CARCINOMA OF LINGUAL THYROID

REPORT OF A CASE

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The occurrence of carcinoma of thyroid tissue at the base of the tongue is so rare as to justify reporting this case. If one accepts the statement of Gruber (1) that the incidence of aberrant thyroid tissue in routine post-mortem examinations is over 10 per cent, the number of reported neoplasms occurring in this tissue seems disproportionately small when compared with the frequency of tumor formation in the normally placed thyroid.

Cattell (2) states that the term "aberrant thyroid" includes all portions of thyroid tissue in other than the normal position of the thyroid gland and unconnected with it. He classifies these as follows: (1) lingual thyroid and thyroid tissue found along the thyroglossal tract; (2) lateral aberrant thyroids or those in a cervical position lateral to the jugular vein; (3) the extremely rare intrathoracic goiter having no connection with the main thyroid body; (4) those portions of thyroid tissue found in teratoid tumors and sites far removed from the thyroid.

A brief consideration of the embryology of the thyroid gland will reveal various sites in which aberrant thyroid tissue may be found. It seems agreed that the greater part of the thyroid gland develops from a median ventral invagination of the entoderm of the floor of the primitive pharynx. This spot is marked permanently by the foramen caecum. From this location the thyroid bud descends caudalward and ventrally to occupy its normal position in the neck. Its arrested migration readily explains the origin and presence of aberrant thyroid tissue in the midline, as well as thyroglossal cysts, sinuses, and fistulae.

It also appears that groups of cells arise from a lateral position in the fetal pharynx, pass downward, and come into relation with the main thyroid body. Usually these cell groups fuse with the thyroid, but are said to atrophy and to form no part of the normal thyroid gland. Lateral aberrant thyroids are thus accounted for on the basis of interference with this development.

The extension of thyroid tissue into a retrotracheal, retrosternal, or intrathoracic position is by no means rare. Corning (3) believes that such extensions are due to the offspring tissue of the thyroid gland which has continued further the downward descent of the anlage.

The literature pertaining to tumors arising in lateral aberrant thyroid tissue was reviewed in 1901 by von Eiselberg (4), in 1906 by
Schrager (5) and by Payr and Martina (6), in 1925 by Billings and Paul (7) and by Fedeli (8), in 1926 by Wegelin (9), and in 1932 by Moritz and Bayless (10), who reported 128 recorded cases. Although Ulrich (11) states that there are approximately one hundred cases of lingual thyroid recorded in the literature, he agrees with Cattell (2), who says that “the least frequent of all aberrant locations of the thyroid is the lingual.” Ulrich (11) found that only two cases had been encountered in 7,600 operations on the thyroid at the Lahey clinic and was able to find but two examples of this condition among over 4,000 patients with thyroid disease seen at the University of Pennsylvania Hospital.

Moulonguet (12) in 1930 stated that no authentic case of lingual thyroid cancer was known, although a case in a fifty-six-year-old man was reported by Ashhurst and White (13) in 1925. After a careful survey of the literature, the authors believe the present case to be the second.

![Fig. 1. Semidiagrammatic drawing of the growth in situ](image)

**Report of Case**

**History:** Mrs. M. C., an Italian housewife, aged twenty-one years, was admitted to the Ear, Nose and Throat Service of the Los Angeles County Hospital on March 13, 1934. She had felt well until five days prior to admission. On the morning of March 8, 1934, she noticed for the first time a tender mass on the posterior portion of the tongue. Attempts at deglutition produced choking, coughing, and pain, and the patient was unable to swallow food. The past history was not of importance.

**Physical Examination:** Examination on admission revealed a well developed and well nourished white female, apparently in no great discomfort. The physical findings of interest were limited to the buccal cavity. The tongue presented a tumor mass measuring approximately $2 \times 2 \times 1.5$ cm., in the region of the foramen caecum. The mass was red-brown in color, firm in consistency, and was attached to the musculature of the tongue by a broad base (Fig. 1). Pressure on the growth caused sharp local pain. Speech was somewhat impaired. Urinalysis showed essentially normal findings. The blood Wassermann reaction was negative. A portion of the extrinsic part of the tumor was excised for biopsy by Dr. Herman Semenov on March 24, 1934.

**Pathology Report:** The specimen consisted of a cone-shaped section of tissue, measuring 1.5 cm. in width and having a maximum diameter of 2 cm. One side was covered with what was apparently epithelium. On cut surfaces the tissue had a red-brown appearance in its central portion. This tissue was gland-like in appearance and fairly well encapsulated by fibrous tissue over the portion covered by epithelium.

