ADDENDA

CALIFORNIA TUMOR TISSUE REGISTRY

FORTY-NINTH SEMI-ANNUAL SLIDE SEMINAR

ON

TUMORS OF THE THYROID

MODERATOR:

JOHN BEACH HAZARD, M. D.
CHAIRMAN, DIVISION OF PATHOLOGY
CLEVELAND CLINIC FOUNDATION
CLEVELAND, OHIO

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WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE
CLEVELAND, OHIO

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SAN DIEGO, CALIFORNIA

SAN FRANCISCO HILTON HOTEL
SAN FRANCISCO, CALIFORNIA

SUNDAY, MARCH 8, 1970
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CALIFORNIA DIVISION

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Mrs. Aline G. Butt - Senior Histopathology Technologist
Miss Wilma Cline
Mr. Justin Pecot
Mr. Edward Roberts
Mrs. Jean Kalantar
Mr. Lee Coleman
Mrs. Mercedes Rivera
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MODERATOR'S DIAGNOSIS: STRUMA LYMPHOMATOSA, NODULAR HYPERPLASIA.
NODULES OF CLEAR CELL AND PSEUDOPAPILLIFEROUS TYPE.

HISTORY:

This 43 year old patient entered the hospital on November 5, 1968. During the routine physical examination a lump was found in the neck in the thyroid region. She had had no difficulty in breathing or swallowing. There had been no weight loss.

DISCUSSION:

From the history and physical examination it might be surmised that there are two nodules in the thyroid. However, it is likely that the 3 cm. nodule on the left is truly so, the soft round mass on the right being merely an enlargement of the thyroid lobe. Histologically, there is marked distortion of thyroid lobules with nodules variable in size and histologic configuration. In addition, throughout the section, follicles are formed by cells that are larger than usual, some oxyphilic, varying in size and with a generally interfollicular infiltrate, principally lymphocyte, often with follicle formation and with some plasma cells. Interlobular connective tissue is more abundant and dense than usual. The nodules are circumscribed rather than encapsulated in part; in one slide there is a marked papilliferous pattern but without the fibrovascular stalks of a truly papillary neoplasm; an occasional small nodule is present formed of thyroid cells of clear type, arranged in closed or small follicular pattern. The diagnosis is: Struma lymphomatosa, nodular hyperplasia; nodules of clear cell and pseudopapilliferous type.

A nodular pattern is not uncommon in glands showing diffuse lymphocytic thyroiditis (struma lymphomatosa). Whether nodulation is due to a proliferative aspect of the thyroiditis or whether it is an alteration in a gland already nodular cannot be positively determined. The clear cell nodules are an uncommon finding but, of course, reflect the cell type occasionally found in thyroid neoplasia. The cause of the clear cell variation is not known; it has been suggested it is due to excess thyrotropin stimulation but it is doubtful that this is the entire explanation.

This atypical nodulation in a gland with struma lymphomatosa is uncommon in our own experience. Pseudopapilliferous areas may give rise to a need for the consideration of a papillary neoplasm, which is somewhat more common in struma lymphomatosa than in the gland without such a thyroiditis (approximating 4 to 6% in some series as compared with the maximum of 3% in the nonthyroiditis gland; in others 11 as compared with 6 per cent in glands without struma lymphomatosa). Histologic features of importance in the
differential are 1) the lack of a sharp transition between the pseudo-
papilliferous nodule and thyroid cells of the adjoining lobulation; 2) the
lack of fibrovascular stalks within the papillae and 3) the pronounced
tendency of papillary neoplasms to be formed by cells which have highly
irregular, pale staining to almost clear nuclei. The clear staining nodules
in the present instance are multiple and, although appearing encapsulated in
many instances there is no need for consideration of a clear cell follicular
carcinoma, due to their multiple character and the fact none present the
prominence of capsule usually found with true encapsulated neoplasm.

Lymphocytic thyroiditis, of which struma lymphomatosa is the major
clinicopathologic element, may be classified as follows:

LYMPHOCYTIC THYROIDITIS

I. Diffuse lymphocytic thyroiditis
   A. Goitrous - struma lymphomatosa (Hashimoto)
      1. Hypercellular variant
         a. primarily oxyphilic
         b. primarily nonoxyphilic
      2. Fibrous variant
      3. Abundant lymphoid elements (rare)
   B. Nongoitrous
      1. Severe atrophic (adult myxedema)
      2. Mild (asymptomatic; an incidental autopsy finding as a rule)

II. Focal lymphocytic thyroiditis

REFERENCE:

MODERATOR’S DIAGNOSIS: ATYPICAL ADENOMA, CLEAR CELL TYPE. NO BLOOD VESSEL INVASION OR CAPSULAR TRANSGRESSION APPARENT IN THE THREE SECTIONS AVAILABLE FOR STUDY.

HISTORY:

This 25 year old female was seen in September 1968 complaining of a swelling in the right lobe of her thyroid of six-month duration.

DISCUSSION:

This is a superb example of a truly encapsulated clear cell neoplasm. As would be expected from the small amount of colloid present in follicles, this neoplasm showed no demonstrable radiiodine uptake on scan. Of course, this is no positive indication of malignancy in a neoplasm, although about 20% - 50% "cold nodules" prove to be carcinoma when the tumor is removed. This is a solitary tumor of the thyroid, encapsulated, of atypical appearance in the gross and the differential naturally lies between an adenoma of atypical character, or a carcinoma. The clear cell composite of the tumor is no assistance since, like the Hurthle cell, the characteristic of the cell does not determine the nature of the lesion. With such an encapsulated neoplasm as this, there are only two features to consider with respect to malignancy: 1) Is there demonstrable invasion of blood vessels in the capsule and/or 2) transgression of the capsule with direct contact between neoplasm and the non-neoplastic thyroid follicles. It is most uncommon in a follicular neoplasm for the latter to occur in the absence of blood vessel invasion. On the basis of the three sections I have available I cannot find either of these two features; one small clear cell micronodule is near the major tumor but cannot be identified as an intravascular focus in these sections. One must recognize, however, the fact that blood vessel invasion may occur in only one microfocus in one of several blocks; as a "rule of thumb," a minimum of seven are to be examined in such an unusual neoplasm as this and considering the additional uniqueness of cell type, probably 12 in a tumor of this size. Therefore, on the basis of the material at hand, I can only regard this as: Atypical adenoma, clear cell type. No blood vessel invasion or capsular transegression apparent in the three sections available for study.

