

# Thyroid Cancer Discovered Incidentally during Treatment for an Unrelated Head and Neck Cancer:

## Review of 16 Cases

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FOR the past 15 years our various clinical departments have collaborated in a multidisciplinary approach to the management of head and neck cancers, including thyroid neoplasm. Our surgical pathologic observations of thyroid tissue deposits—presumably metastases—in cervical lymph nodes removed during operation for an unrelated head and neck cancer stimulated this present study.

The presence of thyroid follicles in cervical lymph nodes from a neck dissection for unrelated head and neck cancer is rare and opinions as to the significance of this observation vary.

### Theory of Lateral Aberrant Thyroid

During the latter part of the 19th and early 20th centuries considerable literature accumulated on the relationship between histology of the thyroid and the biological potential of the tissue. The explanation that thyroid tissue in cervical lymph nodes represented embryologic displacements of a lateral thyroid anlage was first advanced

by von Haller in 1779, and termed “lateral aberrant thyroid” by Schragger<sup>12</sup> in 1906. Schragger stated that this tissue was prone to undergo papillary change in response to physiologic stimulation.

Simpson<sup>13</sup> in a thorough review of the literature in 1926 of 77 patients reported as having “benign metastasizing goiter” stated that there was an “abundance of evidence to indicate that there is no such entity as the benign metastasizing goiter, and that the use of this confusing term should be abandoned.”

In 1931 Dunhill<sup>2</sup> revived Schragger’s concept of the physiologic stimulus as a factor in “lateral aberrant thyroid” genesis. This theory fell into disfavor during the 1940’s following the findings of several investigators. King and Pemberton<sup>7</sup> in an analysis of 54 cases of “so-called lateral aberrant thyroid tumors” in 1941 concluded that these are “nearly always metastatic extensions to the deep cervical lymph nodes from a primary carcinoma in the homolateral lobe of the thyroid gland.” Frantz *et al.*<sup>3</sup> in 1942, reporting on 30 cases of so-called “lateral aberrant thyroid,” found tumors in 27, 23 of which were malignant. Crile,<sup>1</sup> who in 1939 had reported on 13 cases and stated that such tumors are essentially benign, reversed his position in 1947 after finding a primary focus in the thyroid in 16 consecu-

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tive cases of "lateral aberrant thyroid" tumors.

Wozencraft, Foote and Frazell<sup>15</sup> in 1948, reporting on three cases of occult carcinomas of the thyroid discovered after histologic diagnosis of neck masses revealed papillary and follicular tumor, emphasized that the primary foci in these cases were so minute that only exhaustive microscopic study revealed their presence. They concluded that it "is not safe to assume that the thyroid is free of cancer without undertaking an exhaustive microscopic study." They believed that their findings represented metastasis from a primary thyroid tumor rather than "lateral aberrant thyroid tumor."

Recently, there has been a resurgence of interest in the phenomenon of ectopic thyroid tissue residing as a normal entity within lymph nodes, but without implication of its being "lateral aberrant thyroid disease." Gricoureff<sup>5</sup> coined the term *benign metastasizing thyroidosis* based on a study of four patients. Roth<sup>10</sup> reported two cases; Gerard-Marchant<sup>4</sup> four in 647 neck dissections; and Nicastri, Foote and Frazell<sup>9</sup> 16 since 1950 from an institution where 300 diverse radical neck dissections are performed annually. The last-named authors, after a statistical and histologic appraisal, noted an incidence of one in 100 consecutive neck dissections. They maintain that *apparently* normal thyroid follicular structure in a lymph node of the neck can be benign, but that papillary changes, etc., signify malignancy; they decry resurrection of the theory of the "lateral aberrant thyroid."

These recent investigators propose that endometriosis would be a comparable biologic analogy to support the thesis of lateral aberrant disease. The lack of histologic evidence of malignancy in the thyroid inclusions and the apparently benign clinical course of these patients appear to support this thesis.

However, with these exceptions and a few others, clinical consensus is that migration of tissue with sustained growth is inconsistent with benign tumors.

