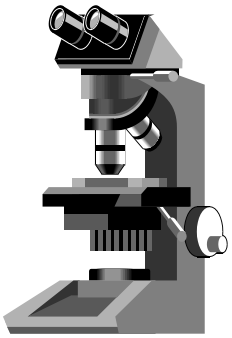
CALIFORNIA
TUMOR TISSUE REGISTRY

GYNECOLOGIC PATHOLOGY

Minutes – Subscription B

November 2015



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FILE DIAGNOSES

CTTR Subscription B November 2015

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CASE #1: Accession No. 31800

DIAGNOSIS: STRUMA OVARII, Ovary

Diagnoses submitted in decreasing order of frequency:

Struma ovarii
Teratoma (with struma ovarii)

Discussion
This patient had bilateral teratomas. The slide shows representative tissue from a monodermal teratoma composed of mature thyroid tissue. This rare monodermal teratoma, struma ovarii, with > 50% thyroid tissue component is most common between the ages of 40 and 60 years. Rare cases of malignancy arising within the thyroid tissue have been described, mostly as case reports (papillary thyroid carcinoma, with an excellent prognosis). Also described are a few cases of patients presenting with biochemical features of hyperthyroidism (5% to 8% of cases, even with co-existing Graves disease). Patients may present with a pelvic mass or pain, less often with ascites (pseudo-Meig syndrome). Struma ovarii may be associated with carcinoid tumor (stromal carcinoid), dermoid cyst, mucinous and Brenner tumors.

CASE #2: Accession No. 31867

DIAGNOSIS: CELLULAR FIBROTHECOMA, Right ovary

Diagnoses submitted in decreasing order of frequency:

Fibrothecoma, Thecofibroma
Fibroma
Thecoma
Stromal tumor
Brenner tumor
Follicular cyst
Poorly differentiated Sertoli cell tumor

Discussion
Ovarian fibrothecomas are tumors of sex cord-stromal cell origin. Fibroma and thecoma may show histologic overlap; the term “fibrothecoma” is often used for such tumors. Fibrothecomas account for 3–4% of all ovarian tumors, are mostly benign, unilateral and occur in older post-menopausal women. There is an admixture of fibrous and thecomatous elements, with spindle or oval cells and admixed cells with foamy cytoplasm containing intracellular lipid. Grossly the tumors may have a yellow or white whorled appearance, often with edema and cystic degeneration. They may be associated with Meig syndrome, characterized by the presence of right-sided hydrothorax and ascites. Endocrine manifestations due to hormonally active

tumors are rare; in estrogen producing tumors there may be uterine enlargement and endometrial thickening. Minority of cases show trisomy of chromosome 12.

Tumor cells stain positive for: CD99, CD 56, Inhibin, Calretinin, ER, WT 1. Differential diagnosis includes other sex-cord stromal tumors: Sertoli-Leydig cell, granulosa cell (nuclear grooves, reticulin surrounds cell aggregates)

CASE #3: Accession No. 31840

DIAGNOSIS: MUCINOUS CYSTIC TUMOR, Ovary

Diagnoses submitted in decreasing order of frequency:

Borderline mucinous tumor
Mucinous cystadenoma

Discussion
This is a case of a multiloculated cystic mucinous tumor, with intestinal type epithelial lining consisting of goblet cells. Paneth cells and neuroendocrine cells may also be present.

Mucinous ovarian tumors are difficult to interpret. Approximately 20% of primary ovarian mucinous tumors are borderline tumors, noninvasive (intraglandular; intraepithelial) carcinomas, or invasive carcinomas; the remainder are cystadenomas. The borderline tumors may be of intestinal type or mullerian (endocervical-like) type. The intestinal-type tumors are far more common. Mullerian type mucinous tumors are more often bilateral and are often associated with endometriosis. These mucinous tumors are lined by endocervical type and eosinophilic cells with associated inflammatory response.
The frequently heterogeneous composition with coexisting elements of cystadenoma, borderline and invasive carcinoma requires careful gross examination and extensive sampling of the tumors, both at the time of intra-operative consultation (frozen section) and on permanent examination. Borderline tumors (aka atypical proliferative, tumor of low malignant potential, intra-epithelial carcinoma, micro-invasive carcinoma) may show a mixture of complex branching, nuclear stratification, nuclear atypia, hyperchromasia, nucleoli and mitotic activity.