Despite this apparently benign indication of the diagnosis, this patient, of course, should have a careful clinical follow-up. Even though blood vessel invasion did exist in some other capsular area definitive surgery has been performed, and local recurrence should not be a hazard; the main consideration would be the development of pulmonary metastasis, although more distant metastasis may be the first indication of an encapsulated follicular carcinoma.
These neoplasms of such clear cell type are highly unusual and in our own series I find only two clear cell encapsulated tumor, which was classified as atypical adenoma, on the basis indicated above. One consideration that must be made in the absence of colloid formation in a clear cell tumor in the thyroid is the possibility of a renal cell carcinoma metastasis. Such neoplasms when they do metastasize to the thyroid may involve only a nodule or nodules since these apparently provide the maximum opportunities for tumor growth because of the physical conditions or other factors in the nodule. In the two cases in our series, the patient was living at the end of seven years without evidence of a primary renal neoplasm and without local recurrence of metastatic spread; the other 10 years.

The relationship to "radium treatment" for thymoma is of interest. Of course, it is not the treatment of the thymoma of importance but the fact that the thyroid becomes exposed during such therapy. Even though dosage may be low, the incidence of thyroid nodular change and carcinoma, particularly papillary type, is higher after such radiation exposure than in the normal population, but the relation is best established for thyroid neoplasia in children.

REFERENCES:


MODERATOR'S DIAGNOSIS: STRUMA LYMPHOMATOSA

HISTORY:

This 52 year old female had sensations of pressure and choking after being discharged from the hospital on October 27, 1968 for acute thyroiditis. She had been receiving thyroid, 2 grains daily, and had taken drops of potassium iodide solution since recovery from acute phase. She had been "nervous."

DISCUSSION:

On the basis of the histologic alteration of this gland, the history of "acute thyroiditis" is unusual, and the extension of the pain from low neck to the angle of the jaw clinically, of course, is most compatible with the diagnosis of granulomatous (subacute) thyroiditis. However, a small percentage of patients with struma lymphomatosa may present such a clinical feature and in the early days of the consideration of autoimmune thyroiditis some are considered clinically to be subacute thyroiditis, leading to a misinterpretation of the presence of serum antibodies with respect to the disease. In the four excellent sections available, the striking feature is the marked hypercellularity due to the sea of lymphocytes and importantly, many plasma cells present; there are also scattered lymph follicles although these are not common. Another important feature is the retention of the lobular pattern as outlined by prominent fibrous trabeculation, even in areas of the dense lymphoid infiltration. The epithelial elements, of course, are of large size, at times oxyphilic, sparsely scattered through the infiltrate and always conform with those of struma lymphomatosa. The differential feature here is whether this is 1) struma lymphomatosa with unusual lymphoid hypercellularity or, 2) lymphoma. The former is supported by: 1) the retention of a lobulation although masked in part, with distinct fibrous trabeculae between lobules, 2) the pronounced admixture of plasma cells with the lymphocytes. The latter cells, in part, appear to be of atypical character and a rare mitosis is present, probably in these cells, requiring strong consideration of lymphoma. A fibrous capsule is present but, of course, lymphomas of the thyroid not infrequently may be limited to the gland itself. All in all, though, I must favor struma lymphomatosa.

I am aware of only three instances in our own series where such a diffuse infiltrate in the absence or near absence of follicles has been found in struma lymphomatosa. Our cases did not have the atypia of lymphocytes shown here in areas, but otherwise were comparable. In none of the instances was there recurrence or other evidence of lymphoma.

REFERENCE:

MODERATOR'S DIAGNOSIS: ATYPICAL ADENOMA, SOLID TYPE.

HISTORY:

A mass of the thyroid was incidentally discovered in this 40 year old male during a routine physical examination three to four months before surgery. He was given thyroid hormone, but the size of the mass remained unchanged.

DISCUSSION:

This is obviously an encapsulated neoplasm rather than a nodule as demonstrated by the prominent capsular blood vessel configuration. The neoplasm is of unusual histologic character in that it is formed by sheets of cells, of spindle type, with marginally a rare follicular structure, well differentiated and at times difficult to tell from non-neoplastic follicles. However, in the three sections available, one with complete capsule present and the other two with a fair amount of capsule, no blood vessel invasion is apparent; the capsule is well retained with exception of one microfocus where there is a questionable area of contact between neoplastic epithelium and thyroid epithelium. However, there is an artefactual split in the tissue at this point and it might possibly be artefact. Further survey of the capsular area would be advisable; however, in the absence of blood vessel invasion even with this one questionable focus, it does not seem possible in the present specimen to regard this as a tumor of proved malignancy. I would classify it as:

Atypical adenoma, solid type.

No blood vessel invasion in available sections; one questionable microfocus of slight contact with thyroid epithelium but insufficient for the diagnosis of malignancy.

The spindle character and the sheet-like masses of cells are certainly reminiscent of medullary carcinoma. The hyaline material present in patches may be albuminous rather than amyloid and a special stain would be necessary to distinguish the two.

In our series I have not recognized a medullary "adenoma". There seems no reason, however, that it should not exist. As a basic policy, encapsulated neoplasms without blood vessel invasion being demonstrated and without invasion of thyroid tissue are included in the adenoma group. Because there are many variations in the morphologic configuration of benign encapsulated tumors of the thyroid, it is recommended that these all be included in the group, atypical adenoma, and that subclassifications in accordance with morphologic type would serve as adequate classification. An encapsulated neoplasm such as this with solid structure is rare in our own series, only about three apparent among the
many adenomas. After definitive surgery (lobectomy), none of the three has shown evidence of recurrence or distant metastases and in none was amyloidic material demonstrable.

REFERENCE:

MARCH 8, 1970 - CASE NO. 5
ACCESSION NO. 15534

MODERATOR'S DIAGNOSIS: ATYPICAL ADENOMA, FOLLICULAR VARIANT.

HISTORY:

The 29 year old patient complained of stomach pains and weight loss. Consultation suggested a strong possibility of Marie-Strumpell's spondylitis ankylopoietica.

DISCUSSION:

This is an encapsulated neoplasm of hypercellular character, composed of follicles which, for the most part, are closed and in small part are microfollicular. There is no normal thyroid tissue about it; the capsule is separated from the surface of the tumor in part, due to artefact. In these three sections I can find no area where there is blood vessel invasion and the capsule, even though thin, appears to be intact. On these bases, I classify this as:

Atypical adenoma,
follicular variant.

It may be quite proper to merely regard this as a follicular adenoma without placing it in the atypical adenoma group; the only purpose with respect to the use of the term atypical adenoma is the unusual hypercellularity. It might very well be classed in the group of follicular adenomas of fetal and microfollicular structure.
MARCH 8, 1970 - CASE NO. 6
ACCESSION NO. 9854

MODOERATOR'S DIAGNOSIS: ATYPICAL ADENOMA OF THYROID, FOLLICULAR WITH A LARGE, UNUSUAL PAPILLIFEROUS OXYPHILIC CELL COMPONENT

HISTORY:

This 81 year old female was admitted on May 25, 1966 complaining of a swelling in her neck of one year's duration. There were no other symptoms and she was in good health for her age.

DISCUSSION:

Anatomically, this is in thyroid tissue with slight nodular change, regardless of the site. I was amazed to find, however, it was a "nodule below the right ear."

