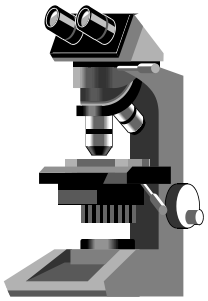
CALIFORNIA
TUMOR TISSUE REGISTRY

GYNECOLOGIC PATHOLOGY

Minutes – Subscription A

February 2016



California Tumor Tissue Registry
c/o: Department of Pathology and Human Anatomy
Loma Linda University School of Medicine
11021 Campus Avenue, AH 335
Loma Linda, California 92350
(909) 558-4788
FAX: (909) 558-0188
E-mail: cttr@llu.edu
Web site & Case of the Month: www.cttr.org

FILE DIAGNOSES

CTTR Subscription A February 2016

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CASE #1: **Accession No. 32042**

DIAGNOSIS: ADENOMYOSIS, Uterus

Diagnoses submitted in decreasing order of frequency:

Adenomyosis
Endometriosis
Cavernous hemangioma
Endosalpingiosis, serosal
Endometrial hyperplasia

Discussion
Benign endometrial glands with surrounding stroma are present deep within the myometrium (by definition need to be one low power field deep to the irregular endomyometrial junction). These foci are continuous with the basal endometrial tissue upon sectioning. Uterus is globular, enlarged, with myometrial hypertrophy. Foci of adenomyosis may show involvement by endometrial hyperplasia and adenocarcinoma. Older terminology for adenomyosis was endometriosis interna. Some sections also show serosal endosalpingiosis. Patients usually present with dysmenorrhea and menorrhagia. Differential diagnosis: endometrial hyperplasia, invasive endometrial carcinoma. In the common type of complex endometrial hyperplasia the gland to stromal ratio is increased.

CASE #2: **Accession No. 32094**

DIAGNOSIS: STRUMA OVARII, Right Ovary

Diagnoses submitted in decreasing order of frequency:

Mature cystic teratoma with struma ovarii
Teratoma, mature, cystic
Papillary serous cystadenoma
Microcystic stromal tumor

Discussion
Rare monodermal teratoma with predominant component of benign thyroid tissue (> 50% of the mass) is termed struma ovarii. Struma ovarii comprises 1% of all ovarian neoplasms, and 2-5% of teratomas. Thyroid tissue elements may be solid, or present as macrofollicles or microfollicular rr a mixture of patterns. A small number of cases may be associated with a low grade neuroendocrine tumor (strumal carcinoid), mucinous neoplasm, and Brenner tumor. Tumors are usually unilateral, cystic and multi-locular. There are case reports of increased hyperfunction (increased thyroid hormone levels), and carcinoma, usually papillary, arising from struma ovarii. There may be associated ascites and hydrothorax (pseudo-Meig syndrome). Thyroglobulin stain is positive.

CASE #3: **Accession No. 31750**

DIAGNOSIS: BILATERAL OVARIAN FIBROMAS, FIBROTHECOMAS, Ovaries

Diagnoses submitted in decreasing order of frequency:

Hyperthecosis, stromal hyperplasia
Thecoma, Fibroma
Cystadenofibroma
Krukenberg tumor

Discussion
Ovaries showed spindle cell neoplasms, with minimal pleomorphism and mitotic activity. Inhibin immunostain is positive, with a low Ki-67 proliferation rate. Ovarian fibrothecomas are uncommon tumors of gonadal stromal cell origin accounting for 3–4% of all ovarian tumors. They are rarely malignant and in 90% of the cases are unilateral. Ovarian fibrothecomas are composed of an admixture of fibrous and thecomatous elements. Histologically, these tumors are characterized by the presence of spindle, oval or round cells forming various amounts of collagen and also contain a smaller population of theca cells that contain intracellular lipid. On gross examination tumors have a yellow-white whorled appearance and may resemble uterine leiomyomas. Fibrothecomas occur predominately in older postmenopausal women. They may be associated with Meigs syndrome, characterized by the presence of hydrothorax and ascites. Endocrine manifestations due to hormonally active tumors are rare. In 70% of the cases the patients are diagnosed as having stage I lesions at presentation

CASE #4: **Accession No. 31920**

DIAGNOSIS: PARASITIC LEIOYOMYOMA, Left Ovary

Diagnoses submitted in decreasing order of frequency:

Fibroma
Leiomyoma, hyalinized

Discussion
This is a spindle cell neoplasm which is smooth muscle actin immunostain positive. She also had a parasitic leiomyoma in her other ovary at the time of this current surgery. Upon chart review it was discovered that the patient has a history of hysterectomy 12 years prior for benign leiyomyomas. This case is an example of a rare parasitic / migrating leiomyoma, adherent to surrounding pelvic structures. The most common location of attachment is the omentum or broad ligament. Patients commonly present with pelvic or abdominal pain. These parasitic leiomyomas may undergo torsion. Parasitic myomas are rare but have been reported in literature. These may arise from myomas detached from the uterus (usually serosal), which manage to obtain blood supply from adjacent organs or could be retained myoma fragments. The practice of laparoscopic retrieval of uterine leiomyomas by morcellation aids in the removal of large specimens but incurs the risk of incomplete removal. These retained fragments can get dislodged in the peritoneal cavity and take blood supply from adjacent structures and grow. Some of them can cause symptoms, grow to any size and present as mass anywhere in the peritoneal cavity. It is not known whether our patient had a prior history of morcellation of the leiomyomas.

