Thyroid Follicular Carcinoma

Microscopically minimally invasive follicular carcinoma resembles that of its benign counterpart, follicular adenoma. Most minimally invasive follicular carcinomas show a solid, trabecular, or microfollicular pattern rather than the normocytic or macrocytic type of follicles seen in some benign adenomas. Nuclei may show hyperchromatic features and prominent nucleoli. Capsular invasion is an important mark of malignancy but penetration must be through the entire thickness of the capsule to be valid. An even more reliable sign of malignancy is vascular invasion. The invaded vessels should be located within the capsule or immediately outside of it (rather than within the tumor itself) and the involved vessel must have an identifiable wall and endothelial lining. The invasive tumor should be attached at some point to the vessel wall and not be just a cluster of follicular cells floating in the lumen (which may be artifact). Metastases in follicular carcinoma are seen in the lung and bone.

In the widely invasive type there may be high mitotic activity and marked nuclear hyperchromasia; necrosis and capsular and vascular invasion are expected. Follicular carcinoma, microfollicular pattern. This tumor resembles its benign counterpart, follicular adenoma.

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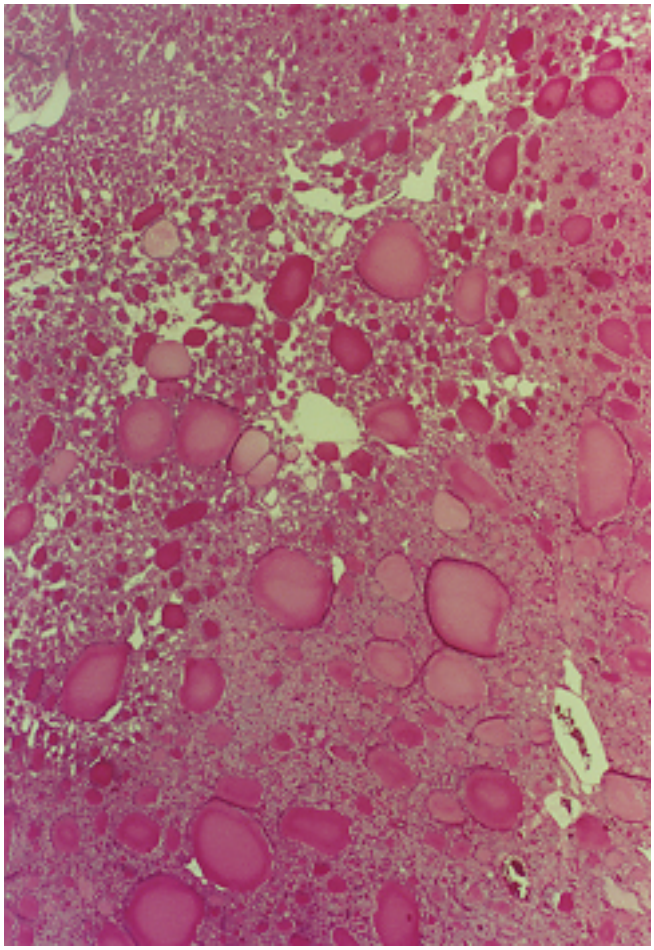
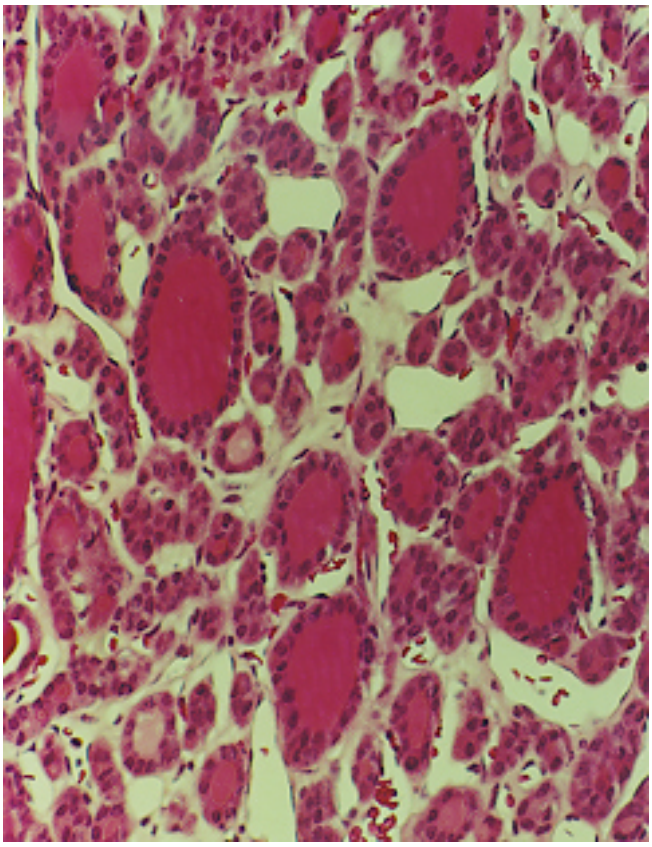
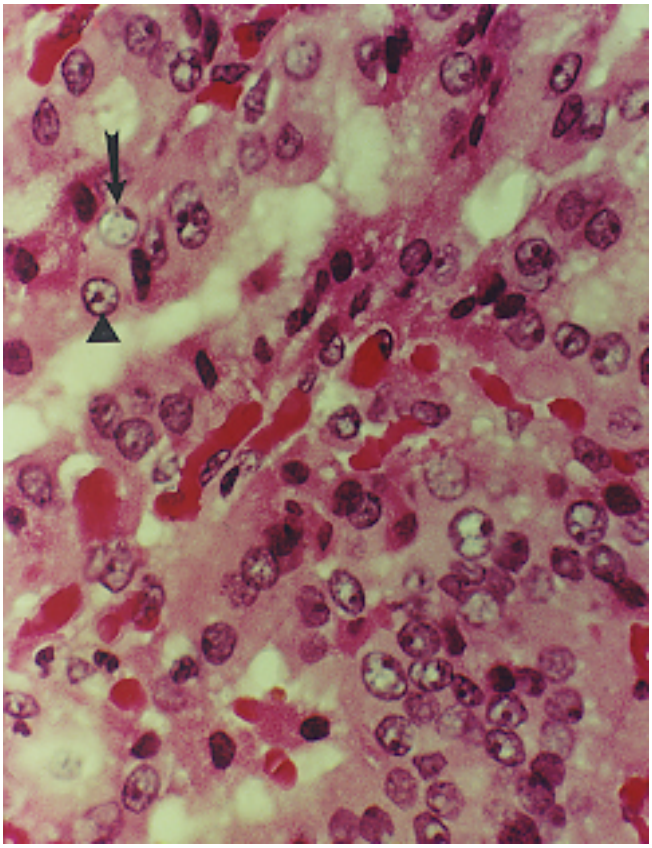
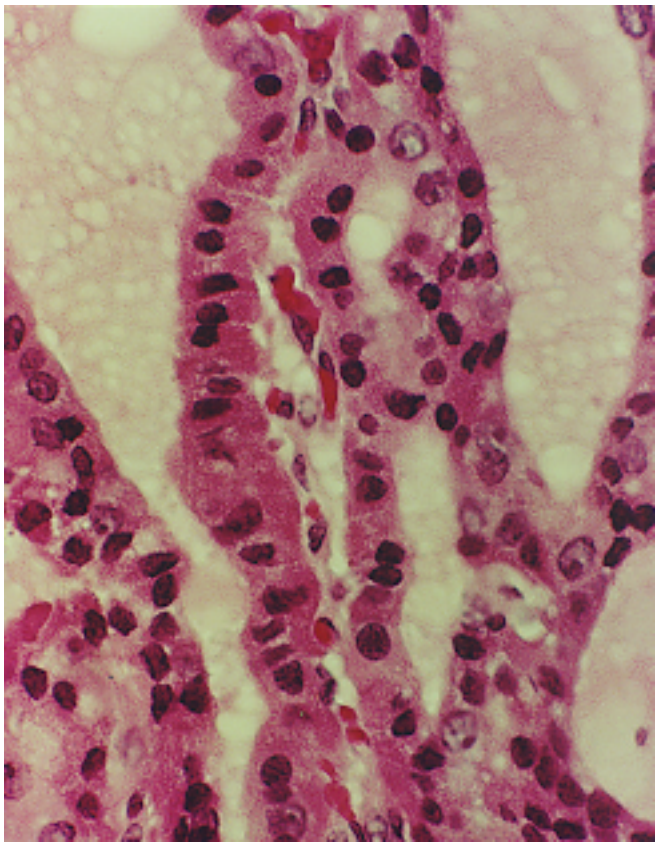


Follicular carcinoma, differs from follicular variant of papillary carcinoma in lacking crowded nuclei about the follicle and other findings such as grooved nuclei, psammoma bodies, and intranuclear cytoplasmic inclusions. If there was a high rate of mitotic activity (especially abnormal mitoses), widespread nuclear atypia, and necrosis (none of these seen here), then one might be suspicious of follicular carcinoma, but even more favorable to that diagnosis would be capsular and/or blood vessel invasion or evidence of metastasis.