On the basis of the thyroid tissue and the adjoining and apparently encapsulated tumor, without evidence of capsular transgression or of blood vessel involvement. This must be regarded as an adenoma and with the unusual hypercellularity and unique histologic pattern in part, must belong to the general group "atypical adenoma of thyroid." Part of the follicular elements, micro- or normofollicular have nuclei a bit more vesicular than usual thyroid epithelial cells but they are still round and without the total irregularity of the follicular elements of a papillary tumor; the most unique feature is the presence of somewhat oxyphilic columnar epithelial cells in a definitely papillary arrangement, with the strange presence of nuclei near the surface rather than the base of the cells. In addition there are papillary areas with a somewhat hyaline stroma and with follicular cells resembling the elements of the nodule. I must classify this as: Atypical adenoma of thyroid, follicular with a large, unusual papilliferous oxyphilic cell component.

I've had no experience with the type of oxyphilic cell present in this neoplasin. In the absence of invasiveness in the present section at least, I must regard it as benign as indicated above.

In one of the slides, in addition to the arrangement above, the cells are closely packed, appear superficially sheet-like but the masses are broken by capillaries and I would regard these as "alveolar" or of closed follicular type, rather than being truly solid. These cells are also of mildly oxyphilic character.
In a series of adenomas I reviewed several years ago the incidence of the several types was as follows:

<table>
<thead>
<tr>
<th>Thyroid adenomas</th>
<th>2500</th>
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<tbody>
<tr>
<td>Follicular</td>
<td>8.5%</td>
</tr>
<tr>
<td>Fetal (often mixed with microfollicular)</td>
<td>8.4%</td>
</tr>
<tr>
<td>Atypical</td>
<td>2.3%</td>
</tr>
<tr>
<td>Embryonal</td>
<td>.7%</td>
</tr>
<tr>
<td>Papillary</td>
<td>.1%</td>
</tr>
</tbody>
</table>

The figure 2.3% for atypical adenoma is probably higher than that ordinarily encountered. "Papillary adenoma" is a rarity and for practical purposes all truly papillary neoplasms are regarded as malignant unless there is a complete capsule grossly and invasion is excluded by subserial capsular blocks.
MARCH 8, 1970 - CASE NO. 7
ACCESSION NO. 12840

MODERATOR'S DIAGNOSIS: ENCAPSULATED FOLLICULAR CARCINOMA OF THYROID

HISTORY:

In October 1962, this 78 year old female had a marked enlargement of the thyroid with increasing pressure symptoms. She first noticed enlargement of her thyroid gland toward the end of 1961. She was treated with propylthiouracil for three months with very little change in the size of the thyroid.

DISCUSSION:

In the two sections of this neoplasm it is in large part encapsulated except for one microfocus in one of the slides. Of high importance is the presence in the other slide of neoplastic elements in sharply circumscribed to ovoid islands within and in the outer portion of the capsule of the tumor. One of these reveals a space on one side, endothelial lined and indicative of the intravascular nature of these sharply circumscribed foci. In the other slide in only a narrow area has the neoplasm extended past the capsule and is in direct contact with non-neoplastic epithelium. On the basis of the microscopic section showing a capsule intact about the neoplasm except for this one microfocus, this is to be classified in the group of encapsulated follicular carcinomas, with one focus of microscopic capsular transgression. The type of cell is larger than the usual thyroid cell and is of oxyphilic character, in keeping with the gross description of the reddish-brown nature of the neoplasm. In all, this should be classified as: Encapsulated follicular carcinoma of thyroid.

Oxyphilic.
Slight extension to adjoining thyroid tissue.
Nodular thyroid.

This is classified as a follicular rather than solid carcinoma because even though hypercellular and appearing somewhat sheet-like, the mass is broken by capillaries into small, irregular columns and follicles. The oxyphilic nature of the neoplasm is a prominent histologic feature but bears no relationship to the prognostic import of the neoplasm.

Hurthle cell "tumor" has been given a high emphasis in literature in the past. As with the clear cell neoplasms, however, it is the gross and histologic character of the cellular components in relation to the adjoining thyroid tissue and blood vessels that is of prognostic importance and not the tinctorial character of the cell cytoplasm. Regardless of the nature of the cell the
following classification seems appropriate:

Carcinoma of thyroid

1) Papillary carcinoma
   Often with follicular elements

2) Follicular carcinoma
   a. Encapsulated or encapsulated with slight (microscopic) extension to thyroid tissue
   b. Invasive follicular carcinoma

3) Medullary carcinoma

4) Anaplastic carcinoma

This will suffice to classify most all malignant epithelial neoplasms of the thyroid, the rare squamous cell carcinoma, exempted; mixed types do occur as an unusual event - anaplastic and papillary carcinoma; squamous cell and papillary carcinoma; anaplastic and follicular carcinoma, being some of the combinations we have encountered.

The Hurthle cell is most often found in the group of follicular carcinomas, either the encapsulated group shown here or in the invasive variety. It has also, however, been demonstrated as forming a portion of papillary carcinoma and even anaplastic carcinoma. The true Hurthle cell should be a large cell, roughly 20 to 25 microns or more in diameter, other oxyphilic cells, however, are found smaller than this and I would prefer merely to indicate the whole group as oxyphilic and put in parenthesis (Hurthle), for those components of larger cell size.

The prognosis on this neoplasm should fit that of any other carcinoma in this category - with a few year expectancy for survival of 80 to 85%.

REFERENCE:

MODERATOR'S DIAGNOSIS: STRUMA LYMPHOMATOSA (HASHIMOTO); OXYPHILIC NODULE OR ADENOMA

HISTORY:

In 1958 this 59 year old female was seen in the clinic at which time a diffusely enlarged thyroid was detected. The patient stated, however, that her thyroid gland had been enlarged for at least ten years prior to the time it was discovered. A PBI at that time was 2.6 mcgm/100 ml and a serum cholesterol was 555 mg/100 ml. She was treated with thyroid in gradually increasing dosage. After being treated for four months, her serum cholesterol dropped to 282 mg/100 ml and her PBI rose to 3.5 mcgm/100 ml. The patient continued to do well. However, five months after beginning treatment, she moved away from this country. In 1962 she returned to the clinic with multiple vague complaints.

DISCUSSION:

This is, of course, a classic struma lymphomatosa (Hashimoto) as Professor Hashimoto described in 1912. The lobulation of the thyroid is retained, although the lobules are distorted; the epithelial cells are large, distorted and for the most part of oxyphilic character; lymph follicles are well formed and, in addition, there is a dense infiltration of mature lymphocytes between the follicular structures and for the most part sparing the interlobular fibrous tissue. Capsule is retained although, undoubtedly, was slightly thickened and slightly to moderately adherent to adjoining structures at the time of surgery. In one of the present sections, also, there is a nodule, or probably an adenoma formed of cells similar to those found in the other portions of the thyroid. The inflammatory infiltrate is largely plasma cell here to a much greater extent than the scattered plasma cells present in the mostly mature lymphocytic infiltrate. I do not know the significance of this. For a complete diagnosis:

Struma lymphomatosa (Hashimoto);
Oxophilic nodule or adenoma.