Variations in the clinical behavior of thyroid cancer include spindle and giant cell carcinomas of the thyroid which run an extremely rapid course and the papillary and follicular varieties which, in some individuals, progress so slowly as not to seem malignant. However, other cancers of identical histologic type and microscopic appearance produce demonstrable distant metastases which prove fatal. The behavior of any cancer is unpredictable on a histologic basis, but is apparently determined by unknown mechanisms that control the tumor-host relationship.

When thyroid inclusions are found in a lymph node, the question of whether this represents metastasis or a "benign thyroidosis" cannot be decided on histologic appearance or even the clinical behavior up to the time of discovery, but on the presence or absence of a demonstrable thyroid primary cancer.

### 20 Year Review of Surgical Pathology

From March 1944 through August 1963 we saw 462 patients with thyroid cancer at The University of Texas M. D. Anderson Hospital and Tumor Institute, an incidence of 1.6 per cent of all patients with cancer. The presenting symptom in 94 (or 20%) of these patients was enlarged node in the neck. In all 94 it was proved to be associated with a primary cancerous lesion in the thyroid gland.

We have reviewed the records on 1,516 patients in whom radical or modified neck dissections were performed for cancers other than thyroid cancer. We excluded from this study those patients in whom the thyroid cancer was clinically diagnosed prior to operation (i.e. as a second presenting primary cancer). Sixteen patients were found to have thyroid cancer diagnosed

TABLE 1. *Clinical Summary of 16 Patients*

Patient Number	Age	Sex	Primary Site	Cervical Nodes	Thyroid Status	Management of Thyroid Cancer	Status of Patient
1	60	M	Lip	Sq. Ca. = 0 Solid Ca.	Solid Ca.	Total thyroidectomy, radical neck dissection	L. & W., 99 mo.
2	60	M	Lip	Sq. Ca. = 0 Follic. Ca.	No tissue	No further investigation of thyroid. History of multiple "heart attacks"	Died, 38 mo. ? myocardial infarction
3	57	M	Floor of mouth	Sq. Ca. P. & F. Ca.	P. & F. Ca.	Total thyroidectomy*	L. & W., 44 mo.
4	77	M	Floor of mouth	Sq. Ca. Follic. Ca.	No tissue	Scintiscan "cold" nodule. Refused proposed second neck dissection and thyroidectomy	Died, 15 mo. p. o. metas. sq. cell. Ca.
5	61	M	Tongue	Sq. Ca. P. & F. Ca.	P. & F. Ca.	Total thyroidectomy*	Died, 6 mo. post-thyroidectomy 14 mo. p. o. for Ca. of tongue
6	64	M	Buccal	Sq. Ca. = 0 P. & F. Ca.	P. & F. Ca.	Total thyroidectomy*	L. & W., 79 mo.
7	63	M	Larynx	No neck dissection	P. & F. Ca.,	Subtotal thyroidectomy, I <sup>131</sup> (80 mc.) p. o.	Died, 9 mo. Cause undetermined
8	62	M	Larynx	Met. Sq. Ca., No thyroid-containing nodes	P. & F. Ca.	L. thyroid lobectomy, partial R. lobectomy, unilateral neck dissection	Died, 5 mo. ? stroke
9	62	F	Pyiform sinus	Sq. Ca. (bilateral) No thyroid-containing nodes	Solid Ca.	R. thyroid lobectomy, partial L. lobectomy	L. & W., 36 mo.
10	71	M	Larynx	No neck dissection	P. & F. Ca.	R. thyroid lobectomy	L. & W., 26 mo.
11	54	F	Larynx	Sq. Ca. = 0 P. & F. Ca.	P. & F. Ca.	Total thyroidectomy, R. neck dissection (at laryngectomy)	L. & W., 70 mo.
12	59	M	Larynx	Sq. Ca. = 0 P. & F. Ca.	P. & F. Ca.	Total thyroidectomy, no neck dissection	L. & W., 84 mo.
13	75	M	Larynx	Sq. Ca. = 0 P. & F. Ca.	P. & F. Ca.	Subtotal thyroidectomy	Lost, 5 mo. Presumed dead of laryngeal Ca.
14	64	M	Pharynx	Sq. Ca. Follic. Ca-bilateral	No Ca. in lobe & isthmus removed at operation	Subtotal thyroidectomy	L. & W., 33 mo.
15	64	M	Larynx	Sq. Ca. Follic. Ca.	No tissue	No further investigation	Died, 10 mo. Residual Ca. larynx
16	60	M	Larynx	Sq. Ca. Follic. Ca.	No Ca. in lobe & isthmus removed at operation	Subtotal thyroidectomy	Alive, with residual Ca. of larynx at 26 mo.

