SPECIAL ARTICLE

Recommendations for the Reporting of Surgical Specimens Containing Uterine Cervical Neoplasms

Association of Directors of Anatomic and Surgical Pathology

The Association of Directors of Anatomic and Surgical Pathology (ADASP) has named several committees to develop recommendations regarding the content of the surgical pathology report for common malignant tumors. A committee of individuals with special interest and expertise write the recommendations, which are reviewed by the council of ADASP and subsequently by the entire membership.

The recommendations have been divided into the following four major areas: (1) items that provide an informative gross description; (2) additional diagnostic features that are recommended to be included in every report if possible; (3) optional features that may be included in the final report (Table 1); and (4) a checklist (Table 2).

The purpose of these recommendations is to provide an informative report for the clinician. The recommendations are intended as suggestions and adherence to them is completely voluntary. In special circumstances, the recommendations may not be applicable. The recommendations are intended as an educational resource rather than as a mandate.

I. Features the Association recommends to be included in the final report—because they are generally accepted as being of prognostic importance, the following are required for therapy or traditionally expected.

A. Gross description

1. Identification—how the specimen was identified; labeled with patient name, medical record number, organ identified, etc.
2. Condition of the specimen on receipt in the laboratory—fresh, in fixative (formalin, Bouins, etc.), on ice, opened (by pathologist or surgeon), unopened, etc.
3. Number of specimen containers
4. Procedure—the type of surgical procedure should be stated (simple hysterectomy, radical hysterectomy, anterior exenteration, etc.)
5. Topography—the exact type of specimen should be specified (uterus, cervical cold knife cone biopsy, cervical loop electrosurgical excision procedure, etc.)
6. Brief but precise overall description, focusing on the site and extent of the lesion and its relationship to surrounding structures
   a. Accurate overall dimensions of each specimen received
   b. Exact anatomic location of cervical tumor (anterior or posterior lip, portio or endocervical canal, the "o'clock" location, etc.)
   c. Size of tumor
   d. Gross estimation of depth of invasion, if any, into the cervical wall
   e. Grossly apparent extension to adjacent organs and tissue, *e.g.,* the parametrium, upper vagina, the uterine corpus, or the bladder or bowel (in exenteration specimens)
   f. Comment on the proximity of tumor to pertinent resection margins

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TABLE 1. 1995 Revision of International Federation of Gynecologists and Obstetricians (FIGO) Staging of Carcinoma of the Cervix Uteri

Stage	Description
0	Carcinoma *in situ,* intraepithelial carcinoma
I	The carcinoma is strictly confined to the cervix
IA	Invasive cancer identified only microscopically. All gross lesions even with superficial invasion are stage IB cancers. Invasion is limited to measured stromal invasion with maximum depth of 5 mm and no wider than 7 mm[a]
IA1	Measured invasion of stroma no greater than 3 mm in depth and no wider than 7 mm
IA2	Measured invasion of stroma greater than 3 mm and no greater than 5 mm, and no wider than 7 mm
IB	Clinical lesions confined to the cervix or preclinical lesions greater than stage IA
IB1	Clinical lesions no greater than 4 cm in size
IB2	Clinical lesions greater than 4 cm in size
II	The carcinoma extends beyond the cervix but has not extended to the pelvic wall; the carcinoma involves the vagina but not as far as the lower third
IIA	No obvious parametrial involvement
IIB	Obvious parametrial involvement
III	The carcinoma has extended to the pelvic wall. On rectal examination, there is no cancer-free space between the tumor and pelvic wall; the tumor involves the lower third of the vagina; all cases with hydronephrosis or nonfunctioning kidney are included unless they are known to be a result of other causes
IIIA	No extension to the pelvic wall
IIIB	Extension to the pelvic wall and/or hydronephrosis or nonfunctioning kidney
IV	The carcinoma has extended beyond the true pelvis or has clinically involved the mucosa of the bladder or rectum; a bullous edema as such does not permit a case to be allotted to stage IV
IVA	Spread of the growth to adjacent organs
IVB	Spread to distant organs

[a] The depth of invasion should not be more than 5 mm taken from the base of the epithelium, either surface or glandular, from which it originates. Vascular space involvement, either venous or lymphatic, should not alter the staging.

