

RECOMMENDATIONS FOR THE REPORTING OF OVARIAN NEOPLASMS

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Introduction for ADASP reporting Guidelines

It has been evident for decades that pathology reports are very variable even within a single institution. Standardization of reporting is the optimal way to insure that information necessary for patient management, prognostic and predictive factor assessment, grading, staging, analysis of outcomes and tumor registries are included in pathology reports. In recent years, two societies (first ADASP and then the CAP), have undertaken to publish guidelines for the reporting of common cancers. The CAP assigned multidisciplinary groups of pathologists, surgeons, radiation and medical oncologists to develop the protocols. Other pathologists and clinicians then reviewed them. After those reviews the protocols were reviewed by multiple CAP committees and finally approved by the Board of Governors.

The ADASP, in contrast, chose a pathologist expert in each field to assemble a group from within the pathology community (with clinician input if desired) to write specific cancer protocols. These were then approved by the ADASP council and subsequently by the membership. Even though both societies began the process at approximately the same time the streamlined approach adopted by the ADASP enabled them to publish years earlier in pathology journals frequented by anatomic pathologists. While the formats are somewhat different, the contents are essentially the same.

The American College of Surgery (ACS) Commission on Cancer (COC) accredits cancer centers in the USA. Recently, the COC decided to require elements, deemed as essential by the CAP, to be described in all pathology reports in their accredited cancer centers as of January 2004. Importantly they do not require that the specific CAP protocols or synoptic reports be utilized. ADASP has updated all of its protocols to comply with the COC requirements in the form of 37 uniform checklists. The checklists use the staging criteria cited in the American Joint Committee on Cancer (AJCC) 2002 staging manual (sixth edition) but include a variety of other references listed in each of the checklists. Moreover, the checklists are formatted for ease of use. They may be used as templates for uniform reporting and are designed to be compatible with voice-activated transcription.

The different elements in these revised ADASP Diagnostic Checklists have been divided into *Required* and *Optional*. The term *Required* in this context only signifies compliance with the COC guidelines. ADASP realizes that specimens and practices vary and it will not be possible to report these elements in every case. However, ADASP hopes that pathologists will find these checklists to be useful in daily clinical practice, while facilitating compliance with the new COC requirements.

The checklists are in standard PDF file format, and may be easily downloaded from the ADASP website. They are not to be reproduced, altered or used for commercial purposes without consent from ADASP.

I. General description

- A. How the specimen is identified: labeled with the patient's name, medical number, etc.
- B. How the specimen is received: fresh or in fixative
- C. How many specimen containers, the organ or anatomic designation and laterality, if appropriate or so designated
- D. Procedure: unilateral oophorectomy or salpingo-oophorectomy, hysterectomy with unilateral or bilateral salpingo-oophorectomy and removal of attached and/or unattached organs or tissues, omentectomy, second look staging procedure
- E. Appendix

Caveats for the pathologist handling the frozen sections of ovarian neoplasms:

It is more important to distinguish primary tumor from metastasis than to identify the tumor type.

The identification of the tumor type in primary epithelial neoplasms can be important for staging purposes. Most serous carcinomas are high stage lesions while most endometrioid and clear cell carcinomas are low stage lesions.

After a diagnosis of epithelial borderline tumor (LMP) or sex cord-stromal neoplasm is rendered, suggest obtaining staging biopsies.

Be aware of benign glandular inclusions/ endosalpingiosis/ endometriosis when considering the diagnosis of metastatic carcinoma or borderline tumor (LMP) in an extraovarian location.

A diagnosis of mucinous cystadenoma when the specimen is a multiloculated mucinous tumor is not advised. It is not possible to examine most of the cysts by frozen section. If areas of carcinoma or borderline tumor (low malignant potential) are not seen, render a diagnosis of mucinous neoplasm. This diagnosis should prompt the surgeon to obtain staging biopsies.

After diagnosing a mucinous neoplasm of intestinal type suggest resection of the vermiform appendix.

II. Gross description

- A. Specimen is received:
 - Fresh or in fixative
 - Fragmented
- B. Ovary or ovary and fallopian tube (if attached or fused)
- C. Record size (three dimensional measurements) and weight (if appropriate)
- D. Describe appearance quality of outer surface of the ovary (e.g. smooth/excrescences)
 - Normal
 - Tumor, adhesions, nodules, cysts; describe extent or total area involved.
 - Rupture: present or absent
- E. Describe sectioned surfaces of the ovary and tumor or cysts
 - Location of tumor: surface only, capsular penetration, cortex, medulla, hilus normal structure obscured (three dimensional measurements)
 - Size of tumor (in three dimensions and weight, if appropriate)
 - Describe cut surface appearance: solid and cystic, multiloculated components
 - Appearances of the cyst contents and fluid quality (smooth walls/excrescences/papillary/type of fluid)
 - Percentage of cystic, solid, necrotic and hemorrhagic areas
- F. Fallopian tube if not part of tumor
 - Describe the dimensions and presence or absence of tumor involvement
 - Other lesions, if present
- G. Contralateral ovary-dimensions and weight (if appropriate)
 - Presence/absence of tumor – tumor present (same parameters as described above per dominant ovary) or tumor absent – outer surface and/or sectioned surface
 - Note other lesions
- H. Uterus-weight, dimensions
 - Presence/absence of tumor
 - Tumor present-note size and distribution
 - Location and extent of gross invasion
 - Relationship to dominant mass (attached or separate)
 - Note other findings