\* Thyroidectomy (total) as second surgical procedure.

TABLE 2. *Initial Presenting Primary Cancer*

Lip	2
Floor of mouth	2
Tongue	1
Buccal mucosa	1
Larynx	10
	—
Total	16

during treatment for an unrelated head and neck cancer.

Certain significant factors have emerged from this and other concomitant studies in thyroid cancer at our institution. Of the 16 cases, 12 were discovered because of the presence of thyroid cancer in neck nodes; in four patients the thyroid cancer was found in the gland incidentally during laryngectomy. Thyroid cancer was found in both the nodes and the gland in seven patients. In all cases in which we had the whole gland for subserial sectioning, we were able to find carcinoma.

### Clinical Findings in 16 Cases

Clinical findings in the 16 patients who form the basis for this report are summarized in Table 1. The initial presenting primary cancer is listed in Table 2.

Of particular interest are those ten patients (No. 7 to 16) in whom the thyroid cancer—or presumed metastases from thyroid cancers—was discovered during laryngectomy for squamous cell carcinoma. In recent years we have resected greater amounts of thyroid tissue during the course of a laryngectomy because of the frequent observations of metastases from laryngeal, pharyngeal or cervical esophageal carcinoma to the thyroid gland, or to the nodes along the recurrent laryngeal nerves. Thus, more thyroid glands are becoming available for pathologic study, thereby greatly increasing the chances of discovering an occult thyroid carcinoma.

In four patients in the above group the thyroid cancer was discovered by the pathologist during routine examination of the

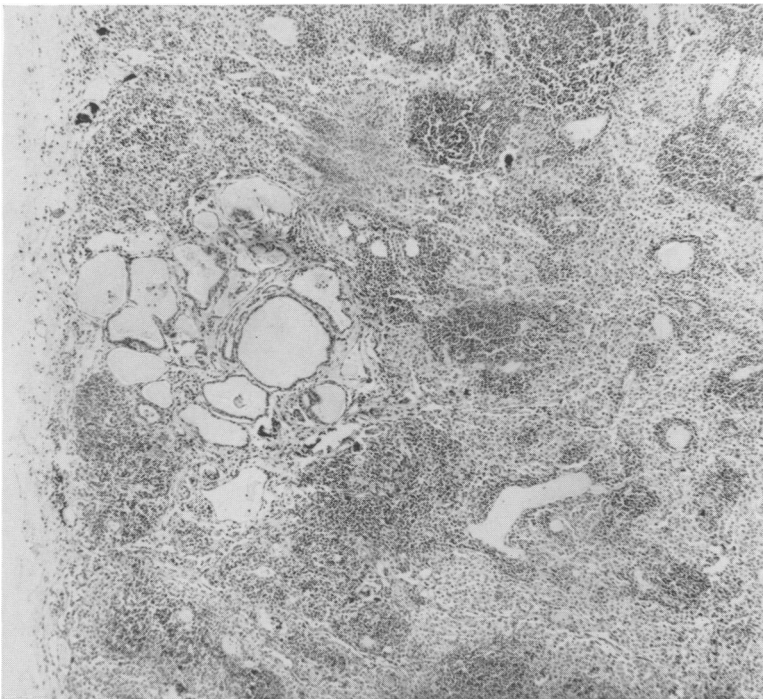
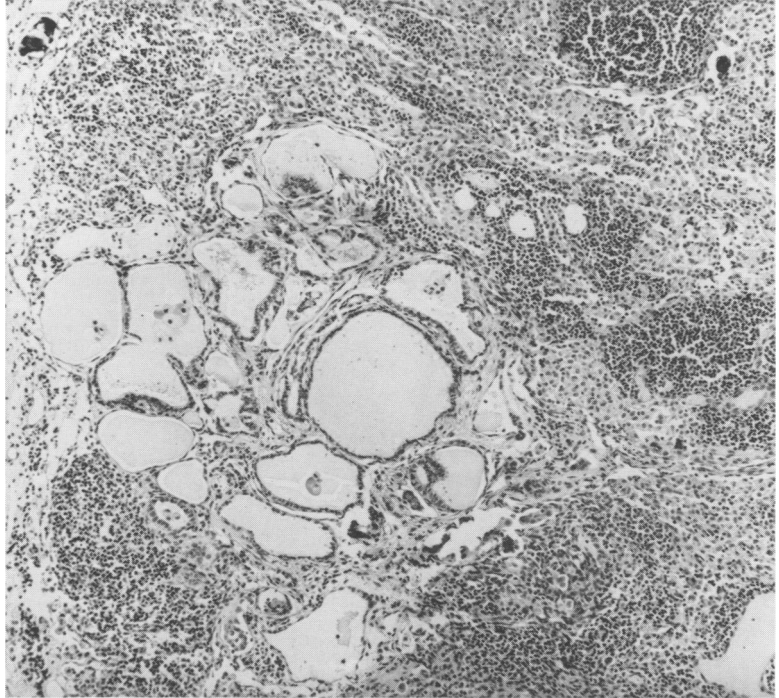


