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REVIEW ARTICLE

Association of Directors of Anatomic and Surgical Pathology

Recommendations for the reporting of resected prostate carcinomas

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Abstract The Association of Directors of Anatomic and Surgical Pathology has developed recommendations for the surgical pathology reporting of common malignant tumors. The recommendations for resected prostate carcinomas are reported herein.

Key word Resected prostate carcinoma

Introduction

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, and they are reviewed and approved by the council of ADASP and subsequently by the entire membership.

The recommendations have been divided into 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; and (4) a checklist (Table 1).

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 clinical circumstances, the recommendations may not be applicable. The recommendations are intended as an educational resource rather than a mandate.

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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 staging or therapy, and/or are traditionally expected.

Gross description

1. Topography: The type of specimen should be specified – prostate, prostate and seminal vesicles, bladder and prostate, etc.
2. Procedure: The type of surgical procedure should be stated – radical prostatectomy, transurethral resection of prostate (TURP), supra-retropubic pubic prostatectomy, needle biopsy, etc.
3. How the specimen was identified: labeled with name, medical, record number, etc.
4. How the specimen was received: fresh, in fixative, opened, unopened, etc.
5. Good overall gross description including weight and three-dimensional measurements, etc.
6. Describe recognizable features: gross evidence of carcinoma, nodular hyperplasia, necrosis, etc.
7. Description of other organs or structures: bladder, seminal vesicles, vas deferens, etc.
8. Paraffin block key

Microscopic features

1. Tumor type: The type of carcinoma should be stated. The following classification of prostate carcinoma is suggested:
   a) Adenocarcinoma, NOS
   b) Adenocarcinoma, acinar type
   c) Ductal (endometrioid) carcinoma
   d) Mucinous carcinoma
   e) Signet ring cell carcinoma
   f) Neuroendocrine carcinoma
   g) Small cell (oat cell) carcinoma

Table 1 Prostatic carcinoma checklist

1. Topography:
   Prostate _____
   Prostate and seminal vesicles _____
   Other _____
2. Procedure:
   Radical prostatectomy _____
   TURP _____
   Suprapubic _____ or retropubic prostatectomy _____
   Other _____
3. Tumor type:
   Adenocarcinoma _____ Other _____
4. Gleason's grade and score
   Primary pattern _____ (1–5)
   Secondary pattern _____ (1–5)
   Score _____
   Zones: Peripheral _____ Central _____
   Transitional zone _____ Other _____
5. Amount of tumor:
   For needle biopsy: Size of core _____
   and size of tumor _____
   For TURP or supra/retropubic prostatectomies:
   a) % of tumor in relation to amount of gland removed _____
   b) Number of microscopic foci involved by carcinoma _____
   For radical prostatectomy: % of tumor in relation to weight of the gland _____
6. Multicentricity:
   Present _____ Absent _____
7. PIN
   Present _____ Grade _____ Absent _____
   State zone within the prostate _____
8. Surgical margins:
   Posterior _____ posterolateral
   anterior ___ apex ___ neurovascular bundle, right ___
   left ___ bladder margin _____
   Method of examining margins:
   En face _____ Perpendicular _____
   Shave _____ Conization _____
9. Perineural extension:
   Present _____ within prostate _____ outside _____
   Absent _____
10. Vascular/lymphatic extension:
    Present _____ Absent _____
11. Seminal vesicles:
    Involved by tumor _____ Side: R ___ L ___
    Not involved by tumor
    Adventitial involvement only yes ___ no ___
12. Lymph nodes:
    Right pelvic yes ___ no ___ ; no. of positive LN ___
    Size of met ___
    Right periaortic yes ___ no ___ ; no. of positive LN ___
    Size of met ___
    Left pelvic yes ___ no ___ ; no. of positive LN ___
    Size of met ___
    Left periaortic yes ___ no ___ ; no. of positive LN ___
    Size of met ___
13. Pathologic stage:
    Tumor confined to prostate yes ___ no ___
    Extraprostatic extension yes ___ no ___
    State tissues involved: connective tissue yes ___ no ___
    fibroadipose tissue yes ___ no ___
    TNM/AJCC if applicable _____ Whitmore-Jewett _____
14. Associated conditions:
    Nodular hyperplasia _____ Other _____

h) Undifferentiated non-small cell carcinoma
i) Transitional cell carcinoma
j) Squamous and adenosquamous carcinoma
k) Sarcomatoid carcinoma (carcinosarcoma)
l) Others

2. Tumor grade: It is recommended that the Gleason system be utilized. The Gleason system proposes that any given prostate carcinoma may show one or several of five histologic patterns ranging from the lowest grade (grade 1) to the highest grade (grade 5). Taking the two predominant patterns one can arrive at a score (for instance, 2+3=5; 3+4=7) which has prognostic significance.

