CANCER OF THE TONGUE IN YOUNG SUBJECTS

WITH REPORT OF A CASE

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Cancer of the tongue in young people is known to be rare. Of eleven leading radiologists in various countries whom we approached on the subject, eight had never observed a case. In the literature at our disposal, there are a few instances in persons between twenty and twenty-five years of age (3, 6, 9, 11, 16); in persons up to twenty years old eight cases are on record, in addition to which there are two cases in newborn infants (1, 2).

CASE REPORT

CASE 51003: Bertha B., an Armenian girl, fifteen years of age, was first seen Nov. 20, 1937. About ten weeks earlier she had noticed a pinpoint papule at the left border of the tongue, slightly tender during mastication. In the course of two months this enlarged rapidly to the size of an olive, after which it began to ulcerate, but there was no bleeding and no noticeable discharge. The history was otherwise negative. There was no record of cancer in the family.

The patient was a healthy looking girl, well nourished and normally developed. On the mid-third of the left border of the tongue was a shallow ulcer 1.5 cm. in diameter, of a pale gray color and hard to the touch. There was no bleeding, no débris, and no hyperemia in the neighborhood. The edges of the lesion were slightly elevated and everted at the anterior
TABLE I: Cancer of the Tongue in Persons Twenty Years of Age and Younger

<table>
<thead>
<tr>
<th>Author</th>
<th>Date of Report</th>
<th>Age and Sex</th>
<th>Family History</th>
<th>Teeth</th>
<th>Localization of Tumor</th>
<th>Glands</th>
<th>Biopsy or Autopsy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harrison (5)</td>
<td>1885</td>
<td>20 F</td>
<td>No history of syphilis, cancer, or tuberculosis</td>
<td>Not mentioned</td>
<td>Fungoid growth on dorsum and left side of tongue; started as small blisters</td>
<td>First, one gland behind angle of left jaw. Later, submaxillary glands involved</td>
<td>Biopsy: epithelioma. Autopsy: metastasis in neck</td>
</tr>
<tr>
<td>Hutchinson (8)</td>
<td>1903</td>
<td>19 F</td>
<td>Not mentioned</td>
<td>Not mentioned</td>
<td>Hard nodule on lingual margin. Recurrence after excision</td>
<td>Not mentioned</td>
<td>Biopsy of primary lesion and recurrence: epithelioma</td>
</tr>
<tr>
<td>Morestin (12)</td>
<td>1910</td>
<td>18 M</td>
<td>No history of syphilis, cancer, or tuberculosis</td>
<td>Not mentioned</td>
<td>Ulcerating vegetation size of a nut on right border of tongue</td>
<td>Right submaxillary and deep carotid glands involved</td>
<td>Biopsy: epithelioma</td>
</tr>
<tr>
<td>Variot (14)</td>
<td>1894</td>
<td>11 M</td>
<td>No history of syphilis, cancer, or tuberculosis</td>
<td>Good</td>
<td>Painless ulceration on under surface of tongue. Also papillary growth 2 cm. in diameter on dorsum near midline; no connection with lesion on the under surface</td>
<td>None involved</td>
<td>Biopsy: epithelioma</td>
</tr>
<tr>
<td>Frank, Enfield, and Miller (2)</td>
<td>1936</td>
<td>Newborn M</td>
<td>Not mentioned</td>
<td>—</td>
<td>Swelling size of a pea on left side of tongue</td>
<td>None involved</td>
<td>Biopsy: squamous-cell carcinoma</td>
</tr>
</tbody>
</table>

[Table cont. on p. 261]
Fig. 1 is a hematoxylin and eosin stained section, showing the tumor infiltration and a number of pearls of keratinization. X 100. Fig. 2 is part of the same field under higher magnification, showing a pearl of incomplete keratinization. X 200.

margin and bevelled at the posterior border (Fig. 1). A hard, cord-like mass extended from the ulcer backward along the lower surface of the tongue. The teeth were in good condition, with no caries, cavities, sharp edges, or malpositions. The tonsils were slightly enlarged, smooth, and not red. Submaxillary lymph nodes were palpable, but neither enlarged nor hardened. The physical findings otherwise were entirely normal. The blood Wassermann reaction was negative and the blood count normal. Dark-field examination (Dr. D. Berberian) after the use of a mouth wash demonstrated many kinds of spirochetes on the lesion, so that the presence or absence of Treponema pallidum could not be ascertained. The bi-
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<tbody>
<tr>
<td>Salveby</td>
<td>1940</td>
<td>15 F</td>
<td>No history of syphilis, cancer, or tuberculosis</td>
<td>Good</td>
<td>Clean, hard ulceration on mid-third of left border of tongue</td>
<td>One gland at anterior border of right sternocleidomastoid</td>
<td>Biopsy: squamous-cell epidermoid carcinoma with pearls of keratinization</td>
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<tr>
<td>Billroth,* quoted by Variot</td>
<td></td>
<td>18 M</td>
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<tr>
<td>Gorse (4), quoted by Pack</td>
<td>1911</td>
<td>20 M</td>
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<td></td>
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<tr>
<td>Ewing (1)</td>
<td></td>
<td>Newborn</td>
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<td></td>
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<tr>
<td>Liston,* quoted by Pack</td>
<td></td>
<td>12 F</td>
<td></td>
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<tr>
<td>MassabuaauandOeconomos (10)</td>
<td>1912</td>
<td>19 F</td>
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* Original reference not available.
Theopsy report (Dr. P. F. Sahyoun) was squamous-cell epidermoid carcinoma with pearls of keratinization (Figs. 2 and 3).