FIG. 1. Patient 3. The only focus of metastatic papillary and follicular carcinoma found in a lymph node; from a radical neck dissection for carcinoma of the floor of the mouth. H & E  $\times 50$ .

FIG. 2. Patient 3. Higher magnification of Fig. 1 to show the mixture of normal-appearing thyroid acini with a papillary component and abnormal acini. Psammoma bodies are present in the tumor and in the lymph node in the right and left upper corners of the photograph. H & E  $\times 80$ .



thyroid, submitted along with the laryngeal specimen. In two, concomitant neck dissection was done and no thyroid metas-

tases were found in lymph nodes. No neck dissection was done in the other two patients. Three patients having laryngectomy

FIG. 3. Patient 3. Focus of mixed papillary and follicular carcinoma in the thyroid gland removed after finding the lymph node metastasis shown in Fig. 1 and 2. H & E  $\times 30$ .

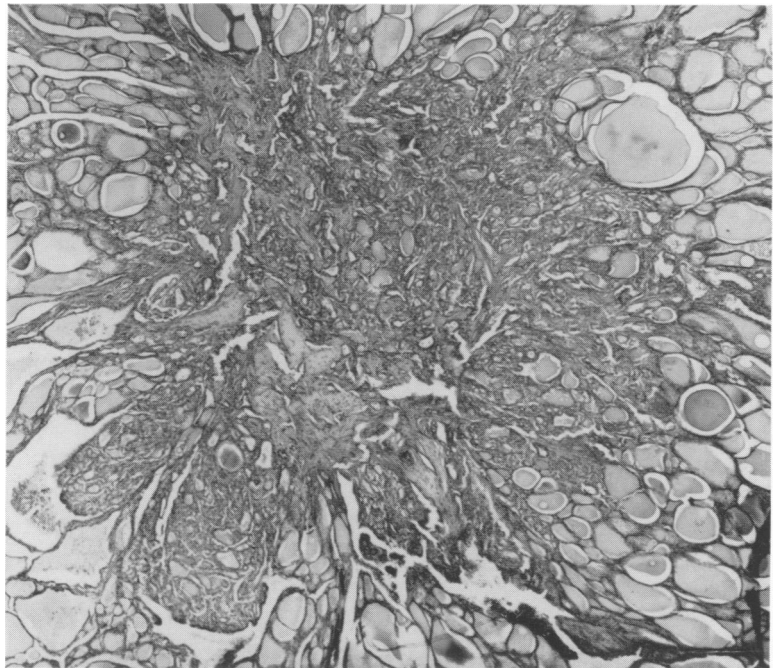


TABLE 3. *Thyroid Cancer, or Presumed Metastatic Thyroid Cancer in Association with Cancer of the Larynx*

