Protocol for the Examination of Specimens from Patients with Tumors of the Peritoneum

Protocol applies to all primary borderline and malignant epithelial tumors and malignant mesothelial neoplasms of the peritoneum.

No AJCC/UICC TNM Staging System
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Procedure
• Resection

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The College of American Pathologists offers these protocols to assist pathologists in providing clinically useful and relevant information when reporting results of surgical specimen examinations of surgical specimens. The College regards the reporting elements in the “Surgical Pathology Cancer Case Summary (Checklist)” portion of the protocols as essential elements of the pathology report. However, the manner in which these elements are reported is at the discretion of each specific pathologist, taking into account clinician preferences, institutional policies, and individual practice.

The College developed these protocols as an educational tool to assist pathologists in the useful reporting of relevant information. It did not issue the protocols for use in litigation, reimbursement, or other contexts. Nevertheless, the College recognizes that the protocols might be used by hospitals, attorneys, payers, and others. Indeed, effective January 1, 2004, the Commission on Cancer of the American College of Surgeons mandated the use of the checklist elements of the protocols as part of its Cancer Program Standards for Approved Cancer Programs. Therefore, it becomes even more important for pathologists to familiarize themselves with these documents. At the same time, the College cautions that use of the protocols other than for their intended educational purpose may involve additional considerations that are beyond the scope of this document.

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Surgical Pathology Cancer Case Summary (Checklist)

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PERITONEUM: Resection

Select a single response unless otherwise indicated.

Specimen (select all that apply)
___ Peritoneum
___ Omentum
___ Bilateral ovaries
___ Bilateral fallopian tubes
___ Uterus
___ Other (specify): _____
___ Not specified

Procedure
___ Peritoneal resection
___ Omentectomy
___ Hysterectomy with bilateral salpingo-oophorectomy
___ Other (specify): _____
___ Not specified

Lymph Node Sampling
___ No lymph node sampling
___ Obturator lymph nodes
___ Common iliac lymph nodes
___ Periaortic lymph nodes
___ Inguinal lymph nodes
___ Pelvic lymph nodes not otherwise specified (NOS)
___ Retroperitoneal lymph nodes NOS
___ Other lymph nodes (specify): _____

Tumor Site
Specify: _____
___ Cannot be determined

Tumor Size (Peritoneum / Omentum)
Greatest dimension: ___cm
*Additional dimensions: ___ x ___cm
___ Cannot be determined (see Comment)

Tumor Focality
___ Unifocal
___ Multifocal
___ Cannot be determined

* Data elements with asterisks are not required. However, these elements may be clinically important but are not yet validated or regularly used in patient management.

Size of Other Locations

Left Ovary
___ No tumor
___ Confined to surface epithelium
___ Surface and cortical stroma involvement
___ Only ovarian substance involvement
___ Greatest dimensions: ___ x ___ cm
*Additional dimension: ___ cm
___ Cannot be determined (see Comment)

Right Ovary
___ No tumor
___ Confined to surface epithelium
___ Surface and cortical stroma involvement
___ Only ovarian substance involvement
___ Greatest dimensions: ___ x ___ cm
*Additional dimension: ___ cm
___ Cannot be determined (see Comment)

Other (specify): _____
Greatest dimension: ___cm
*Additional dimensions: ___ x ___ cm
___ Cannot be determined (see Comment)

Histologic Type (Note A, Note B)
___ Malignant mesothelioma, epithelioid
___ Malignant mesothelioma, sarcomatoid (spindle cell)
___ Malignant mesothelioma, biphasic
___ Malignant mesothelioma, other (specify): _____
___ Serous borderline tumor (of low malignant potential)
___ Serous carcinoma
___ Other malignant tumor of Mullerian type (specify): _____
___ Other (specify): _____
___ Malignant tumor, type cannot be determined

Histologic Grade (Note C)
___ Not applicable (borderline neoplasms and mesotheliomas)
___ GX: Cannot be assessed
___ G1: Well differentiated
___ G2: Moderately differentiated
___ G3: Poorly differentiated
___ Other (specify): _____

***Lymph-Vascular Invasion**
*___ Not identified
*___ Present
*___ Indeterminate

* Data elements with asterisks are not required. However, these elements may be clinically important but are not yet validated or regularly used in patient management.

