

Peritoneum

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

*Protocol revision date: January 2005
No AJCC/UICC staging system*

Procedures

- **Cytology** (No Accompanying Checklist)
- **Biopsy** (No Accompanying Checklist)
- **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 the document. 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.

Summary of Changes to Checklist(s)

Protocol revision date: January 2005

No changes have been made to the data elements of the checklist(s) since the January 2004 protocol revision.

Surgical Pathology Cancer Case Summary (Checklist)

*Protocol revision date: January 2005
Applies to primary borderline tumors,
carcinomas, and mesotheliomas only
No AJCC/UICC staging system*

PERITONEUM: Resection

Patient Name:

Surgical pathology Number:

Note: Check 1 response unless otherwise indicated.

MACROSCOPIC

Tumor Site(s)

Specify, if known: _____

___ Not specified

Organ(s) Included (if applicable):

Specify: _____

Tumor Size

Greatest dimension: ___cm

*Additional dimensions: ___ x ___ cm

___ Cannot be determined (see Comment)

MICROSCOPIC

Histologic Type

___ Malignant mesothelioma, epithelial

___ Malignant mesothelioma, sarcomatous (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): _____

___ Desmoplastic small round cell tumor

___ Other (specify): _____

___ Malignant tumor, type cannot be determined

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* Data elements **with asterisks** are **not required** for accreditation purposes for the Commission on Cancer. These elements may be clinically important, but are not yet validated or regularly used in patient management. Alternatively, the necessary data may not be available to the pathologist at the time of pathologic assessment of this specimen.

Histologic Grade

- Not applicable (borderline neoplasms and mesotheliomas)
- GX: Cannot be assessed
- G1: Well differentiated
- G2: Moderately differentiated
- G3: Poorly differentiated
- Other (specify): _____

***Venous/Lymphatic (Large/Small Vessel) Invasion (V/L)**

- * Absent
- * Present
- * Indeterminate

***Additional Pathologic Findings (check all that apply)**

- * None
- * Ferruginous bodies
- * Endosalpingiosis
- * Endometriosis
- * Other (specify): _____

***Comment(s)**

* Data elements **with asterisks** are **not required** for accreditation purposes for the Commission on Cancer. These elements may be clinically important, but are not yet validated or regularly used in patient management. Alternatively, the necessary data may not be available to the pathologist at the time of pathologic assessment of this specimen.

Background Documentation

Protocol revision date: January 2005

I. Cytologic Material

A. Clinical Information

1. Patient identification
 - a. Name
 - b. Identification number
 - c. Age (birth date)
 - d. Sex
 - e. Location (eg, ward, clinic, office)
2. Responsible physician(s)
3. Date of procedure
4. Clinical information
 - a. Relevant history
 - (1) present/past occupation
 - (2) asbestos exposure
 - (3) radiation exposure
 - (4) evidence of tumor(s) elsewhere
 - (5) prior tumor(s)
 - (6) prior operation(s)
 - b. Relevant findings (eg, radiologic studies, laboratory data, ascites [duration])
 - c. Clinical diagnosis
 - d. Operative findings (eg, unifocal, multifocal, or diffuse)
 - e. Type(s) or site(s) of specimen(s)
 - (1) ascitic fluid
 - (2) peritoneal washings (specify site[s])
 - (3) brushings (specify site[s])
 - (4) fine-needle aspirate (specify site[s])
 - (5) cytology preparation of tissue (touch preparation) (specify site[s])
 - (6) other

B. Macroscopic Examination

1. Specimen
 - a. Unfixed/fixed (specify fixative)
 - b. Number of slides received, if appropriate
 - c. Quantity and appearance of fluid specimen, if appropriate
 - d. Other (eg, cytologic preparation from tissue)
2. Material submitted for microscopic evaluation (eg, smear, cytocentrifuge, touch or filter preparation, cell block)

C. Microscopic Examination

1. Adequacy of specimen for evaluation (if unsatisfactory or limited, specify reason)
2. Tumor, if present
 - a. Histologic type, if possible (Note **A**)
 - b. Other characteristics (eg, grade, necrosis) (Note **B**)
3. Additional cytologic findings
4. Special studies (specify) (eg, cytochemistry, immunocytochemistry, electron microscopy, asbestos fiber count) (Note **C**)
5. Pathologic stage (Note **D**)
6. Comments
 - a. Correlation with intraprocedural consultation, as appropriate
 - b. Correlation with other specimens, as appropriate
 - c. Correlation with clinical information, as appropriate