Rarely, mural nodules of reactive or neoplastic type are present. Metastatic secondary mucinous tumors are more often bilateral, <10 cm in maximal dimension, and of high stage. Pseudomyxoma peritonei almost never results from a primary ovarian mucinous neoplasm. History and immunohistochemical stains are helpful to aid in the differential diagnosis of primary vs. secondary mucinous tumors.

CASE #4: Accession No. 31837

DIAGNOSIS: SEROUS CYSTADENOMA, Ovary

Diagnoses submitted in decreasing order of frequency:

Serous cystadenoma
Mucinous cystadenoma

Discussion
Slides show a cystic ovarian neoplasm lined by cuboidal to columnar ciliated epithelial cells. The lining cells resemble normal tubal epithelium. No borderline features (cellular stratification, mitoses, nuclear atypia) or invasive carcinoma are identified.
Serous epithelial tumors comprise up to 25% of all ovarian neoplasms. They mostly occur in adult females, and are bilateral in 30% to 50% of cases. They may be unilocular or multiloculated cystic masses, containing clear, or sometimes viscous fluid. The cyst lining may be smooth or show areas of papillary growth. Psamomma bodies may be present. 60% are benign (cystadenoma), 10% are borderline and 30% are malignant.

CASE NO #5: Accession No. 31849

DIAGNOSIS: HIGH GRADE CARCINOMA, FAVOR SEROUS, Ovary

Diagnoses submitted in decreasing order of frequency:

Serous carcinoma, high grade; r/o metastasis
Serous cystadenocarcinoma
Transitional cell carcinoma
Primary adenocarcinoma, NOS
Poorly differentiated carcinoma
Metastatic colon carcinoma
Endometrioid carcinoma
Sertoli cell tumor
Granulosa cell tumor
High grade adenocarcinoma
Malignant Brenner tumor

Discussion
This file case is from a young lady with bilateral high grade ovarian carcinomas and extensive intra-abdominal /pelvic metastases.
The ovarian sections show a high grade epithelial neoplasm with extensive confluent (glandular) growth, and foca garland-like pattern with central dirty necrosis. Microlumina formation is also present. No foci of endometriosis or squamous differentiation are identified. No psammomatous calcifications are identified.
The main differential is primary ovarian surface epithelial carcinoma versus metastatic adenocarcinoma. The surface ovarian tumors include high grade serous (favored diagnosis based on overall tumor morphology), transitional and endometriod carcinomas. The garland-like pattern and dirty luminal necrosis is suggestive of metastatic colon carcinoma. Further work up of this high grade neoplasm in this young patient is warranted to rule out possible familial, syndromic associations (BRCA1, BRCA2, MSI) with family history, surgical findings and immunohistochemistry. The main differential on the tumor morphology would be between metastatic colon (GI) carcinoma and primary ovarian serous or endometriod carcinoma. Per accompanying

surgical report no colonic primary was found, there were multiple tumor deposits growing into the colon from the mesenteric and serosal aspects. Unfortunately additional immunohistochemical test results are not available on this stock case.

CASE #6: Accession No. 31911

DIAGNOSIS: MALIGNANT BRENNER TUMOR, Ovary

Diagnoses submitted in decreasing order of frequency:

Malignant Brenner tumor / transitional cell carcinoma
Brenner tumor, borderline
Serous carcinoma
Granulosa cell tumor
Mucinous cystadenoma

Discussion
Nests and cystic spaces lined by multilayered urothelium-like epithelium are seen in this tumor. Stromal invasion is present. Focal cells show intracellular mucinous change. The surrounding ovarian stroma is fibrotic. Elsewhere in the ovary benign Brenner tumor nests were present in an adenofibromatous stroma. This is an example of a malignant Brenner tumor.

Malignant Brenner tumors with an associated benign component, as in our case, are reported to have a better prognosis than similar tumors without the benign component. The latter are designated transitional cell carcinoma (non-Brenner type). Microscopic features helpful for identification are large broad papillae, punched out micro spaces within epithelial nests and large cystic spaces.
Tumor cells are CK 7 and thrombomodulin positive, CK 20 negative. Brenner tumors may be associated with other ovarian neoplasms in up to a third of cases: mucinous, mixed tumors (with serous type), and struma ovarii. They may also co-exist with urinary bladder transitional cell carcinoma.