The nodule or adenoma present in Hashimoto's struma often shows a marginal infiltrate of lymphoid cells and an apparent change of the epithelium to the larger sized cells so frequent in this disorder. In the present nodule it is entirely formed by the follicular cells that are the feature of struma lymphomatosa. Perhaps this merely means that the autoimmune factors recognize the nodule or adenoma cells as effectively as the thyroid cells, probably due to the fact that there is little or no antigenic abnormality. In many neoplasms,
of course, the antigenicity of the epithelial cells varies from that of the non-neoplastic follicular cell.

The clinicopathologic features fit the disorder quite well; protein bound iodine is low; it may be pointed out, however, that occasionally protein bound iodine in this variety of thyroiditis may appear to be elevated, 5 to 8 micrograms per cent, or so. In such instances, however, generally there is a relatively low level of butanol extractable protein bound iodine with the major portion of the PBI being formed by nonhormonal protein bound iodine - simply "trash". Elevated blood cholesterol may be found. The recurrence of the "tumor mass" after first operation and in association with her failure to continue medication is to be expected since these patients must remain on thyroid hormone therapy for life. The "cystic irregular consistency" may refer to the presence of the nodule or adenoma described above.

It may be stated that struma lymphomatosa may first appear as a thyroid nodule of solitary character because of its involvement of a present pyramidal lobe or a greater prominence of involvement in one lobe or a portion of a lobe. In our series about 2 to 3 percent of patient with a clinical solitary thyroid nodule proved to have struma lymphomatosa at operation.

REFERENCE:

MODERATOR'S DIAGNOSIS: ANAPLASTIC CARCINOMA OF THYROID. SPINDLE AND GIANT CELL ELEMENTS. INVASION OF MUSCLE.

HISTORY:

Three weeks prior to his admission on April 12, 1966, this 66 year old male noticed a mass in the right side of his neck while shaving. The mass had not enlarged and was not associated with pain or tenderness. In the past week, he had noticed increasing hoarseness. He had no weight loss or other symptoms.

DISCUSSION:

This is a highly anaplastic carcinoma with spindle and giant cell elements. It involves not only the thyroid but also invades adjoining muscle. The diagnosis: Anaplastic carcinoma of thyroid; spindle and giant cell elements; invasion of muscle.

This is, of course, one of the most malignant neoplasms of man, generally occurring in those 50 years of age, rarely, however, occurring in the 4th decade. Mortality figures are high. Many patients die within six months or a year after recognition of the neoplasm, about 95% succumbing within two to five years. Although these neoplasms may show an immediate response to irradiation, they generally recur within a period of a few months. Death is associated often with local recurrence and with distant metastases.

Anaplastic carcinomas of the thyroid are generally of this type, some have a more solid arrangement and more polyhedral cells; as a rarity a scirrhous variety of primary anaplastic carcinoma of the thyroid occurs. Because of the sheet-like arrangement of some of these tumors, it was originally elected to avoid the term "solid" for the group now known as medullary carcinoma, also mostly an "undifferentiated" type of carcinoma.

Anaplastic carcinoma may be subclassified as follows:

Common types: Spindle cell, giant cell, solid; often a mixture of the first two or even including the third type.

Scirrhous (extremely rare)

Small cell (extremely rare in our experience)

A small cell carcinoma is often included in the group anaplastic carcinoma; however, this is extremely rare, most of these undifferentiated small cell neoplasms belong into the lymphoma group, in my personal experience.

REFERENCE:

MODERATOR'S DIAGNOSIS: AMYLOID GOITER

HISTORY:

The main complaint of this 37 year old female was weakness and chronic debility. She was admitted to be worked up for adrenal insufficiency which was later diagnosed with hormonal studies.

DISCUSSION:

This is an excellent example of extensive amyloid deposition in the thyroid. It may occur in the so-called or secondary type of amyloidosis. Amyloid is characteristically distributed between the follicles, separating them as shown here. Generally there is no evident thyroid enlargement, although on rare occasions the patient may present with a definite clinical goiter, as was true in the present case.
MODERATOR’S DIAGNOSIS: LYMPHOMA OF THYROID. RETICULUM CELL AND LYMPHOCYTIC COMPONENTS. RARE EPITHELIAL ELEMENTS COMPATIBLE WITH STRUMA LYMPHOMATOSA

HISTORY:

This 86 year old female was admitted on February 1961 with increasing difficulty in swallowing food and water. A short time prior to admission, she noticed marked voice changes occurred with some stridor. About December 1960 she noticed rapidly increasing swelling of the neck.

DISCUSSION:

This, indeed, is a small cell malignant neoplasm and falls into the controversial area of small cell carcinoma versus lymphoma. In the present neoplasm thyroid tissue is not identifiable but, as indicated, this comes from the thyroid area and the thyroid is undoubtedly totally replaced by the neoplasm. The cells are indeed small, some of them are round but others are elongate, irregular in shape; the nuclei vary from a somewhat vesicular character to those with more coarse chromatin clumps; prominent nucleoli are common. Cytoplasmic margins are not distinct in many cells, possibly due to fixation artefact. Mitoses are readily found. The reticulin stain shows a fairly abundant reticulum with encasement of small groups of cells and also individual and collections of a few cells. In the reticulin stain, some of the nuclei are definitely quite round in addition to being elongate and resemble lymphocytes, either mature or immature. The cells tend to separate individually rather than retaining a sheet-like arrangement. In the reticulin stain, also, scattered follicular structures of the thyroid are apparent, with the cells larger than usual and resembling those seen in struma lymphomatosa. On the bases of these observations I classify this as: Lymphoma of thyroid. Reticulum cell and lymphocytic components. Rare epithelial elements compatible with struma lymphomatosa.

The differential diagnosis between the small cell carcinoma and lymphoma should be no different in the thyroid than it is in other tissues, and the all criteria should be applicable to this organ. Whether this is occurring in a gland previously showing struma lymphomatosa or not, is debatable. It is possible that there is an alteration in the epithelium engulfed by a lymphoma, although it is believed that such a change fits better with a precedent thyroiditis of the diffuse lymphocytic type.

In our own series we have recognized about 40 lymphomas in an entire group of 1000 malignant neoplasms of the thyroid. Most of these have been either lymphocytic, reticulum cell, or, more commonly, a mixture of the two cell types. Only two instances of plasmacytoma are present, both of these appearing in men past 50 years, both with partial resection of the neoplasm,
irradiation therapy and known to survive 12 and 15 years without evidence of myeloma. Approximately 30 to 50% of lymphomas of the thyroid appear to arise in a precedent diffuse lymphocytic thyroiditis.