In consultation with Dr. W. D. Cruikshank and Dr. G. Chaumet it was decided that surgical removal of the tumor was out of the question because of the backward extension along the lymph vessels in the tongue. A combination of radium and roentgen therapy was therefore employed. For the lesion in the tongue treatment was by radium element, 15 foci of 1 mg. each with 0.5 mm. platinum filtration, allowed to remain 71 hours, giving a dose equivalent to 8 millicuries destroyed (Médecin-Colonel Dr. Chaumet, Institut de Physicothérapie. Beirut). Roentgen therapy (American Institute) was applied to the entire oral cavity with cross-firing through 5 portals—the left maxilla, right maxilla, sublingual region, the open mouth (antero-posteriorly), and the neck (postero-anteriorly). The factors were 180 kv., 4 ma., 0.5 mm. copper + 1 mm. aluminum filtration, 40 cm. focal skin distance. The larynx was protected by metallic lead. Treatment was begun on Dec. 13, with 300 r at a sitting (18 min., 15 sec.), a total of 3900 r being given up to Jan. 6, 1938, when the series had to be interrupted because of well marked radiomucositis.

By this time, the primary lesion and the cord-like mass had entirely disappeared. For the mucositis, a mouth wash was prescribed, and the patient was asked to report after one week. She did not return, however, until April 29, 1938, when a slight swelling was present on the right side of the neck, that is, on the side opposite the tongue lesion.

At the site of the original lesion there was now a smooth white scar, almost linear, about 0.5 cm. long. At the anterior border of the right sternocleidomastoid muscle, at the level of the larynx, was a hard node, the size of a prune, attached to the underlying tissue. Operative removal was considered, but was deemed unwise, and roentgen therapy to the cervical node and the oral cavity was resumed, a total of 6000 r being given in the course of eight weeks. By the middle of June 1938 there was severe radiomucositis and moderate radiodermatitis, which subsided under the usual treatment (mouth wash, infra-red rays). In spite of this definite tissue reaction, the cervical node continued to enlarge until by the end of June it was the size of a small apple. At this time the lesion of the tongue reappeared as a hard ulcer about one fifth the size of the original tumor. Physical and roentgen examinations of the lungs, the abdomen, and the skeleton gave no evidence of other metastases. Swallowing became difficult, there was some dry cough, and the patient lost ground rapidly. She grew weak and pale and appeared to be tormented with pain in the mouth and neck. Large doses of morphia had to be given. Death occurred Sept. 10, 1938, exactly one year after the first signs of the lesion had been noticed.

Table I gives the outstanding features of the 10 recorded cases of cancer in the tongue in patients of twenty or under. The present case is included, bringing the total to 11.

No attempt can be made at statistical evaluation of such a small series of cases; yet they have a few points in common which seem to be noteworthy. First, in none of them is mention made of any evidence or history of mechanical irritation, such as is produced by defective teeth. In the second place, there is no mention of any of the so-called precancerous conditions often held responsible for the development of cancer of the tongue, as leukoplakia or syphilis, nor did any of the patients give a history of tobacco chewing or smoking. Finally none of the patients came from a "cancer family," and none showed indications of hereditary syphilis.

The case recorded here differed from those previously observed in the fact that the first metastasis, which remained seemingly the only one for a long time, arose in the cervical nodes on the side opposite the primary lesion. This is generally considered to indicate an unfavorable prognosis. A comparison with the other cases on record cannot be made, since the eventual outcome and duration of life are recorded in only one instance.
A case of squamous-cell epidermoid carcinoma of the tongue in a girl aged fifteen years is reported. The primary lesion disappeared under radium and roentgen therapy, but a cervical metastasis proved to be radioresistant. Death occurred one year after onset of symptoms. Eight cases of cancer of the tongue in subjects of twenty years or less and 2 in newborn infants have been collected from the literature and are included in the discussion.

Note: The author is indebted to Drs. G. Chaumet, W. D. Cruikshank, and Philip F. Sahyoun for their clinical and laboratory findings, and to Dr. Albert Oppenheimer for help and advice.

References

1. Ewing, James: Personal communication to Dr. Albert Oppenheimer.