7. Tissue submitted for special investigation (flow cytometry, etc.)
8. If ink is used for marking resection margins, provide a section code for subsequent interpretation of the microscopic findings.

B. Diagnostic information

1. Histologic tumor type—the histopathologic tumor type should be stated. The following modified terminology, as revised and adopted by the ISGP under the auspices of the WHO, is recommended.
   a. Squamous lesions
      i. Squamous intraepithelial lesions (SIL)
         - Cervical intraepithelial neoplasia (CIN)
         - CIN 1; mild dysplasia; (low grade SIL)
         - CIN 2; moderate dysplasia (high grade SIL)
         - CIN 3; severe dysplasia/carcinoma in situ (high grade SIL)

         [Note: In the Bethesda system for cytologic classification, squamous intraepithelial lesions are divided into low-grade and high-grade. CIN 1 (mild dysplasia) and lesions showing clearcut evidence of papillomavirus effect are classified as low-grade lesions. CIN 2 (moderate dysplasia) and CIN 3 (severe dysplasia and carcinoma *in situ*) are classified as high-grade lesions]
      ii. Squamous cell carcinoma
         - Keratinizing type
         - Nonkeratinizing type—large cell (optional); small cell (optional)
         - Verrucous carcinoma
         - Warty (condylomatous) carcinoma
         - Papillary squamous cell (transitional) carcinoma
         - Lymphoepithelioma-like carcinoma

         [Note: Keratinizing tumors require the presence of keratin pearls. The morphologic spectrum is wide for nonkeratinizing tumors, including those having individual cell keratinization, tumor cells with clear cytoplasm, and tumor cells with eosinophilic cytoplasm and distinct cell borders. Small cell poorly differentiated carcinomas with light microscopic, immunohistochemical, and ultrastructural features of neuroendocrine differentiation are classified in the category of small cell (neuroendocrine) carcinomas]