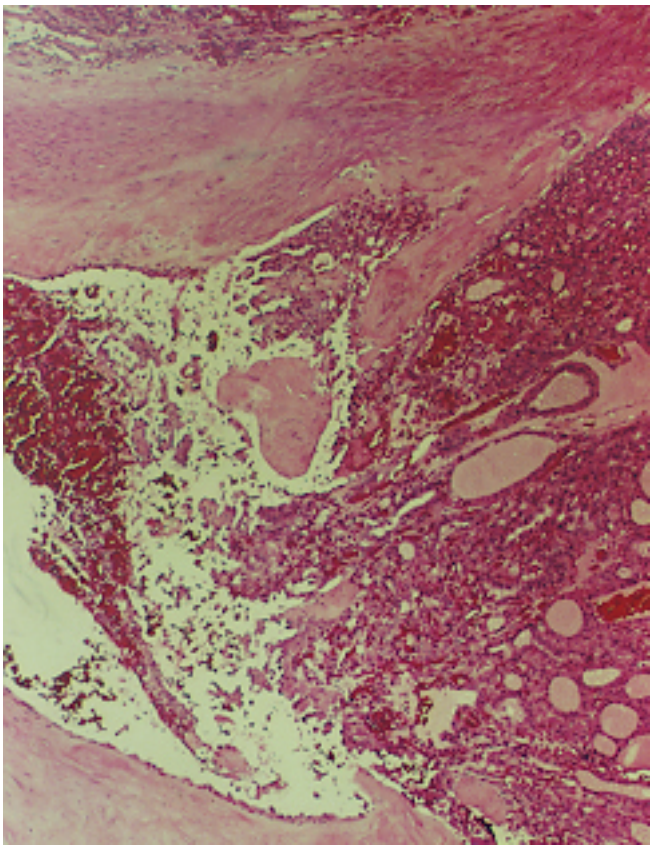


Follicular carcinoma, showing prominent nucleoli (triangle) and “pseudo clearing” of nuclei (arrow).



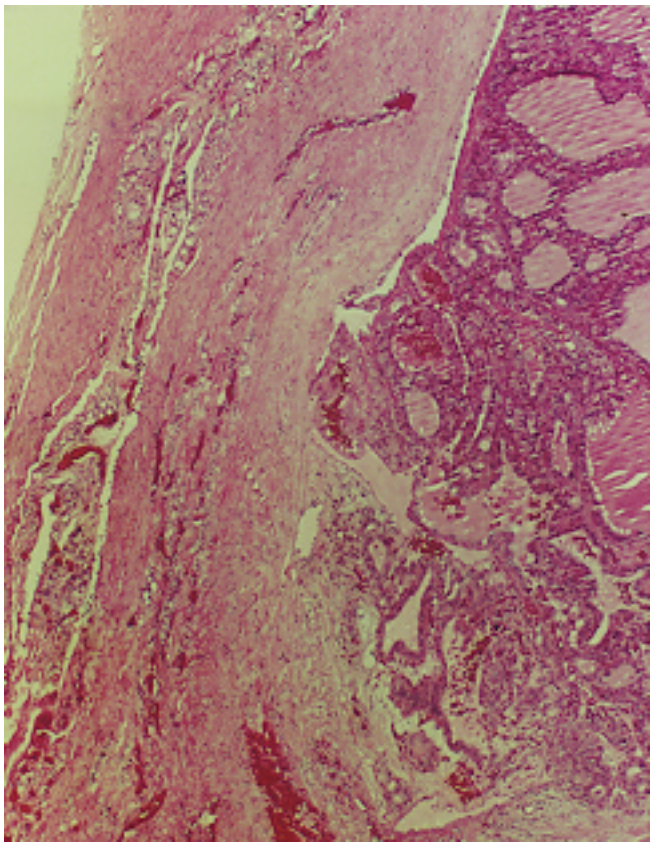


Follicular carcinoma, showing a Hurthle cell change with granular eosinophilic cytoplasm. Nuclei appear hyperchromatic; nucleoli are prominent in some cells and nuclei are dispersed irregularly within the cytoplasm.