Although there are reports indicating that lymphoma of the thyroid, particularly the reticulum cell variety, is as malignant as anaplastic carcinoma, this is not true for all of the types. The most complete survey is provided by Woolner et al., where the relationship to prognosis is definitely found to be related to the transgression of the thyroid capsule, those neoplasms which are retained within it having a much better prognosis than those with invasion of the adjoining structures.

LYMPHOMA OF THE THYROID

46 Cases

<table>
<thead>
<tr>
<th>Invasive spread and/or lymph node involvement; or inoperable</th>
<th>No.</th>
<th>Survived</th>
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<tr>
<td>Confined within thyroid</td>
<td>16</td>
<td>15</td>
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</table>

Of course, it must be fully remembered, that lymphomas of the thyroid may be primary but also the thyroid is not infrequently involved by lymphomas of other origin. However, it is an uncommon clinical event for lymphoma of generalized type to appear primarily as a goiter.

REFERENCE:

MARCH 8, 1970 - CASE NO. 12
ACCESSION NO. 15701

MODERATOR'S DIAGNOSIS: RETICULUM CELL SARCOMA IN STRUMA LYMPHOMATOSA OF FIBROUS TYPE AND WITH INVOLVEMENT OF LYMPH NODE

HISTORY:

This 66 year old woman had noted the appearance of a right neck mass in the thyroid region in July 1967. The mass was not painful or tender.

DISCUSSION:

On first review of the two slides representing thyroid alone, there is evident retention of the lobulation of the thyroid, although a marked reduction in the number of epithelial elements and an increase in the interlobular fibrous tissue. Those follicular structures present are of small size with enlarged epithelial cells and even with some giant nuclear forms and oxyphilic cytoplasms. The capsule of the thyroid is sharply delimited from the adjoining tissue in these sections, except for a few areas where there is a mild infiltration of small lymphocytes. In many of the well defined lobules the major component is formed by lymphoid cells, principally small lymphocytes. This portion of the alteration may be classified as struma lymphomatosa, fibrous variant.

An ominous feature, however, is the presence of patches of atypical cells at times disregarding the fibrous tissue and infiltrating it; in these areas the cells are larger than lymphoid elements, have irregular and vesicular nuclei, the cells vary in shape as evidenced by the elongate irregularly ovoid nuclei, often of vesicular character and with frequent mitoses.

In addition to the involvement of the thyroid proper a lymph node reveals broad areas of replacement of its architecture by highly atypical cells as seen in the thyroid proper. On the bases of these findings, my diagnosis is: Reticulum cell sarcoma in struma lymphomatosa of fibrous type, and with involvement of lymph node. Reticulum cells are of anaplastic type.

The occurrence of a lymphoma in the fibrous variant of the struma lymphomatosa is an unusual event; I cannot find one in our collection.
MARCH 8, 1970 - CASE NO. 13
ACCESSION NO. 9343

MODERATOR'S DIAGNOSIS: TERATOMA

HISTORY:

This newborn infant had marked respiratory embarrassment.

DISCUSSION:

This is a classical example of teratoma, mature elements. Further, it is an instance where thyroid tissue actually can be identified in conjunction with the tumor. At times it is impossible to state the positive site of origin of these massive tumors of the neck. This has many elements with much neural tissue and both epithelial and mesenchymal elements of varying type. In the infant, teratomas to my knowledge are always mature and benign. However, because of the bulk of the mass, death is common due to respiratory distress unless prompt surgical relief is provided as was done in this case. Malignant elements in teratoma have been the subject of rare reports in the adult. I've had no personal experience with this type of neoplasm.

REFERENCE:

MODERATOR'S DIAGNOSIS: ATYPICAL ADENOMA

HISTORY:

This 47 year old female had a papillary adenocarcinoma of the left breast surgically removed in June 1969. At that time she had a palpable nodule on the left lower lobe of the thyroid. Because of carcinoma in the breast, surgery on the thyroid was deferred until a later date. The nodule was increasing in size since the breast surgery.

DISCUSSION:

It is difficult to fully evaluate this because only a small portion of capsule is evident. The neoplasm is of hypercellular type, of course, with closely packed follicular structures, some closed, others microfollicular and a few of larger size. Cells, thus, form structures of well differentiated character and though many of the epithelial cells are well differentiated some do show nuclear atypia with nucleoli and a vesicularity. However, these features are of no influence in the determination of a benign or malignant neoplasm. Another feature is the paucity or absence of mitoses in the presence of atypia, indicating that the latter is of no diagnostic significance. In general, mitoses are not found in many adenomas although in a careful search up to one-third will show five or less per 50 square millimeters of count; encapsulated follicular carcinomas may have a range double this or more, although, again, the number does not make them plainly evident. The only means of establishing the malignancy of a follicular tumor of the thyroid, to repeat, is to demonstrate blood vessel invasion or absolute capsular transgression, and the latter of sufficient degree to be grossly identifiable in the invasive follicular type of carcinoma. In the absence of these features in the present slides I must regard this as: Atypical adenoma, follicular variant.

No blood vessel invasion or capsular transgression evident in the present sections to establish malignancy, but insufficient capsule for full evaluation.

A comment may be in order with regard to frozen section diagnosis of these atypical encapsulated tumors of the thyroid. The establishment of blood vessel invasion cannot be made on a single section, sometimes it is necessary to have seven or even more blocks and, with the time element for rush diagnosis at surgery this is neither practically possible nor necessary. The definitive surgical approach to a tumor of a thyroid lobe, that is limited by capsule,
results in a lobectomy or often lobectomy with isthmectomy and subtotal removal of the other lobe, depending upon the size of the neoplasm. When, on careful gross examination, a capsule is apparent about the neoplasm the opinion can be adequately expressed by the statement "atypical encapsulated thyroid neoplasm, either atypical adenoma or encapsulated follicular carcinoma. No evidence of angioinvasion in the frozen section evaluation of one (or two or so blocks)."

The technic of providing a proper frozen section with these tumors requires the fixation of a wedge of neoplasm including the capsule, fixing it by the boiling technic if such is used, and then cutting it so that a flat and adequate capsular section is available for study. The friability and the tendency of these neoplasms to bulge above the surface make it difficult, otherwise, to provide a section that is adequate for evaluation. Personally, my record for encapsulated follicular carcinoma is about 1 in 3 cases with respect to the demonstration of blood vessel invasion at frozen section on encapsulated follicular carcinoma. With the differential diagnosis above and definitive surgery performed, there is no need for a more specific diagnosis since the patient's welfare is adequately protected once definitive surgery has been performed.

REFERENCE:

MODERATOR'S DIAGNOSIS: ENCAPSULATED FOLLICULAR CARCINOMA

HISTORY:

For the past ten to eleven years prior to admission, this 53 year old female had had a recurrent or new slowly growing mass in the neck which had become large and produced dyspnea and stridor on exertion for four years. She had an operation on her thyroid at the age of 12 for a "double growth." Again at the age of 17, she had a tumor removed from her thyroid which was the "size of an orange."