**Microscopic Examination:** The section showed tumor with overlying squamous epithelium, subepithelial lymphoeytic infiltration, and a fibrous capsule. The mass was
Fig. 2. Invasion of the fibrous capsule by neoplastic cells. × 70

Fig. 3. More anaplastic portion of the tumor. × 100
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composed of highly irregular and poorly formed acini of thyroid type, with occasional small amounts of colloid. The acinar cells were large, ovoid, and spherical, often deeply staining, with some poorly formed mitotic figures. The fibrous capsule was extensively invaded by neoplastic cells (Figs. 2 and 3).

**Microscopic Diagnosis:** Low-grade carcinoma occurring in thyroid tissue.

**Thyroid Function:** After the above report was received, the thyroid function of the patient was studied. The basal metabolic rate was —12. The blood cholesterol was 172 mg. per 100 c.c. of blood. The thyroid gland was not palpable in the neck. No enlargement of the regional lymph nodes in the cervical triangles was found.

**Operation:** The patient was first seen at the Tumor Clinic, April 18, 1934. Because of the apparent localized nature of the tumor and its relative radio-resistance as estimated from the histological appearance, the extirpation of the growth by cautery excision was recommended. On April 26, 1934, the patient was transferred to the Service of Dr. James F. Percy. The lesion was widely excised by Dr. Percy with the actual cautery knife, ether being used as the anesthetizing agent.

**Pathology Report on Surgical Specimen:** The specimen consisted of a section of tissue measuring $3 \times 2.5 \times 0.5$ cm., one surface of which was badly charred. The other surface was marked by an elevated strawberry-red mass around which was seen a portion of what appeared to be normal musculature of the tongue. On cut surface this red material was seen to invade the substance of the tongue for a distance averaging 4 mm. The microscopic examination showed neoplastic cells similar to those described in the biopsy section. Actual invasion of the tongue was present as evidenced by the presence of tumor cells growing in strands between the muscle cells (Fig. 4).

**Progress:** On April 27, 1934, the second postoperative day, at 10:30 P.M., an acute edema of the glottis developed, which, because of respiratory embarrassment, necessitated an emergency tracheotomy. On May 4, 1934, the tracheotomy tube was removed. On May 10, the patient was discharged to the out-patient department. The postoperative course was otherwise uneventful.

On May 23, the patient was seen in the out-patient clinic. The wound of both the tongue and trachea were healed. The patient spoke distinctly, and there was no evidence
of recurrence. On June 6, the patient appeared in good local and general condition. There was no evidence of myxedema. The basal metabolic rate was —11.

**DISCUSSION**

The symptoms and physical findings presented by our patient were almost identical with those described by Lahey (14) as being typical of lingual goiter, i.e. she sought advice because of interference with deglutition and the presence of a painful lump in the back of the throat, which on examination appeared as a firm, solid tumor located in the midline on the posterior third of the tongue; its surface was dull red in color and slightly lobulated in contour; its base was broad, extending well out toward either edge of the tongue. There was some impairment of speech.

The majority of patients who have had lingual thyroidectomy develop some degree of myxedema. However, in the presence of a definite malignancy there appeared to be no alternative to the complete destruction of the lingual thyroid, though the thyroid gland could not be demonstrated in the neck.

**SUMMARY**

1. A case of carcinoma of the lingual thyroid is presented.
2. The normal and abnormal developments of the thyroid are briefly discussed.
3. The incidence of tumor formation in aberrant thyroid tissue is reviewed.
4. Although in the case reported the thyroid gland could not be palpated in its normal position in the neck, a wide excision of the lingual thyroid was done.

**ADDENDUM**: After this paper was submitted for publication the patient developed clinical manifestations of myxedema. Signs were first apparent three months after operation. The basal metabolic rate was minus 30. Treatment with thyroid extract was instituted and the response was very satisfactory. At the present time, January 1935, there is no speech impediment nor is there any evidence of recurrence of the growth.

**NOTE**: The authors wish to express their appreciation to Dr. James F. Percy for permission to report this case and are indebted to Dr. Cyril B. Courville for the drawing shown in Fig. 1.

**BIBLIOGRAPHY**

3. **Corning, H. K.**: Lehrbuch der Entwicklungsgeschichte des Menschen, Munich, Bergmann, 1921, p. 290.