   The following rules apply to this system:

   a) When there are more than two patterns, pattern 1 is the predominant pattern and pattern 2 is the second predominant pattern.
   b) When there is only one pattern, for instance in a needle biopsy, duplicate that pattern to arrive at the correct score (for example, 3+3=6)
   c) In a needle biopsy when there are more than two patterns and the worst grade is neither the predominant nor the secondary pattern, choose the predominant pattern and the highest grade to arrive at the correct score (for instance; the patterns are: grade 3 is 60%; grade 1 is 30%; and grade 4 is 10%; the score should be: 3+4=7.

3. Tumor amount: The amount of carcinoma present in the specimen should be recorded –

   a) For radical prostatectomy specimens: percentage of the prostate involved by carcinoma in relation to the weight of the specimen.
   (*Note:* Computer-assisted methods of measurements are desirable, but at present are time-consuming and impractical for routine usage.)
   b) For transurethral resections of prostate, and suprapubic or retropubic prostatectomies: the amount of carcinoma present should be given in terms of: (I) percentage of carcinoma found in relation to the amount of non-involved prostatic tissue, (II) number of microscopic foci of carcinoma.

   I. Percentage system: The TNM/AJCC recommends –
   (i) 5% or less of carcinoma (Gleason score 2–6; pT1a/A1)
   (ii) More than 5% of carcinoma [Gleason score 2 to 6, or any amount of carcinoma of 7–10 Gleason score; (pT1b/A2)].
   II. Number of microscopic foci system:
   (i) 3 or less microscopic foci of carcinoma with a Gleason's score of 2 to 6 (A1)
   (ii) 4 or above microscopic foci of carcinoma with a Gleason's score of 2–6, or any amount of carcinoma with Gleason's core of 7 or above (A2)

4. Prostatic intraepithelial neoplasia (PIN): (a) needle biopsy, (b) radical prostatectomy, (c) suprapubic or retropubic prostatectomy
   a) Needle biopsy:
   I) the presence of high-grade PIN (grades 2 and 3) should be reported.
   II) do not report low-grade PIN (grade 1)
   b) Transurethral resection and suprapubic or retropubic prostatectomies:
   I) report high-grade PIN
   II) do not report low-grade PIN
   c) Radical prostatectomies
   I) reporting PIN is optional

5. Surgical margins in radical prostatectomies: Record the presence of tumor at the surgical margins. (*Note:* all the prostatic surface is a surgical margin.) Common areas of cut-through tumor are the apex, especially the lateral and anterior surfaces and the bladder margin.

6. Extent of the tumor in radical prostatectomies:
   a) Report if the tumor is confined within the prostate "capsule."
   b) Report the site of "extracapsular" tumor involvement, e.g. anterior, posterior or posterolateral aspects of the prostate, base, etc.
   c) Specify the type of extracapsular tissue involved: periprostatic connective tissue, fibroadipose tissue. (*Note:* skeletal muscle may not indicate extracapsular involvement)
   d) Nerves/ganglion cells: record the presence/absence of carcinoma in these structures and whether these structures are within or outside the prostate gland.

7. Seminal vesicles:
   a) Record the presence or absence of carcinoma in the seminal vesicles. Specify if it is in the wall or in the adventitia. Please note that tumor in the adventitia of the seminal vesicle does not qualify for the true seminal vesicle invasion.

8. Lymph nodes:
   a) Record the presence/absence of metastasis with number of positive nodes.
   b) Record the anatomic site of lymph node involvement.
   c) Report the size of the tumor metastasis in the lymph node.
   d) Reporting of extracapsular extension is optional.

Optional pathologic features that can be included if desired

1. Tumor location: For radical prostatectomies the location of the carcinoma in relation to the anatomic zones of the prostate is desirable. This can be accomplished with a diagram.

2. Amount of tumor in needle biopsies:
   a) Report the amount of tumor in millimeters along with a measurement of the length of each (core(s) involved.
   b) Report the location of the tumor whether it is at the tip or within the center of the core.

3. The reporting a prostatic intraepithelial neoplasia in a radical prostatectomy is optional but desirable for completion of the report.

4. For radical prostatectomies reporting of vascular and or lymphatic invasion is optional.

5. Associated conditions: nodular hyperplasia, benign or atypical conditions.

6. Pathologic stage: The AJCC/TNM staging for prostate carcinoma is optional. Since this system requires clinical information, it is not recommended. However, the pathologic information provided in the guidelines should provide all information necessary for the clinician to properly stage the patient's disease.

7. Extracapsular extension of carcinoma in a lymph node metastasis and measurement of it.

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