EARLY CARCINOMA TONGUE - SURGICAL OPTIONS

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ABSTRACT

A retrospective analysis of 127 surgically treated cases of T-1, T-2 carcinoma of oral tongue during the period 1987-1990 was undertaken. 68.5 per cent (87) underwent hemiglossectomy and 31.5 per cent (40) underwent wide excision. There were loco-regional recurrences in 22 per cent (27). In the hemiglossectomy group 9 per cent (8 of 87) had local recurrences compared to 25 per cent (10 of 40) of wide excision group, ($P = 0.01$). Mean disease free survival was 40 months and 33 months for hemiglossectomy group and wide excision group respectively, ($P = 0.006$). It is seen that local recurrences are significantly less for the hemiglossectomy group compared to the wide excision group.

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KEYWORDS : Disease free survival; Early cancer; Recurrence; Surgery; Tongue.

Introduction

Carcinoma of oral tongue is a common site for cancer in the head and neck region. At the Tata Memorial Hospital, Mumbai, four hundred patients of cancer of oral tongue report for treatment every year. Of these, 35 per cent are in early stages of T1 and 2 [1].

Treatment options for these cancers are surgery and radiotherapy. Among surgery, hemiglossectomy and wide excision are being practiced. The principal question to be answered is whether hemiglossectomy or wide excision, results in less number of loco-regional recurrences and better disease free survival.

Hemiglossectomy in comparison to wide excision, is presumed to leave behind a large defect in the oral cavity which may be associated with speech and deglutition disabilities inspite of timely instituted rehabilitative measures. Proponents of wide excision, believe that this procedure is adequate for early lesions of oral tongue. Proponents of hemiglossectomy believe that a hemiglossectomy is the appropriate choice of surgery for these cancers, as in this procedure one anatomical compartment of tongue is excised and this is presumed to reduce local recurrences.

Literature review did not reveal any study conducted retrospectively or prospectively comparing hemiglossectomy and wide excision for early cancers of oral tongue. Hence this study was carried out correlat-

ing disease factors and type of surgery with the loco-regional recurrences and disease free survival.

Material and Methods

A retrospective study of 127 patients of previously untreated early carcinoma (T1 - 2 : U.I.C.C 1987) of oral tongue, who underwent surgery during the period 1987-1990, at Tata Memorial Hospital, was undertaken.

Patients who had prior radiotherapy, chemotherapy, or any type of surgery, other than biopsy and those who received post-operative adjuvant therapy or revision surgery were excluded from the study. Patients who did not have a minimum period of one year follow up were also excluded. The end points of the study was disease free survival and recurrence at the primary site.

Data was entered on a database and survival curves were drawn using Kaplan-Meier method. Univariate analysis was done by using Chi-square test. A multivariate analysis was performed by the Cox regression model.

In hemiglossectomy, the oral tongue was split in the midline from the tip to the foramen caecum. The lateral incision extended across the floor of the mouth from the tip to the anterior tonsillar pillar. The fibers of genioglossus were cut as they emerged from their origin from the mandible. The lingual artery is identified and divided between ligatures. The tip was then rotated and stitched to the lateral cut edge of the tongue. This gave a better cosmetic appearance and there was no functional disability. In wide excision, the lesion was excised with about 1.5 cms margin with knife or cautery. Haemostasis was secured and the defect is closed by interrupted sutures. All the patients were followed up once in three months for first two years, once in six months for next three years and once in a year later.

Results

One hundred and twenty seven patients were accrued into the

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study. Table 1 defines the patient's age and sex distribution. The lateral border was involved in 95 per cent of cases, with 48 patients (38%) in T-1 stage and 79 patients (62%) in T-2 stage.

TABLE 1

Early carcinoma tongue (T 1-2) - age and sex distribution

	No of patients
Age (in years)	
< 40	27
40 - 60	78
> 60	22
Sex	
Male	90
Female	37
M : F ratio	2.4 : 1

Hemiglossectomy was performed in 87 patients (68.5%) and wide excision in 40 patients (31.5%). A total of 72 neck dissections were done, in which 42 (58%) were synchronous and 30 (42%) were interval dissections. Among the neck dissections, 59 (82%) were radical neck dissections and only 9 (12%) were modified neck dissections.

Final histopathological evaluation revealed 63 (50%) moderately differentiated squamous cancer, 29 (23%) well differentiated squamous cancer and 10 (8%) poorly differentiated squamous cancer. Deep infiltration (4 mm or more) was noted in 66 (52%) and minimal infiltration (<4 mm) in 40 (31%) of the specimens.

Recurrences occurred in 28 (22%) cases. Among these recurrences, 9 (32%) were each in local, nodal and loco-regional areas respectively. Only 1 (4%) of these recurrences were distant. Overall local recurrences were studied. Hemiglossectomy group had 8 and wide excision group had 10 local recurrences (Table 2).