Findings	No. Patients
Primary cancer of thyroid <i>only</i>	4
No neck dissection	2
Neck dissection	2
Thyroid cancer in nodes <i>only</i> (presumed metastasis)	3
No thyroid tissue available	1
Subtotal thyroidectomy only	2
Primary cancer of the thyroid, plus metastases in the nodes	3
Total	10

and neck dissection were found to have lymph nodes containing thyroid follicles (in one case, bilaterally) but without demonstrable primary cancer. However, in one patient no thyroid tissue was available for study; in the other two the entire thyroid gland was not available. In the remaining three patients primary thyroid cancer was found *in addition to* metastases from the thyroid cancer in either the paratracheal or lateral cervical lymph nodes. In two of these patients, biopsy of a paratracheal node revealed thyroid follicles and a total thyroidectomy was done along with the laryngectomy; a primary cancer of the thyroid was discovered in both instances (Table 3).

Although the greatest number of occult carcinomas of the thyroid were found in patients being treated for squamous cell carcinoma of the larynx, it should not be construed that there is a common causative denominator. In most laryngectomies some paratracheal and pericapsular lymph nodes are removed along with varying amounts of thyroid tissue thereby increasing the probability of discovery of occult thyroid carcinoma and/or its early metastasis in these patients.

TABLE 4. *Treatment of Thyroid Cancer Diagnosed at Operation or from Biopsy*

Diagnosed at time of operation	3
Metastatic thyroid cancer in nodes recognized at surgery and total thyroidectomy done. All showed primary focus in thyroid gland.	
Diagnosed from tissue specimen	13
Presumed metastatic thyroid cancer discovered during pathologic examination of the surgical specimen	
Subsequent Treatment	
Total thyroidectomy, with discovery of small primary cancer in thyroid gland	3
Treatment with RAI	1
Refused further treatment	1
No additional treatment because of primary or intercurrent disease	8

### Treatment

In three cases observation of metastasis during operation led to total thyroidectomy with a small primary cancer being discovered in all three patients. In the remaining cases the thyroid cancer was discovered during pathologic examination of the operative specimen. Total thyroidectomy was done as a secondary procedure in three patients; a small primary papillary and follicular carcinoma of the thyroid was discovered in all three. This may have been an unjustified procedure in one patient because of the poor prognosis from the extensive squamous cell carcinoma of the tongue; the patient died of recurrent cancer of the tongue 6 months after the total thyroidectomy. In one patient with a history of repeated heart attacks it was believed that a vigorous thyroid investigation was not warranted. One patient refused further operation for a proposed second neck dissection and thyroidectomy and subsequently died from metastatic squamous cell carcinoma. One patient received a therapeutic dose of radioactive iodine but succumbed within a short time of undetermined cause. In the remaining cases no

further diagnostic or therapeutic procedures were employed for the recognized or suspected thyroid cancer (Table 4). None of these patients died from the thyroid cancer or exhibited further spread following diagnosis. This would suggest that the scope of the management should be consonant with the probable prognosis of the head and neck cancer for which the patient was originally referred for treatment.

### Discussion

The significance of thyroid-like inclusions in cervical lymph nodes depends upon whether these represent actual metastases from occult thyroid primary cancers or migration of normal thyroid tissue. Some proved metastases are so similar to normal thyroid tissue that the distinction cannot be made on purely histologic grounds. Nor is the apparent clinical normalcy of the thyroid in such cases sufficient to rule out the possibility of a small primary cancer. A primary cancer of 2 to 3 mm. in size is incapable of detection by palpation, radioactive iodine uptake studies, or any means other than subserial sectioning of the gland. The presence of a primary cancer cannot be excluded unless the entire thyroid gland has been studied by serial sectioning. The very nature of thyroid cancer rules out determination of this issue on clinical grounds.

Although the finding of thyroid-like tissue in a cervical lymph node, in our opinion, indicates metastasis from a primary cancer of the thyroid, we are not suggesting that all these patients be subjected to rigorous management. The extent of the diagnostic and therapeutic procedures should be determined on the relative threat to life of a probably small thyroid cancer as compared with the recognized risk of the head and neck cancer for which the patient was originally evaluated.

In the 16 cases discussed here the unsuspected lesion of the thyroid discovered during treatment of another unrelated can-

cer of the head and neck region was cancerous by present pathologic concepts.

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