II. Biopsy

A. Clinical Information

1. Patient identification
 - a. Name
 - b. Identification number
 - c. Age (birth date)
 - d. Sex
 - e. Location (eg, ward, clinic, office)
2. Responsible physician(s)
3. Date of procedure
4. Clinical information
 - a. Relevant history
 - (1) present/past occupation
 - (2) asbestos exposure
 - (3) radiation exposure
 - (4) evidence of tumor(s) elsewhere
 - (5) prior tumor(s)
 - (6) prior operation(s)
 - b. Relevant findings (eg, radiologic studies, laboratory data, ascites [duration])
 - c. Clinical diagnosis
 - d. Procedure
 - e. Operative findings (eg, unifocal, multifocal, or diffuse)
 - f. Anatomic site(s) of specimen(s)

B. Macroscopic Examination

1. Specimen
 - a. Unfixed/fixed (specify fixative)
 - b. Number of pieces
 - c. Size or size range
 - d. Descriptive features
2. Submit entire specimen(s) for microscopic evaluation
3. Results of intraoperative consultation

C. Microscopic Examination

1. Tumor
 - a. Histologic type (Note **A**)
 - b. Histologic grade, if appropriate (Note **B**)
 - c. Other features of possible prognostic or therapeutic significance
2. Additional pathologic findings (eg, endosalpingiosis and relation to tumor, if pertinent)
3. Special studies (specify) (eg, histochemistry, immunohistochemistry, electron microscopy, asbestos fiber count) (Note **C**)
4. Pathologic stage (Note **D**)
5. Comments
 - a. Correlation with intraprocedural consultation
 - b. Correlation with other specimens, as appropriate
 - c. Correlation with clinical information, as appropriate

III. Resection

A. Clinical Information

1. Patient identification
 - a. Name
 - b. Identification number
 - c. Age (birth date)
 - d. Sex

- e. Location (eg, ward, clinic, office)
2. Responsible physician(s)
3. Date of procedure
4. Clinical information
 - a. Relevant history
 - (1) present/past occupation
 - (2) asbestos exposure
 - (3) radiation exposure
 - (4) evidence of tumor(s) elsewhere
 - (5) prior tumor(s)
 - (6) prior operation(s)
 - b. Relevant findings (eg, radiologic studies, laboratory data, ascites [duration])
 - c. Clinical diagnosis
 - d. Procedure
 - e. Operative findings (eg, unifocal, multifocal, or diffuse)
 - f. Anatomic site(s) of specimen(s)

B. Macroscopic Examination

1. Specimen
 - a. Organs/tissues received (specify)
 - b. Unfixed/fixed (specify fixative)
 - c. Number of pieces
 - d. Dimensions (measure attached tissues individually)
 - e. Orientation of specimen, if indicated by surgeon
 - f. Descriptive features
 - (1) peritoneal tissue(s)
 - i. outer surface (normal, adhesions, roughening, granularity, tumor)
 - ii. sectioned surface(s)
 - iii. size of tumor, if different from size of entire specimen; descriptive features; identification of areas for special study (eg, resection margin[s], if pertinent)
 - iv. other lesions
 - (2) organ(s) removed
 - i. outer surface (normal, adhesions, roughening, granularity, tumor)
 - ii. sectioned surface
 - (a) tumor(s) dimension(s) and distribution on or within organ, descriptive features, identification of areas for special study (eg, resection margin[s], if pertinent)
 - (b) other lesions
2. Tissues submitted for microscopic evaluation

C. Microscopic Examination

1. Tumor
 - a. Histologic type (Note **A**)
 - b. Histologic grade, if appropriate (Note **B**)
 - c. Other features of possible prognostic or therapeutic significance (eg, localized, diffuse)
2. Status of resection margins, if pertinent
3. Additional pathologic findings (eg, endosalpingiosis)
4. Special studies (specify) (eg, histochemistry, immunohistochemistry, electron microscopy, asbestos fiber count)
5. Pathologic stage (Note **D**)
6. Comments
 - a. Correlation with intraprocedural consultation, as appropriate
 - b. Correlation with other specimens, as appropriate
 - c. Correlation with clinical information, as appropriate

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
 - Epithelial type
 - Sarcomatous type
 - Biphasic type
 - Rare types[#]
- Serous tumor of borderline malignancy (of low malignant potential)^{1,2 ##}
- Serous carcinoma^{3-5 ###}
- Malignant tumors of other Mullerian types
- Desmoplastic small round cell tumor
- 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 judgement of the surgeon and the pathologist, the bulk of the tumor is on 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. 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)

C. 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, 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.)

D. Staging of Peritoneal Tumors

There is no widely accepted staging system for peritoneal tumors, but their extent may have prognostic significance.⁶ Thus, it is important to determine whether a mesothelioma is unifocal, multifocal, or diffuse⁷; 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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