TABLE 2. Uterine Cervix Neoplasms Checklist

Demographics
Patient Name:_____
Case Number:_____
Gross Assessment
Condition of specimen on receipt:
  Fresh: _____
  Fixative: _____
  Unopened: _____
  Opened: _____
  Other:_____
Total number of specimen containers:_____
Surgical Procedure and Specimen Topography:
  Biopsy: _____
  LEEP procedure: _____
  Cold knife cone biopsy: _____
  Simple hysterectomy: _____
  Radical hysterectomy: _____
  Other:_____
Overall dimensions of specimen:_____
Exact anatomic location of cervical tumor:
  Exocervix: _____
  Endocervical canal: _____
  Squamocolumnar junction: _____
  Anterior lip _____ Posterior lip _____
  Left: _____ Right: _____
Size of tumor:_____
Estimated depth of invasion into cervical wall:_____
Extracervical tumor extension: (Yes/No; circle one)
  Uterine corpus: Y/N isth _____ endom _____ myom _____
  Vagina: Y/N upper 2/3 _____ lower 1/3 _____ mucosa _____
  wall _____
  Parametrium: Y/N left _____ right _____
  Ureter: hydroneph Y/N left_____ right _____ nonfxn kidney _____
  Pelvic sidewall/bone: Y/N left _____ right _____
  Bladder: Y/N wall _____ mucosa _____
  Rectum: Y/N wall _____ mucosa _____
  Abdomen/peritoneum: Y/N
  Liver: Y/N
  Other:_____
Proximity of tumor to pertinent resection margins (note site of margin followed by distance of tumor from it in mm):
  Involved margin(s) Y/N_____
  Other margins:_____
Tissue submitted for special investigations:
  Flow cytometry: _____
  Immunohistochemistry (specify stains): _____
  HPV studies (specify PCR, ISH, etc.): _____
Diagnostic Information
Histologic tumor type:
  Squamous cell carcinoma: Nonkeratinizing type _____
  Keratinizing type _____
    Other:_____
  Adenocarcinoma: Endocervical _____ Endometrioid _____
    Clear cell _____ Other adenocarcinomas _____
  Other epithelial tumors:_____
  Mesenchymal tumors: _____
  Mixed epithelial-mesenchymal: _____
  Miscellaneous tumors: _____
Tumor Grade
  If squamous cell carcinoma, modified Broders system optional:
    G1—well-differentiated _____
    G2—moderately differentiated _____
    G3—poorly differentiated _____
  If adenocarcinoma:
    G1—well-differentiated _____
    G2—moderately differentiated _____
    G3—poorly differentiated _____
Measured depth of invasion: _____ mm; Measured horizontal extent of tumor: _____ mm; Proportion of cervical wall involved by tumor _____ % ("Microinvasive" squamous carcinoma?)_____
Extent of invasion:
  Uterine corpus: Y/N isthmus _____
  endometrium _____ myom _____
  Vagina: Y/N upper 2/3 _____ lower 1/3 _____
  muc _____ wall _____
  Parametrium: Y/N left _____ right _____
  Ureter: hydroneph Y/N left _____ rt _____
  nonfxn kidney _____
  Pelvic side wall/bone: Y/N left _____ right _____
  Bladder: Y/N wall _____ mucosa _____
  Rectum: Y/N wall _____ mucosa _____
  Abdomen/peritoneum: Y/N
  Liver: Y/N
  Other:_____
Vascular involvement:
  Y/N blood vv _____ lymphatic vv _____
Lymph nodes (# nodal metastases/total # nodes):
  Parauterine: left (____/____); right (____/____)
  Obturator (med ext iliac): left (____/____); right (____/____)
  External iliac: left (____/____); right (____/____)
  Sacral: left (____/____); right (____/____)
  Internal iliac (hypogastric): left (____/____); right (____/____)
  Common iliac: left (____/____); right (____/____)
  Pelvic, NOS: left (____/____); right (____/____)
  Aortic, NOS: left (____/____); right (____/____)
  Inguinal, NOS: left (____/____); right (____/____)
  Other:_____
Associated intraepithelial changes:
  If squamous intraepithelial lesion:
    CIN I: _____ (low-grade SIL)
    CIN II: _____ (high-grade SIL)
    CIN III: _____ (high-grade SIL)
  If glandular intraepithelial lesion:
    Adenocarcinoma *in situ:* _____
      Endocervical type _____ Endometrioid type _____
      GI type _____
    Glandular atypia _____ (optional)
    Glandular dysplasia _____ (optional)

b. Glandular lesions
   i. Adenocarcinoma *in situ*
   ii. Adenocarcinoma
      - Mucinous adenocarcinoma—endocervical type; intestinal type
      - Endometrioid adenocarcinoma—endometrioid adenocarcinoma with squamous metaplasia
      - Clear cell adenocarcinoma
      - Minimal deviation adenocarcinoma (adenoma malignum)—endocervical type; endometrioid type
      - Well-differentiated (papillary) villoglandular adenocarcinoma
      - Serous carcinoma
      - Mesonephric carcinoma
c. Other epithelial tumors
   i. Adenosquamous carcinoma

ii. Glassy cell carcinoma
iii. Adenoid cystic carcinoma
iv. Adenoid basal carcinoma (epithelioma) (Note: Some workers consider *adenoid basal carcinoma* to be non-malignant and have instead proposed the term *adenoid basal epithelioma*)

d. Neuroendocrine tumors
i. Carcinoid tumor
ii. Atypical carcinoid tumor
iii. High-grade neuroendocrine carcinoma—small cell type; large cell type

e. Undifferentiated carcinoma

f. Mesenchymal tumors
i. Leiomyosarcoma
ii. Endocervical stromal sarcoma
iii. Sarcoma botryoides (embryonal rhabdomyosarcoma)
iv. Alveolar soft-part sarcoma

g. Mixed epithelial and mesenchymal tumors
i. Adenosarcoma
ii. Malignant mixed mesodermal tumor (MMMT)
iii. Wilms tumor

h. Miscellaneous tumors
i. Malignant melanoma
ii. Lymphoma and leukemia
iii. Tumors of germ cell type
iv. Yolk sac tumor