TABLE 2

Early carcinoma of tongue - local recurrences

	Hemiglossectomy	Wide excision
T1	0/25	7/23
T2	8/62	3/17

Subset analysis revealed that in T-1 lesions, there were 0/25 local recurrences in hemiglossectomy group compared to 7/23 local recurrences in the wide excision group. In T-2 lesions, there were 8/62 local recurrences in the hemiglossectomy group 3/17 local recurrences in the wide excision group.

Disease free survival revealed that 104 (82%) patients had more than 12 months disease free survival and 72 per cent and 55 per cent beyond 24 months and 36 months respectively. Mean disease free survival for the hemiglossectomy group was 40 months and 33 months for the wide excision group. Local recurrences in relation to depth of infiltration was studied and it revealed that only one case recurred locally in superficial infiltration whereas 12 cases recurred locally in the deep infiltration.

The cosmetic and functional results were also compared. Despite a more radical excision, hemiglossectomy gave excellent results. The residual tongue was fully mobile and there was no problem with speech or deglutition (Fig 1).

Fig. 1 : Tongue : after hemiglossectomy

Fig. 2 : Early CA tongue (T1-2) - Survival curves
Type of surgery and disease free survival

Discussion

Eightyseven (68.5%) patients, underwent hemiglossectomy and 40 patients (31.5%) underwent wide excision. Some of the surgeons, as a matter of policy treated T-1 and 2 lesions with hemiglossectomy. Other surgeons prefer wide excision. This study was retrospective and non-randomised. Majority of tumours 79 (62%) were in T-2 stage, and the preference was for hemiglossectomy (62 vs 17). In T-1 tumors, hemiglossectomy was done in 25 cases and wide excision was done in 23 cases which are comparable.

In the hemiglossectomy group there were local recurrences in 9 per cent patients (8/87) and in wide excision group in 25 per cent patients (10/40), which is statistically significant, P value being < 0.01.

In both the groups the histopathological evaluation revealed the cut margins and the base to be free from tumor. Yet, there were local recurrences in the wide excision group. Review of anatomy of the tongue is in order to explain this finding.

Tongue is a mass of striated muscle, containing glands, lymphatic tissue and fat. There is a midline fibrous septum dividing the oral tongue into two halves symmetrically [2]. In certain portions of mammalian anatomy, the vascular, neural and muscular structures are independently unilateral in character, there being no direct vascular or neural communication across the midline. This is true for oral tongue, vocal cords and subglottis [3]. It is a well established fact that the cancer spreads locally along the interstices of the surrounding normal tissues and that fibrous tissue, cartilage, tendon, ligament and the elastica of arteries are impervious to tumor invasion. As a result, the midline fibrous septum acts like natural barrier to invading cancer whereas soft tissues and muscle on the other hand are easily invaded [4].

Occurrence of skip/satellite lesions in field cancerization away from the main lesion is also a well known fact and is one of the reasons for development of recurrences locally even when the margins are histopathologically uninvolved [5].

In other words, cancer may spread in continuity or with skip lesions in either half of oral tongue separated by the midline fibrous septum. In hemiglossectomy technique, the midline fibrous septum forms one boundary of excision, in that one half of oral tongue is entirely excised. Whereas in wide excision, there is a chance that skip/satellite lesions are left behind and this may be one factor for the cause for increased local recurrences. Additional factor is the third dimension, that is the depth, in which the excision may not be as wide as it is on the other two surface dimensions in the wide excision. These anatomical factors of the tongue, biological nature of the tumor and technical deficiency might have been the reasons for increased local recurrences in the wide excision group.

Local recurrences in each group of T-1 and T-2 separately were studied. T-1 lesions, which had comparable number of patients in both the groups revealed less local recurrences in hemiglossectomy group com-

pared to wide excision group ($P = 0.01$). Whereas, in T-2 tumors, there is no significant difference between hemiglossectomy and wide excision groups in local recurrences. Wide excision of 2 to 4 cms lesion will make a specimen of 7x5 cms which almost equals a hemiglossectomy specimen. Probably this may be the reason for there being no statistically significant difference between the two groups.

Disease free survival data revealed that mean disease free survival for hemiglossectomy was 40 months and for wide excision, 33 months. This is statistically significant ($P = 0.006$). This is indirectly due to less local recurrences in the hemiglossectomy group. Relationship between depth of infiltration and disease free survival was studied, which revealed that disease free survival was more in superficial infiltration in comparison to deep infiltration. This agrees with the earlier studies conducted in this hospital [6].

Early cancers of oral tongue merit radical treatment to achieve better survivals. Anatomical, pathological and biological factors favour hemiglossectomy. Our study has shown, less local recurrences and increased disease free survival in those patients who have undergone hemiglossectomy. In view of this, we conclude that hemiglossectomy is more appropriate surgical option for early cancer of oral tongue, as a single modality treatment.

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