CASE #7: Accession No. 31545

DIAGNOSIS: ENDOMETRIOD CARCINOMA, Uterus

Diagnoses submitted in decreasing order of frequency:

Endometrioid (adeno) carcinoma
Sertoli-Leydig cell tumor

Discussion
Confluent endometrial type glands present with no intervening stroma. There was full thickness myometrial invasion present elsewhere.

Tumors are associated with increased estrogen levels. These tumors are also seen in infertile, obese patients with hypertension and diabetes mellitus (increase in estrogen) as in this case. Precursor lesion of endometrial hyperplasia may also be present. There may be squamous morular change. Tumors are graded FIGO I-III (well, moderate and poorly differentiated) based on the growth pattern (increasing solid glandular to stromal component) and nuclear features. Greater than 50% myometrial invasion has prognostic and therapeutic importance.

CASE #8: Accession No. 31846

DIAGNOSIS: UNDIFFERENTIATED UTERINE/ENDOMETRIAL SARCOMA

Diagnoses submitted in decreasing order of frequency:

Endometrial stromal sarcoma
Undifferentiated stromal tumor
Undifferentiated uterine sarcoma
Leiomyosarcoma

Discussion
Sections show a high grade sarcoma with areas of hemorrhage and necrosis. Myometrial and vascular space invasion is present. The tumor cells are large, pleomorphic with epitheliod and spindle cell morphology. Cytoplasm is variable from scant to moderate and eosinophilic. Nuclei are also enlarged, pleomorphic with occasional macronucleoli. Tumor giant cells are present. Mitoses are numerous. No glandular, carcinomatous or heterologous elements are identified. Tumor morphology and immunoprofile are supportive of an undifferentiated uterine/endometrial sarcoma (UES).

UES are rare tumors, often present with metromenorrhagia and anemia in women 40 to 60 years of age. These are highly aggressive tumors, associated with local and distal spread and high mortality. Treatment is primarily surgical. The differential diagnosis includes other uterine sarcomas: leiomyosarcoma, adenosarcoma, carcinosarcoma and endometrial stromal sarcoma.

CASE # 9: Accession No. 31468

DIAGNOSIS: CARCINOSARCOMA, Uterus

Diagnoses submitted in decreasing order of frequency:

Carcinosarcoma , Malignant mixed Mullerian tumor, heterologous type
Leiomyosarcoma with heterologous differentiation
Rhabdomyosarcoma
Extraskeletal mesenchymal chondrosarcoma

Discussion
Sections show a pleomorphic high grade malignant neoplasm with areas of hemorrhage and necrosis. Sheets of tumor cells with high nucleus to cytoplasmic ratio, scant cytoplasm and pleomorphic nuclei are present. Elsewhere there are foci of neoplastic cartilage and rhabdomyoblastic cells with plump eosinophilic cytoplasm in a background of hyaline stroma. Scattered malignant tumor giant cells are present. The morphologic features and age fits best with a carcinosarcoma (malignant mixed Mullerian tumor) with heterologous elements. The heterologous features have no prognostic significance.

This rare malignant neoplasm is most often seen in older post-menopausal women. Patients often present with a painful, large, necrotic mass and foul smelling bloody discharge. In this biphasic neoplasm both the carcinomatous (may be serous, endometriod, clear cell or a mixture of cell types) and sarcomatous (heterologous and homologous) elements are derived from the same cell type, postulated to be epithelial. Keratin and EMA are positive in both components. Angiolymphatic invasion is commonly present. P53 mutations are common.

CASE #10: Accession No. 31876

DIAGNOSIS: LEIOYOMYOSARCOMA, Adnexa

Diagnoses submitted in decreasing order of frequency:

Leiomyosarcoma

Discussion
Sections are from a mass arising adjacent to the left lower uterine segment. Sectrons show a heterogeneous population of tumor cells ranging from highly pleomorphic epitheliod cells to well to moderately differentiated spindle tumor cells in fascicles. Mitotic count was up to 21.10 HPF. Broad areas of hemorrhage and necrosis are present.
The well differentiated spindled areas stain positively with desmin, SMA and caldesmon. Myogenin, pancytokeratin and CAM 5.2 stains are negative. Pleomorphic regions of the tumor show only faint caldesmon staining.

Uterine leiomyosarcomas are aggressive neoplasms that arise in middle age females (older age at presentation than benign uterine leiomyomas). Tumors spread locally and metastasize to the lungs, bone and other body sites.

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