2. Tumor grade
a. Squamous cell carcinoma—several studies have shown that histopathologic grading systems, including the most commonly used modification of the Broders system, fail to correlate reliably with prognosis. Consequently, histopathologic grading is optional.
b. Adenocarcinoma—cervical adenocarcinomas may be graded by architectural (the percentage of solid growth, excluding squamous) and cytologic (nuclear) criteria
i. Grade 1—well-differentiated (10% or less solid growth). The tumor contains well-formed regular glands with papillae. The cells are elongate and columnar with uniform oval nuclei; there is minimal stratification (fewer than three cell layers in thickness). Mitotic figures are infrequent.
ii. Grade 2—moderately differentiated (11 to 50% solid growth). The tumor contains complex glands with frequent bridging and cribriform formation. Solid areas are more common, but these make up less than half of the tumor. The nuclei are more rounded and irregular; micronucleoli are present. Mitoses are more frequent.
iii. Grade 3—poorly differentiated (over 50% solid growth). The tumor contains sheets of malignant cells; few glands are discernible. The cells are large and irregular with pleomorphic nuclei. Occasional signet cells are present. Mitoses are abundant, with abnormal forms. Desmoplasia is pronounced, and necrosis is common.

3. Degree of invasion—the maximum depth of invasion by tumor into the cervical stroma, in millimeters or the proportion of the wall involved, should be recorded. For purposes of staging, the International Federation of Gynecology and Obstetrics (FIGO) and the Society of Gynecologic Oncologists (SGO) subdivide squamous cell carcinomas into microinvasive and frankly invasive carcinoma
a. An early squamous cell carcinoma with 3 mm or less of invasion from its point of origin and without angiolymphatic space invasion is classified as a microinvasive squamous carcinoma by SGO criteria
b. An early squamous cell carcinoma with 5 mm or less of invasion from its point of origin and no greater than 7 mm in greatest horizontal dimension is classified as a microinvasive squamous carcinoma by FIGO criteria. Only invasive carcinoma should be included in the measurement. Vascular space

invasion is noted, if present, but does not in itself exclude a tumor from being placed in the microinvasive category

c. No consensus has been reached for the histopathologic criteria that define a "microinvasive" cervical adenocarcinoma. The maximal deep and lateral dimensions of tumor extension, plus the presence or absence of angiolymphatic invasion, should be carefully recorded

4. Extent of tumor—the extent of invasion into extracervical tissues and metastases to both pelvic and extrapelvic organs should be recorded
5. Angiolymphatic vascular space invasion—the presence of tumor within blood vessels and/or lymphatic vessels should be noted and an attempt made to distinguish, when possible, between them
6. Status of lymph nodes—report the presence or absence of metastases in each submitted group of lymph nodes, recording the total number of involved lymph nodes in relation to the total number of lymph nodes identified
7. Status of resection margins—the adequacy of local excision should be assessed by careful examination of resection margins, the latter preferably marked by the use of ink. The distance from the deepest point of stromal invasion to the closest (inked) margin of resection may be noted in the report

II. Features considered optional in the final report—these are optional because there may be specific institutional preferences concerning staging or because the features have yet inconclusive prognostic significance

A. Staging (Table 1)

B. Glandular intraepithelial lesions—the natural history and histopathologic criteria to define endocervical glandular lesions with atypia less than that of adenocarcinoma *in situ* are controversial; their reporting, therefore, is considered optional

Definitions—the following definitions are slightly modified from the *Histological Typing of Female Genital Tract Tumors,* World Health Organization, 2nd ed.

1. An *endocervical glandular atypia* is one that does not fulfill the criteria for glandular dysplasia-adenocarcinoma *in situ,* and may be associated with inflammation
2. *Glandular dysplasia* is characterized by significant nuclear abnormalities that are more striking than those encountered in glandular atypia but do not fulfill the criteria for adenocarcinoma *in situ*
3. In *adenocarcinoma in situ,* normally situated glands are lined by cytologically malignant glandular epithelium

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