the dilatoriness of many of our patients, who are prepared to tolerate a lesion on their lips because it is painless and pay no attention to its growth or to the development of glands. It is necessary to educate the public on the importance of early diagnosis and treatment.

The outlook in the average case of cancer of the lip is good. Our records show that there is a mortality of 6%, this proportion of patients dying of the disease. Examination of the records of these patients not unexpectedly shows that they are mostly late cases who came to the Clinic with glands already invaded, or whose primary lesion was more than 2 cm. in diameter at their first visit. Because his cancer tends to be intra-oral and not visible externally the Coloured patient often comes for treatment rather later than the European, whose lesion is external. For this reason too, the outlook in the Coloured case is worse than in the European.

The relative incidence of this disease in the European and the Coloured races (Fig. 1) bears a close resemblance to the relative incidence of rodent ulcer of the face, and since the only factor in which the two races differ is in the pigmentation of the latter, we thus feel that just as rodent ulcer is an actinic disease so is cancer of the lip. The typical patient has exactly the same diathesis as that found in cancer of the face and indeed many come up for treatment of both conditions.

Late cases and the 'cancer curer' are our problem, but there is encouraging evidence to suggest that if these late cases are tackled with resolution and in a spirit of hope, surprisingly good results can sometimes be obtained.

SUMMARY

1. Over 400 cases of cancer of the lip are presented and discussed.
2. The degree of malignancy found suggests that it is a less malignant disease than cancer of the mouth, but more malignant than rodent ulcer of the face.
3. Early cases can be treated successfully, with relatively simple methods; late cases show definite mortality and require massive operations to control the disease.
4. It is considered that the majority of our cases of cancer of the lip are due to solar irradiation.
5. A new classification of cancer of the lip is suggested.

I should like to thank Dr. J. Muir Grieve, Head of the Department of Radiotherapy at Groote Schoor Hospital, Drs. M. B. Bennett and R. D. Tucker, radiotherapists, and Prof. J. H. Louw and Mr. E. B. Malherbe, of the Department of Surgery, for their kind cooperation and interest in this work. The Medical Superintendent, Groote Schuur Hospital, is thanked for permission to publish these figures, and Mr. B. Todt for the photographs.

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