***Effusions**
*___ Positive ascites/peritoneal washings
*___ Positive pleural effusions
*___ Indeterminate

***Metastasis**
*___ None identified
*___ Microscopic peritoneal metastasis beyond pelvis (no macroscopic tumor)
*___ Macroscopic peritoneal metastasis beyond pelvis 2 cm or less in greatest dimension
*___ Peritoneal metastasis beyond pelvis more than 2 cm in greatest dimension and/or regional lymph node metastasis
*___ Liver capsule metastasis
*___ Liver parenchymal metastasis
*___ Other (specify): _____
*___ Cannot be determined

***Additional Pathologic Findings (select all that apply)**
*___ None identified
*___ Ferruginous bodies
*___ Endosalpingiosis
*___ Endometriosis
*___ Mesothelial inclusion cysts
*___ Other (specify): _____

***Ancillary Studies**
* Specify: _____

***Clinical History**
* Specify: _____
*___ Not specified

***Comment(s)**

Explanatory Notes

A. Histologic Type

This protocol refers only to primary borderline and malignant epithelial tumors of the peritoneum. Secondary tumors, for example, those causing pseudomyxoma peritonei (almost always of appendiceal origin), are not addressed. However, in some cases "peritoneal spread" of a serous borderline tumor may actually reflect a primary peritoneal tumor rather than a metastasis from the ovary.

Classification of Peritoneal Tumors

Benign
- Adenomatoid tumor
- Benign multicystic mesothelioma (multilocular peritoneal inclusion cyst)
- Mesothelial cyst(s) (unilocular) (free or attached)
- Well-differentiated papillary mesothelioma
- Solitary fibrous tumor (fibrous mesothelioma) (usually benign)

Malignant
- Diffuse malignant mesothelioma
  - Epithelioid type
  - Sarcomatoid type
  - Biphasic type
  - Rare types[#]
- Serous tumor of borderline malignancy (of low malignant potential)[1-3 ##]
- Serous carcinoma[4-8 ###]
- Malignant tumors of other Mullerian types
- Sarcomas

[#] Rare types include desmoplastic, small cell, lymphohistiocytoid, deciduoid, and undifferentiated types.

[##] When this tumor involves the extraovarian peritoneum significantly and the ovarian surface minimally or not at all, it is generally considered to be of peritoneal origin.

[###] The Gynecological Oncology Group has adopted the following criteria for the diagnosis of primary peritoneal serous carcinoma:

1. Both ovaries are either normal in size or enlarged by a benign process. In the judgment of the surgeon and the pathologist, the bulk of the tumor involves the peritoneum, and the extent of tumor involvement at 1 or more extraovarian sites is greater than that on the surface of or within either ovary.
2. Microscopic examination of the ovaries reveals: (a) no tumor; (b) tumor confined to the surface epithelium, with no evidence of cortical invasion; (c) tumor involving the ovarian surface and the underlying cortical stroma, but less than 5 x 5 mm in diameter; or (d) tumor less than 5 x 5 mm within the ovarian substance, with or without surface involvement.
3. The histologic and cytologic characteristics of the tumor are predominantly serous and similar or identical to those of ovarian serous papillary carcinoma of any grade.
4. If an oophorectomy has been performed in the past, a confident diagnosis of primary peritoneal serous carcinoma requires 1 of the following: (a) a pathology report to document the absence of carcinoma in the ovarian specimen, with review of all the

slides if the oophorectomy has been performed within 5 years of the current procedure; (b) if the oophorectomy has been performed more than 5 years before the current procedure, the pathology report of the specimen should be obtained, and the slides should be reviewed if still available. The peritoneal tumor should be interpreted in light of the ovarian findings.

B. Special Studies

Histochemical, immunohistochemical, and electron microscopic studies are helpful to routine microscopic evaluation in the diagnosis of mesothelioma. These tumors are usually mucicarmine and Pas-D negative. They may be positive for Alcian blue or colloidal iron stains. Mesotheliomas usually are positive for different keratins, including cytokeratins 5/6, EMA, thrombomodulin, WT1, D2-40 (podoplanin), and calretinin. They are usually negative for CEA, B72.3, BER-EP4, and CD15 (Leu-M1), although they may be positive for single antibodies. In all these cases, a panel of antibodies is recommended. (For further detail, see Thoracic Mesothelium protocol.)

C. Histologic Grade

There is no established grading system for malignant mesotheliomas. Serous and other Mullerian-type tumors can be graded according to the criteria used for similar tumors in the female genital tract, as shown below. (For further detail, see Ovary protocol.)

Grade X	Cannot be assessed
Grade 1	Well differentiated
Grade 2	Moderately differentiated
Grade 3	Poorly differentiated (tumors with minimal differentiation seen in very small foci)

D. Staging of Peritoneal Tumors

There is no widely accepted staging system for peritoneal tumors, but their extent may have prognostic significance.[9] Thus, it is important to determine whether a mesothelioma is unifocal, multifocal, or diffuse[10]; and whether there are lymph node or distant metastases. Peritoneal serous carcinomas are generally staged as though they were stage II to stage IV ovarian cancers. (For further detail, see ovary protocol.)

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