Primary ovarian leiomyomas are rare. Their histogenesis is uncertain. Possible origins are from the smooth

muscle of ovarian blood vessel walls and ovarian ligaments. Differential diagnosis: Fibroma, fibrothecomas (inhibin positive sex cord stromal tumors).

CASE NO #5: **Accession No. 32142**

DIAGNOSIS: MULTILOCULATED MUCINOUS CYSTADENOMA, Left Ovary

Diagnoses submitted in decreasing order of frequency:

Seromucinous cystadenoma, Mucinous cystadenoma Mullerian type
Benign mucinous cystadenoma

Discussion

This multoloculated left ovarian mass was lined by mucinous glandular epithelium resembling endocervical cells. A few areas also showed seromucinous epithelium and indifferent cells eosinophilic lining cells. No squamous or endometriod cells were identified. No prominent nucleoli, mitoses or stromal invasion were identified. The lining epithelium is simple with minimal complexity (branching). No definite foci of endometriosis are present. This case is an example of a benign mucinous cystadenoma, Mullerian type.

As compared to serous ovarian tumors, mucinous neoplasms in general are more often larger, multicystic and unilateral. The Mullerian type of mucinous ovarian neoplasms however have a higher frequency of bilaterality.

CASE #6: **Accession No. 31870**

DIAGNOSIS: SEROUS CYSTADENOMA, Left Ovary

Diagnoses submitted in decreasing order of frequency:

Benign serous cystadenoma
Paratubal cyst
Mucinous cystadenoma

Discussion

The lining of the cystic mass in this patient is ciliated serous epithelium. No features of borderline change or malignancy are present. The patient presented with ovarian torsion hence the hemorrhage in the stroma. Serous cystadenomas are the most common epithelial ovarian neoplasms and more frequently bilateral as compared to mucinous ovarian neoplasms.

CASE #7: **Accession No. 31842**

DIAGNOSIS: HIGH GRADE MALIGNANCY, Bilateral Ovaries

Diagnoses submitted in decreasing order of frequency:

High grade serous carcinoma
Clear cell carcinoma
Sex cord stromal tumor: Granulosa cell (Adult, Juvenile type), Sertoli-Leydig
Malignant Brenner tumor, Transitional cell carcinoma

Ovarian small cell carcinoma, hypercalcemic type
Large cell neuroendocrine carcinoma
Embryonal carcinoma
Endometrioid adenocarcinoma; MSI

Discussion

Both ovarian tumors showed high grade malignant neoplasm. Tumor is seen growing in solid sheets and nests with focal papillary cores with radiating small finger-like tumor cell arrays. Also present are areas with glandular / tubular features and lumen formation. Tumor cells are medium sized with high nucleus to cytoplasmic ratios, prominent cherry red nucleoli and a predominant syncytial growth pattern. There is a high mitotic rate. Numerous tumor infiltrating lymphocytes are also present.
This tumor was uniformly P53 negative, and had been called a high grade malignant neoplasm, favor serous cell carcinoma by the contributing pathologist.
The range of morphologic patterns seen in this tumor is reflected in the responses received. Additional work up with special stains / studies (keratins, INI -1, Inhibin, neuroendocrine markers, CD 30, Napsin A, MSI marker studies) is helpful in precise classification.

CASE #8: **Accession No. 31850**

DIAGNOSIS: CLEAR CELL TUMOR ARISING IN AN ADENOFIBROMATOUS BACKGROUND, Right Ovary

Diagnoses submitted in decreasing order of frequency:

Clear cell adenofibroma , Borderline Clear Cell Adenofibroma, Clear cell carcinoma
Endometrioid carcinoma
Metastatic carcinoma, favor breast primary, Tubular Krukenberg tumor
Brenner tumor, atypical
Sertoli-Leydig tumor, Sex cord tumor with annular tubules
Mucinous carcinoma, Mucinous cystadenoma
Ovarian carcinoid tumor
Adenoid cystic carcinoma

Discussion

Tumor consists of proliferating glands and cysts lined by cuboidal epithelium with inspissated eosinophilic secretions. The nuclei are round with prominent nucleoli. No squamous differentiation is identified. There is a dense surrounding fibromatous stroma. Pelvic biopsy at the time of surgery showed a focus of probable endometriosis. The review slides showed a borderline clear cell tumor arising in a clear cell adenofibroma. Elsewhere a minor component also showed clear cell carcinoma of the ovary with areas transitioning into the borderline clear cell component. Adequate tumor sampling is essential as tumors may show a range and mixture of tumor with areas of benign, borderline as well as malignant glands.