DISCUSSION:

In these two slides the neoplasm is encapsulated; it is of hypercellular character without edematous stroma and is partly formed by follicular elements, in part by highly cellular areas where the neoplastic elements appear under low power to be in an unbroken sheet but under high power examination seem to be interrupted by capillaries separating them into small rounded groups. Perhaps the term 'alveolar' might be applied to this. I like to keep the term "solid" for reference to those neoplasms which are truly unbroken sheets of epithelium.

Because of the unusual hypercellularity the differential diagnosis between atypical adenoma and encapsulated follicular carcinoma applies. In this instance, quite readily, blood vessels are found both filled with tumor as well as showing areas in the capsule where endothelial covered tumor masses are present in blood sinuses. On these bases, the diagnosis is:

Encapsulated follicular carcinoma.

REFERENCE:

MARCH 8, 1970 - CASE NO. 16
ACCESSION NO. 8829

MODERATOR'S DIAGNOSIS: MEDULLARY CARCINOMA

HISTORY:

This 65 year old female consulted a physician because of a cystocele, and she noted a nodule in the left lobe of the thyroid gland. She said that she had been aware of this nodule since the age of fifteen. It had slowly enlarged and produced mild difficulty in swallowing.

DISCUSSION:

Despite the fact that this appears to be an entirely encapsulated neoplasm, histologically it is of really solid type and must be classed in the group of medullary carcinoma: Medullary carcinoma, encapsulated, angioinvasive.

Most of the medullary carcinomas are only partly encapsulated, transgression occurring, even though mild in some of the peripheral areas. In the hematoxylin-eosin preparation, of course, it is not possible to determine the presence or absence of amyloid; stains for such material would be of interest. In the usual type of medullary carcinoma, lymph node metastases are common. In the series recently studied by Doctor Crile (personal series), mortality is higher than that ordinarily recognized, with 9 of 11 patients eventually succumbing to their neoplastic disease; in a large group Woolner, et al(2) found about 60 percent of patients surviving. Lymph node metastases may have a much more favorable prognosis, with 5 of 5 surviving. This, small number of course, is not statistically sufficient, as also is true of Doctor Criles series.

A very unusual feature of the history of this patient is the apparent duration of the nodule, "50 years."

I have no information with respect to the relationship of a medullary carcinoma of this type and the associated disorders described in some patients with the usual type -- bilateral pheochromocytoma, neurofibromas, ectopic adrenocorticotropic, calcitonin or prostaglandin production.

REFERENCES:


MODERATOR'S DIAGNOSIS: ECTOPIC NODULAR THYROID TISSUE IN OR OTHERWISE ASSOCIATED WITH LYMPH NODE. PAPILLARY MICROADENOMA OF THYROID

HISTORY:

At the time of an appendectomy in 1966, this 24 year old female was found to have an enlarged right cervical lymph node. She was lost to follow-up until February 1969, at which time the previously noted lymph node was found to be unchanged. She had in the meanwhile delivered an infant who had developed bilateral adrenal hemorrhages and was being treated for adrenal insufficiency.

DISCUSSION:

This case concerns a highly controversial topic, particularly during the last two decades. The thyroid tissue is undoubtedly a part of the lymph node and has all the appearance of that found with a nodular change. The neoplasm that is most commonly found in lymph nodes, of course, is the papillary carcinoma which, though frequently metastasizing with an increase in papillary arrangement, may appear as follicular elements. It has been properly stated that these may look like non-neoplastic thyroid histologically, particularly when they are few in number. Ordinarily, though, the neoplastic follicles present a nuclear irregularity that is distinctive despite the well differentiated follicular structure. The association of thyroid with lymph node, I believe, has been conclusively demonstrated in midline areas; it is the lateral occurrence of lymph node and thyroid association that is of the greatest concern. A lateral location of thyroid tissue, particularly nodular type, can be found in the presence of a nodular goiter merely through a dislocation of a portion of the latter. In other instances where the follicular structures are definitely within lymph node, in an overwhelming percentage of cases the lateral lesion is secondary to a thyroid carcinoma almost always of papillary type, and at times, of course, of insignificant size, perhaps only a few mm. or even less in diameter.

In the present case there is one minute lesion in the thyroid which is of papillary structure; this is encapsulated but without serial section one cannot be certain this does not have an area of capsular transgression. The unusually uniform, round to ovoid nuclei containing dense chromatin is unlike those seen in papillary carcinoma. Thus, despite the truly papillary character of this little lesion I cannot accept it as a malignant lesion and classify it as papillary microadenoma. An interesting association is the presence of two small crescentic groups of cells, small in size and in large part without a distinct arrangement. The possibility of parathyroid origin arises but the absence of a sharp transition to obvious thyroid follicles probably supports the view that this is an unusually hypercellular focus of thyroid elements. The question of carcinoma, with respect to this zone, does not have to be entertained.
From the practical viewpoint, tiny masses of thyroid tissue in lymph nodes as shown here, to me is a clear indication for surgical exploration and removal of the homolateral thyroid lobe and isthmus, regardless of one's opinion with respect to the benignity of the lesion.

Opposing views with respect to the authenticity of ectopic thyroid tissue in lymph nodes is evidenced in the following publications:


On the basis of these section, I classify this as: Ectopic nodular thyroid tissue in or otherwise associated with lymph node. Papillary microadenoma of thyroid.
MODERATOR'S DIAGNOSIS: ADENOCARCINOMA, SECONDARY IN THYROID, COMPATIBLE WITH COLONIC ADENOCARCINOMA.

HISTORY:

Approximately two months prior to admission, the patient developed painless enlargement of the thyroid gland unaccompanied by dysphagia or choking episodes. She had concomitant nonproductive cough.

DISCUSSION:

This is a poorly differentiated adenocarcinoma basically of columnar epithelial structure but with high cellular atypia, resulting in extensive multilayering of the epithelium. Despite the dedifferentiation of the epithelial cells, lumen formation is present, with reduplication in a few areas. Therefore, despite the somewhat sheet-like arrangement of the atypical epithelial cells in part, origin from a lumen forming structure is strongly favored and a primary neoplasm of colonic origin the most compatible choice for histogenesis.

Secondary carcinomas of the thyroid are only rarely a presenting symptom clinically. Those that do so present are most often the kidney (6 of 10 cases in one series), Shimaoka found only 1% of metastatic tumors caused clinical manifestations sufficient to lead to thyroidectomy although there was metastatic involvement of the thyroid at autopsy in 9.5% of patients dying with malignant tumors of other primary sites; most common primary was malignant melanoma (39% of cases), carcinoma of the breast (21%) and carcinoma of the kidney and lung (12% and 11% respectively). A primary origin in the colon or rectum is unusual only 1 in 19 cases of secondary carcinoma of the thyroid gland having a rectal origin (Sklaroff).