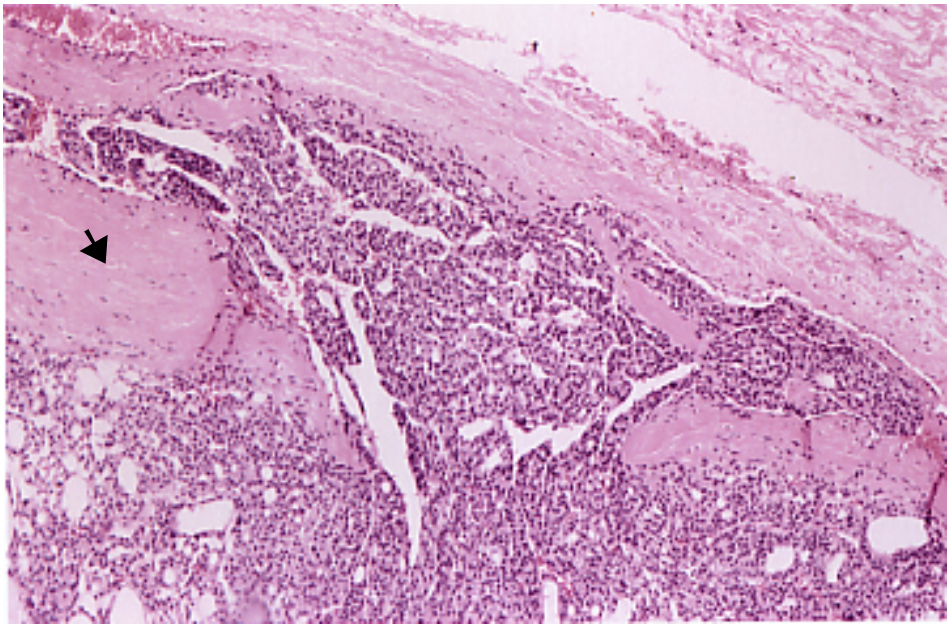


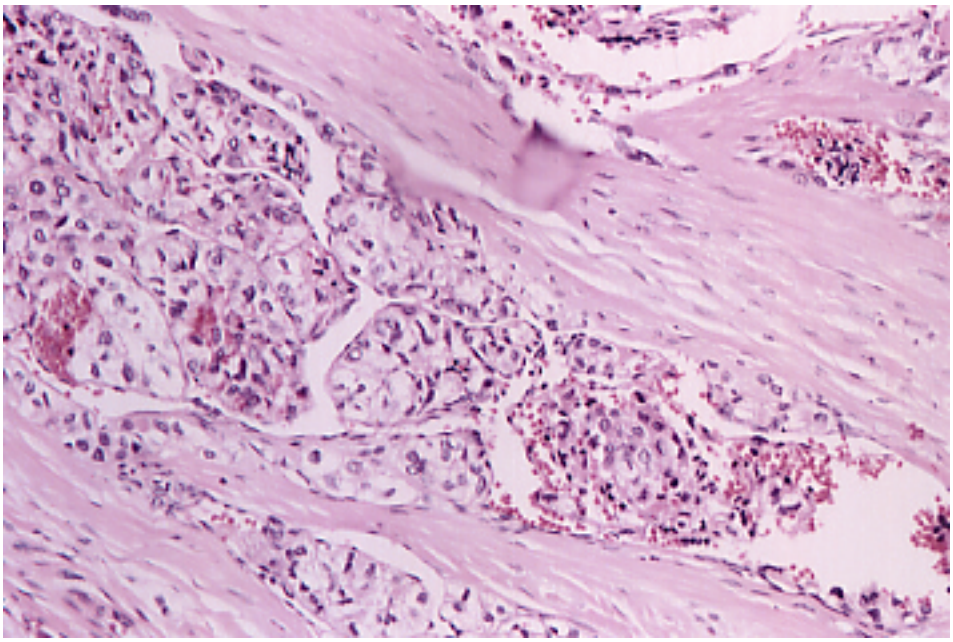
Follicular carcinoma. Capsular invasion, complete thickness, and vascular invasion is definite, both being criteria desirable to the diagnosis, especially vascular invasion. Capsule is completely broached and triangles indicate vascular endothelium.

Follicular carcinoma. Here the capsule is partially invaded. The diagnosis would be better served if the entire thickness were invaded and the vessels seen in the capsule invaded as well.



Follicular Carcinoma, Thyroid. Note that the carcinoma has completely penetrated the fibrous capsule in this field.





Follicular Carcinoma, Thyroid. Malignant cells show vascular space invasion by nearly occluding the lumen of the vessel adjacent to the main mass in the thyroid.

Clincal Aspects

Follicular carcinoma is more prevalent in women than men and the average age is some ten years older than for papillary carcinoma. Follicular carcinoma typically presents as a solitary nodule that is “cold” and unaccompanied by cervical adenopathy. Occasionally a distant metastasis (particularly to bone) is the first manifestation of the disease. Unlike papillary carcinoma,, follicular carcinoma is seldom occult.

Treatment varies from total thyroidectomy followed by administration of radioactive Iodine to a more conservative approach, i.e., a lobectomy or subtotal thyroidectomy without radioactive Iodine. Metastatic disease is generally treated with radioactive Iodine. The overall prognosis of minimally invasive follicular carcinoma is excellent, perhaps as good as that of papillary carcinoma.

There may be as high as a fifty percent death rate for widely invasive tumors as opposed to only three percent of those with minimal invasion.