Clear cell tumors are strongly associated with endometriosis, both the tumors that arise in an adenofibromatous as well as those that arise in a cystic background. They may be associated with paraneoplastic hypercalcemia. The most common morphologic patterns are solid and tubulopapillary, often there is a mixture of patterns including solid variant. Clear cells and hobnail cells are found in classic cases. The tubulopapillary pattern is characterized by papillae that are often complex and frequently contain hyalinized cores. Complex tubules and cysts admixed with papillae characterize the tubulocystic pattern. Clear, hobnail, eosinophilic, or columnar cells line the tubules and papillae. The less common oxyphilic clear

cell carcinoma is characterized by extensively eosinophilic cytoplasm. Most tumors contain eosinophilic PAS positive globules. Mixed clear cell/endometrioid tumors are well described.

This tumor shows a tubulocystic pattern; hence the differential would include sex cord stromal tumors, low grade neuroendocrine tumors and adenoid cystic carcinoma.

CASE # 9: **Accession No. 8543**

DIAGNOSIS: **ANAPLASTIC / PLEOMORPHIC RHABDOMYOSARCOMA,** Vagina

Diagnoses submitted in decreasing order of frequency:

Rhabdomyosarcoma, Pleomorphic, Embryonal
Sarcoma, Carcinosarcoma
High grade anaplastic malignant neoplasm
Clear cell carcinoma

Discussion

Tissue sections show a high grade sarcoma composed of moderate to highly cellular sheets of cells varying from polygonal to faintly spindled with numerous interspersed rhabdomyoblasts. No glandular or definite epithelial elements are identified. This is a case of Anaplastic (pleomorphic) rhabdomyosarcoma (RMS).

Differential diagnosis includes carcinosarcoma / malignant mixed müllerian tumor (MMMT) with heterologous RMS elements, as the proximal portion of the vagina is derived from the müllerian duct. Thorough histologic evaluation of the whole lesion is needed for identifying the presence or absence of other components.

RMS is a malignant neoplasm of primitive mesenchymal cell origin, characterized by morphologic, immunohistochemical, or ultrastructural evidence of striated muscle differentiation. It may arise in almost any soft tissue site in the body even at sites that usually do not contain skeletal muscle. The most common primary sites are genitourinary (24%), parameningeal (16%), extremity (19%), orbit (9%), head and neck (10%), and miscellaneous other sites (22%). Embryonal and alveolar RMS subsets occur mainly in children and teenagers and are the most common soft tissue sarcomas in that age group. Anaplastic (Pleomorphic) RMS accounts for less than 5% of RMS cases and occurs in the lower extremity and trunk more commonly in the adult population and carries a relatively poor prognosis.

Pleomorphic RMS of the vagina is very rare and has been reported in a postmenopausal woman.. Large pleomorphic polygonal "rhabdoid cells" with brightly eosinophilic cytoplasm and multinucleated tumor giant cells are characteristic. Desmin is usually diffusely positive in RMS smooth muscle actin is negative in RMS, whereas myogenin is focally positive with nuclear staining.

CASE #10: **Accession No. 32034**

DIAGNOSIS: CARCINOSARCOMA (MALIGNANT MIXED MULLERIAN TUMOR),
Uterus

Diagnoses submitted in decreasing order of frequency:

Adenosarcoma, Carcinosarcoma, Malignant Mixed Mullerian tumor
Undifferentiated endometrial sarcoma, high grade stromal sarcoma, high grade sarcoma
Endometrioid carcinoma, dedifferentiated
Hemangiopericytoma

Synovial sarcoma

Discussion

This is a high grade malignancy with both carcinomatous and sarcomatous features. There is an abundance of the sarcomatous element and the carcinomatous areas are not always readily identified. The morphologic and immunophenotypic pattern as well as the age of the patient are in keeping with a high-grade carcinosarcoma.

Carcinosarcoma (aka MMMT, sarcomatoid carcinoma and metaplastic carcinoma) is a rare, highly aggressive gynecologic malignancy which almost always arises in elderly postmenopausal women. The sarcomatous component may be homologous or heterologous. Heterologous differentiation has no prognostic significance. Predisposisng factors include nulliparity, diabetes mellitus, Tamoxifen and radiation therapies. Extrauterine spread is seen in a third of patients, as in this patient.

Carcinosarcomas are bulky polypoid, soften friable tumors characterized by a biphasic pattern of malignant epithelial glandular and stromal spindle cells with some spindle cells positive for cytokeratin. Recent studies indicate that this tumor is biphasic in appearance but monoclonal at the molecular level as identical alleles are lost in both the epithelial and the mesenchymal cells (the combination theory of histogenesis). Keratin and EMA are usually positive in both components.

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