REFERENCES:


MODERATOR’S DIAGNOSIS: PAPILLARY CARCINOMA, THYROID. FOLLICULAR AND PAPILLIFEROUS ELEMENTS. BLOOD VESSEL INVASION.

HISTORY:

In January 1961, the thyroid gland was found to be diffusely enlarged over the isthmus and left lobe for which the patient received thyroid up to 3 grains daily.

DISCUSSION:

This is a straightforward case of papillary carcinoma of the thyroid: Papillary carcinoma, thyroid. Follicular and papilliferous elements. Blood vessel invasion.

The presence of the latter, strangely, does not increase the malignancy of papillary carcinoma; neither does the presence of abundant follicular elements.

In children the commonest type of carcinoma is the papillary type, almost exclusively limited to this in our own series. The extensive group reported from Mayo Clinic also confirms this.

A series of 100 patients including those of Hayles et al plus 31 consecutive patients of ours shows the following types:

- Papillary: 90
- Follicular, encapsulated: 8
- Medullary: 2

In children papillary carcinoma may be much more aggressive than in the adult although, fortunately, it still remains in the usual group of low grade thyroid carcinoma. Radical dissection of the thyroid may be more frequently done because of invasion of adjoining muscle; pulmonary metastases are more frequent than in the adult. As with other types of papillary carcinoma, administration of thyroid hormone to tolerance is a therapeutic procedure with established effectiveness.

The relation to irradiation, of relatively low dosage and for benign conditions of the neck and chest area, appears to be well established. The first indication of such a relation was published by Duffy and Fitzgerald, 1955, and there have been repeated reports of a high incidence of thyroid exposure to irradiation in infancy or early childhood, in children with clinical papillary carcinoma of the thyroid. Among others has offered further confirmation with indication of a higher attack rate of thyroid tumors, including carcinoma, in a series of children who have received irradiation involving the thyroid in comparison with matched sibling controls. (Hempelmann, et al.)
Papillary carcinoma generally appears in several forms, in addition to
the usual type (grossly 2-3 cm. in diameter and often circumscribed but
not encapsulated). These variants are classified as follows:

PAPILLARY CARCINOMA

Types in addition to usual

Gross subtypes: Microcarcinoma (1 cm. or less in
diameter)

Massive (rare)

Principally encapsulated

Diffuse (rare)

Microscopic subtypes: Papillary elements only

Papillary and follicular elements
(commonest type)

Papillary, follicular and solid
(squamoid) elements

The presence of follicular elements bears no relation to prognosis;
strangely, also, the presence of blood vessel invasion (occurring in 10 -
15% of cases) does not increase the degree of malignancy. The papillary
microcarcinoma has about one-half the potential of lymph nodes metastases
(about 35% of cases) as does the usual type. This small variety has a
uniformly excellent prognosis with or without the presence of lymph node
metastasis; so far in our series no patient has died as a result of
papillary microcarcinoma.

The presence of an invasive recurrence (the result of cutting through gross tumor and leaving portions in the operative wound) and virulent development, reducing the ordinarily good prognosis (85 - 90% in 10 years) to about one-half such a survival rate.
THYROID NEOPLASMS AFTER X-RAY TREATMENT IN INFANCY

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<thead>
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REFERENCES:


MARCH 8, 1970 - CASE NO. 20
ACCESSION NO. 9407

MODERATOR'S DIAGNOSIS: STRUMA LYMPHOMATOSA, HYPERPLASTIC, NONOXYPHILIC VARIANT

HISTORY:

During a routine physical examination on this 18 year old female, a lump was discovered in her neck.

DISCUSSION:

This is obviously a follicular hyperplasia of marked degree with the additional features of focal lymphocytic infiltration and lymph follicle formation and, importantly, many follicles filled with histiocytes. Thyroid lobulation is present and accentuated in part with some broadening of the fibrous septa. In one of the slides, all follicles reveal hypertrophied epithelial cells. In the others, there are a few colloid-distended follicles with cuboidal epithelial cells. However, the involvement is so uniformly distributed I favor placing this variety of lymphocytic thyroiditis in the diffuse group:

Struma lymphomatosa, hyperplastic, nonoxygenic variant.

In diffuse goiter with hyperthyroidism, in one or two per cent of cases, there may be such a marked lymphocytic thyroiditis of focal type that it may be misinterpreted for the diffuse variety of lymphocytic thyroiditis. In addition, there are established instances where proved diffuse goiter with hyperthyroidism is pathologically established as struma lymphomatosa. My good friend and colleague, Doctor Vickery, likes to refer to this as: "Hashitoxicosis." The explanation probably lies in the fact that the follicular cells of such cases of struma lymphomatosa do still possess sufficient functional capacity to be stimulated by LATS. This association, however, between diffuse lymphocytic thyroiditis and thyrotoxicosis is highly unusual; often, though, patients with struma lymphomatosa may evidence a clinical sign of nervousness that might be passed for the disorder except for the negative laboratory examinations.
MODERATOR'S DIAGNOSIS: FOLLICULAR CARCINOMA, SECONDARY IN BONE (SKULL), AND ADJOINING DURA

HISTORY:

The 62 year old male was seen by his physician in November 1960 because of a tumor swelling of the left parietal region of two-month duration. It was accompanied by some headaches and it appeared to be pulsating. He had no other complaints except for occasional night sweats.

DISCUSSION:

On first survey, without attention to the location of the neoplasm, a first consideration is that of follicular carcinoma or a portion of atypical adenoma. Follicular structures are well formed although unusually crowded. Nuclei present slight irregularity and uniformly dense fine chromatin. Mitoses are not too frequent but are readily found. (Approximately 1 per 10 to 15 high power fields).

Such a metastatic neoplasm to a distant site may have its origin in an encapsulated follicular carcinoma or, of course, in an invasive follicular carcinoma. On rare occasions, distant metastases may be the first evidence of the existence of the former.
MARCH 8, 1970 - CASE NO. 22
ACCESSION NO. 11201

MODERATOR'S DIAGNOSIS: INVASIVE FOLLICULAR CARCINOMA (MALIGNANT BEHAVIOR CANNOT BE PREDICTED FROM HISTOLOGY OF THIS SPECIMEN)

HISTORY:

The 62 year old male was readmitted for surgery on April 17, 1961 for exploration of the thyroid gland. His main complaints were of dizzy spells when bending over. He consulted a surgeon in Los Angeles who felt that a total thyroidectomy should be done for possible primary carcinoma.