- I. Omentum-dimensions
 - Presence/absence of tumor
 - Tumor present
 - Size, number of nodules, gross appearance
- J. Lymph nodes-site designation
 - Size, gross appearance
- K. Additional staging biopsy specimens-site designation
 - Size, gross appearance

III. Recommended sections

- A. Ovary primary tumor
 - 1. One section for each 1 cm of tumor's greatest dimension is suggested, with modification depending on the amount of macroscopic homogeneity or heterogeneity of the tumor, solid components, and difficulty of diagnosis. Two sections for each cm is suggested for mucinous tumors greater than 10 cm. in greatest dimension.
 - 2. Sections illustrating tumor's relation to, or involvement of: ovarian stroma, the ovarian surface and/or capsular penetration
 - 3. Sections of adhesions or tumor, at sites where tumor is adherent to other structures and resection margins (if so designated or pertinent)
 - 4. When an extraovarian peritoneal primary carcinoma is in the differential diagnosis, ovaries should be serially sectioned and completely submitted for histologic examination of stromal and surface involvement by carcinoma (see IV B1a).
- B. Fallopian tubes
 - 1. One section of each tube if grossly normal
 - 2. Sample tumor with relationship to the tube if present
- C. Uterus
 - 1. Two sections of the cervix
 - 2. One to two full sections of endometrium and myometrium
 - 3. Sections of grossly apparent tumor to demonstrate its relation to the primary tumor (e.g. adherent ovary to uterine serosa), or any other observed lesion (e.g. endometrial polyp, leiomyoma, etc.)

- D. Omentum (of sampled or submitted)
 - 1. Sections of grossly apparent tumor
 - 2. Multiple sections are optimal when no tumor is identified on gross evaluation. There are no established guidelines regarding number of sections. Multiple sections, however, quite often detect tumor (in 22% of cases in one study – ref. 10) in grossly negative omentum.
 - 3. Borderline tumors (low malignant potential) (1, 3) and immature teratoma (6) cases benefit from optimal sampling of grossly apparent tumor deposits (invasive/noninvasive, mature/immature, respectively).
- E. Lymph nodes
 - 1. Sample of each grossly positive lymph node
 - 2. Submit sample of each grossly negative node
 - 3. Lymph nodes may be submitted in their entirety or, if large, half the node may be submitted, bivalved through the hilum.
- F. Other tissues taken for staging purposes
 - 1. Representative sampling of additional staging specimens.
- G. Paraffin block summary (slide key) with description of section submitted

IV. Diagnostic Information

- A. Type of surgical procedure
- B. Histologic type of tumor from the World Health Organization (WHO) histologic classification of common benign and malignant ovarian tumors (11)
 - 1. Surface Epithelial-Stromal Tumors
 - Epithelial Cell Types
 - a. Serous
 - b. Mucinous-endocervical (Mullerian) or gastrointestinal type
 - c. Endometrioid
 - d. Clear cell
 - e. Transitional (including Brenner)
 - f. Squamous
 - g. Mixed
 - h. Undifferentiated
 - i. Peritoneal primary*

Degree of Malignancy of Epithelial and/or Stromal Component

- a. Benign tumors (cystadenoma, cystadenofibroma)
- b. Borderline tumor (low malignant potential) (LMP)(Cystadenoma, which exhibits epithelial proliferation of designated type cells greater than seen in their benign counterpart but without destructive stromal invasion)
- c. Malignant
 - Carcinoma
 - Adenosarcoma
 - Malignant mixed Mullerian tumor (carcinosarcoma)

2. Germ Cell Tumors

- a. Dysgerminoma
- b. Yolk sac (endodermal sinus tumor), histologic variants (11)
- c. Mature/immature teratoma
- d. Mixed primitive germ cell tumors (specify malignant component)
- e. Malignancy within dermoid cyst (specify malignant component)
- f. Other (specify)

3. Sex-Cord Stromal Tumors

- a. Granulosa cell tumor
 - Adult type
 - Juvenile type
- b. Sertoli-Leydig cell tumor
- c. Other (specify)

4. Other malignant tumors (specify)

If different components are present, name them, and report approximate percentage of each.

C. Report tumor grade and specify the grading system

1. Grading of the epithelial ovarian carcinomas should be included because it predicts survival better than histologic type of ovarian carcinoma (9). Although an arbitrary system, the Gynecologic Oncology Group (GOG) studies have used a single grading system (2). Additional grading systems are being evaluated (9, 10).

2. Grading of immature teratomas utilizes a two-tiered system (5). There are two grades in this system, - low (previously grade 1) and high (previously grade 2 and 3)(5).
- D. Capsule/ovarian surface reported
1. Status of the capsule, intact or ruptured
 2. Involvement of the ovarian surface and extent of stromal invasion
- E. Sites of metastatic deposits
1. Lymph nodes, number of nodes, number of positive nodes, status of extracapsular extension
 2. Omentum, adhesions, abdominal wall
- F. Additional Studies – reported as appropriate
- Cytogenetics
 - Flow cytometry
 - Growth factors and receptor status (ER/PR)
 - Cytology findings
 - Correlate with surgical findings e.g. peritoneal washings in borderline tumor should reflect the diagnosis of the primary ovarian tumor