DISCUSSION:

This is a relatively small, ovoid, sharply circumscribed or encapsulated tumor of unusually hypercellular character and with a bizarre fibrous trabeculation that is ordinarily not seen in other than papillary carcinoma. However, the latter is not a consideration here. In one area, the capsule is either extremely thin or absent with some of the tumor elements adjoining thyroid follicles or else forming a follicle that I cannot tell from those of adjoining thyroid. However, this is not sufficient in itself, when so slight and questionable, to establish invasiveness. I can find no area in this capsule where there is blood vessel invasion. Therefore, despite the highly unusual histological character of this, I must classify it as atypical adenoma or nodule. Unfortunately, in the absence of well formed and thick walled blood vessels in the capsule I just cannot distinguish a nodule from the true neoplasm.
MARCH 8, 1970 - CASE NO. 23
ACCESSION NO. 13272

MODERATOR'S DIAGNOSIS: CLEAR CELL CARCINOMA (RENAL CELL) SECONDARY IN THYROID

HISTORY:

Five years ago this 76 year old female noted a "lump" in the right side of her neck. This mass had progressively increased in size, especially in the past four months prior to admission. Also in the past four months, the left lobe of the thyroid had become diffusely enlarged rapidly. She only had respiratory distress after bending down. She had gained weight over the last five years and she took proloid, 1/2 grain daily.

DISCUSSION:

In the present section, this is an encapsulated neoplasm of clear cell type where the differential diagnosis obviously is between a primary clear cell neoplasm of the thyroid and metastatic renal cell carcinoma. On the bases of the section alone, the correct diagnosis is highly difficult to impossible to establish. However, there are features that favor a metastatic neoplasm; the abundance of quite clear cells with sharp cell margins and the mild, though definite, variation in nuclear size. The presence of large cystic spaces may be found, of course, in a thyroid adenoma but the clear cell variety often is of a more compact character. The actual diagnosis must be, in part, a descriptive one; encapsulated clear cell neoplasm in the thyroid, strongly favor secondary renal cell carcinoma.

The clinical note and description of the gross specimen fully support the diagnosis: Clear cell carcinoma (renal cell) secondary in thyroid.

Renal cell carcinoma metastatic to a nodular thyroid is most prominently evident as either reduplicating the nodular structure or replacing non-neoplastic nodules through growth of metastatic foci to them. Secondary carcinoma of the thyroid as a clinical manifestation is unusual, renal cell carcinoma being one of the commonest in the rarity. We have but two cases to my knowledge of secondary renal carcinoma in the thyroid. In one, the thyroid enlargement clinically could not be distinguished from nodular goiter, grossly entirely resembled it and yet microscopically was clearly established as a secondary clear cell neoplasm. In this case, a renal carcinoma was demonstrated and a nephrectomy performed. There was no evidence of recurrence in the neck or distant metastasis over the period of 11 years when metastases to lumbar spine occurred. In the second case, thyroid metastases did not appear until 12 years after nephrectomy for renal cell carcinoma; the patient died two years after thyroidectomy with extensive metastatic carcinoma.
MARCH 8, 1970 - CASE NO. 24
ACCESSION NO. 18383

MODERATOR'S DIAGNOSIS: INVASIVE FIBROUS THYROIDITIS (RIEDEL)

HISTORY:

This 74 year old man had a rapidly enlarging goiter of four-month duration. He had concomitant shortness of breath and cough.

DISCUSSION:

Unfortunately, the present section does not show thyroid tissue, the latter being entirely replaced by the hyaline fibrotic lesion with included small patches of chronic inflammation. At the outer margins, however, muscle fibers are separated by the hyaline mass and the inflammatory, fibrous lesion encompasses one fairly larger nerve.

There is no non-neoplastic lesion of the thyroid other than invasive fibrous thyroiditis (Riedel) that so infiltrates between skeletal muscle fibers adjoining the thyroid. The lesion, otherwise, is nonspecific except, perhaps, for an unusually hyaline appearance in patches.

The important differential diagnosis is that of carcinoma of scirrhous or of spindle cell type. Scirrhous carcinoma will show single small groups, and small cords of atypical epithelial cells in the fibrous mass and should cause no difficulty, except possibly for a source. Scirrhous carcinoma of the breast metastatic to thyroid might simulate such a lesion but it is highly uncommon for neoplasms metastatic to the thyroid to form an appreciable clinical mass, particularly those of breast origin. The other differential diagnosis is more difficult since a rare spindle cell anaplastic carcinoma will have broad areas of fibrous structure, only infrequently presenting the diagnostic atypical spindle cells, with bizarre nuclear forms, and atypical mitoses. Another feature that may be found in this type of anaplastic carcinoma is the presence of zones of necrosis in the dense fibrous or other areas; I have not encountered this in invasive fibrous thyroiditis. Fibrosarcoma is not a point of differential diagnosis in such a lesion as this because of the density of the collagen, and the absence of hypercellular, spindle cell areas. The diagnosis is: Invasive fibrous thyroiditis (Riedel).

In our own series we have had about 25 instances of this disorder in comparison with about 1000 malignant neoplasms of the thyroid seen in the same period. The lesion may involve only one lobe or may present as a diffuse mass. In one case, hypoparathyroidism and myxedema were features where there was diffuse thyroid and parathyroid involvement and the patient had had irradiation of unknown dosage before admission. In one instance, the thyroid proper showed alterations of struma lymphomatosa, in addition to having invasive fibrous thyroiditis replacing a portion of one lobe.
The main clinical problem is the tumor-like mass, densely adherent to adjoining structures and requiring the exclusion of anaplastic carcinoma. Such a carcinoma may as an extremely rare event be present in a gland showing invasive fibrous thyroiditis but this is a highly unlikely combination. Pressure symptoms, of course, are relieved by resection of only a portion of the mass, its removal in entirety being rarely possible due to the extensive involvement of structures adjoining the thyroid by the invasive fibroplasia. The etiology is unknown; the lesion most likely is identical to sclerosing retroperitonitis and mediastinitis, the latter as an uncommon incident occurring with invasive fibrous thyroiditis.

REFERENCES:


MARCH 8, 1970 - CASE NO. 25
ACCESSION NO. 18384

MODERATOR'S DIAGNOSIS: CARCINOMA, MIXED ANAPLASTIC AND FOLLICULAR TYPE

HISTORY:

This 45 year old female had goiter for six to eight years. It gradually increased in size and then rapidly increased for the year before admission.

DISCUSSION:

From this present slide, the correct diagnosis may be somewhat obscure. On first glance, the lesion has much the appearance of that seen Case 24. However, in several areas the spindle cells do show abnormality of nuclear structure, and in several areas there is an apparent ill-defined area of necrosis. The lesion is sharply limited by the thyroid capsule in this section and, indeed, this was true in many other blocks. However, areas of greater atypia and hypercellularity involving spindle cells were apparent and the diagnosis: Anaplastic carcinoma, spindle cell type, desmoplastic, could be assigned. In addition, there were areas of atypical follicular structures and a full diagnosis of: Carcinoma, mixed anaplastic and follicular type, applied.

The importance of recognizing the atypia present is emphasized by the fact that this patient had a local recurrence of obvious anaplastic carcinoma, spindle cell type, in five months, and died with extensive metastases two months later.