

Protocol for Malignant and Potentially Malignant Neoplasms of the Testis and Paratestis

Association of Directors of Anatomic and Surgical Pathology

- I. Gross description**—ADASP recommends that the following features be included in the final report because they are generally accepted as being of prognostic importance, required for staging or therapy, and/or traditionally accepted.
- A. Number of specimen containers**
 - B. Condition of the specimen**—fresh, in formalin, intact, incised by surgeon or pathologist, etc.
 - C. Identification**—patient name, case number, laterality, specimen identification (“labelled as . . .”)
 - D. Structures attached to testis**—epididymis, spermatic cord, tunica vaginalis, scrotum
 - E. Dimensions of all of the specimens**
 - F. Tumor description**
 - 1. Site in testis/paratestis—central, inferior pole, superior pole, testicular hilum, epididymis, paratesticular soft tissue, spermatic cord, etc.
 - 2. Tumor size, shape, consistency, color, cysts, scar, necrosis, hemorrhage, calcifications
 - 3. Relationship to tunica albuginea
 - 4. Relationship to epididymis and spermatic cord
 - 5. If spermatic cord involvement, distance of tumor to cord margin. It is recommended that sections of the spermatic cord be obtained before incision of the main tumor to avoid contamination (1)
 - 6. Satellite tumors, if present
 - G. Other lesions of the testis**
 - H. Tissue submitted for special study**
- II. Diagnostic information**
- A. Topography**—left or right testis
 - B. Name of operation**—as designated by surgeon, *e.g.*, radical or simple orchiectomy
 - C. Histologic type**—a modified classification of the World Health Organization (WHO) (2) is recommended (3)
 - 1. Germ cell tumors
 - a. Intratubular germ cell neoplasia
 - i. Unclassified type (IGCNU)
 - ii. Other forms (specify)
 - b. Tumors of one histologic type
 - i. Seminoma
 - α. Variant—seminoma with syncytiotrophoblastic cells (4)
 - ii. Spermatocytic seminoma
 - α. Variant—spermatocytic seminoma with a sarcomatous component (5,6) (specify type and grade of sarcoma)

- iii. Embryonal carcinoma
- iv. Yolk sac tumor
- v. Choriocarcinoma
 - α. Variant—"monophasic" choriocarcinoma (7)
- vi. Placental site trophoblastic tumor (7)
- vii. Teratoma
 - α. Mature
 - β. Immature
 - χ. With a secondary malignant component ("teratoma with malignant transformation") (specify type)
 - δ. Monodermal variants
- 1) Carcinoid
- 2) Primitive neuroectodermal tumor
- 3) Other
 - c. Tumors of more than one histologic type
 - i. Mixed germ cell tumor (specify components and provide an estimate of percent composition)
 - ii. Polyembryoma
 - iii. Diffuse embryoma (8)
 - d. "Burnt-out" germ cell tumor
- 2. Sex cord-stromal tumors
 - a. Leydig cell tumor (9)
 - b. Sertoli cell tumor
 - i. Not otherwise specified type (10)
 - ii. Large cell calcifying type (11)
 - iii. Sclerosing type
 - c. Sertoli-Leydig cell tumor (10)
 - d. Granulosa cell tumor
 - i. Adult type (13)
 - ii. Juvenile type (14)
 - e. Mixed sex cord-stromal tumor
 - f. Unclassified sex cord-stromal tumor
- 3. Mixed germ cell—sex cord-stromal tumors
 - a. Gonadoblastoma (15)
 - b. Others (16)
- 4. Miscellaneous
 - a. Lymphoma (classify according to guidelines for nodal lymphoma) (17)
 - b. Plasmacytoma and multiple myeloma
 - c. Granulocytic sarcoma and leukemic infiltrates
 - d. Sarcoma (specify type and grade)
 - e. Carcinomas and borderline tumors of ovarian-type (specify type and, for carcinomas, grade) (18)
 - f. Adenocarcinoma of the rete testis (19)
 - g. Adenocarcinoma of the epididymis
 - h. Melanotic neuroectodermal tumor (retinal anlage tumor) (20)
 - i. Malignant mesothelioma (specify type)
 - j. Desmoplastic small round cell tumor (21)
 - k. Others
- 5. Secondary tumors (22,23)

D. For tumors in the sex cord-stromal category (with the exception of the juvenile granulosa cell tumor) specify if adverse prognostic features are present or absent. The following are included (9–11,13,24,25):

1. Lymphovascular space invasion
2. Coagulative tumor cell necrosis
3. Significant cytologic atypia
4. "High" mitotic rate (specify number of mitotic figures per 10 high-power fields, averaged from 40 high-power fields)
5. Infiltrating borders

6. Extra-testicular growth
 - a. Note: According to the revised TNM staging system of the American Joint Committee on Cancer,(26) only paratesticular soft tissue, tunica vaginalis, or spermatic cord involvement are features of extra-testicular spread that merit designation as pT2 tumors; cases with rete testis or epididymal spread or tunica albuginea invasion without penetration remain pT1 lesions in the absence of vascular invasion.
7. “Large” tumor size
- E. For tumors in categories other than the sex cord-stromal group, specify if there is lymphovascular space invasion or (for testicular tumors) extra-testicular extension (see above-mentioned Note) (27–34)**
- F. Adequacy of local excision**—assessment of resection margins
- G. Other significant testicular disease**
- III. Features considered optional in the final report**
 - A. Stage**—the data specified should facilitate application of most staging systems. In most circumstances, the pathologist will not be aware of the nodal status or other studies to permit an assignment of stage; however, accurate local staging of the testicular tumor can be accomplished, either by providing all of the requisite information (as indicated above) or by specifying a local “P stage” according to the revised system of The American Joint Committee on Cancer Staging (26)
 - B. Results of ancillary studies**
 - C. Association of germ-cell tumors with intratubular germ cell neoplasia of the unclassified type**
 - D. Presence and type of inflammatory infiltrate**
 - E. Multifocal tumor**

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TABLE 1. Malignant and Potentially Malignant Neoplasms of the Testis and Paratestis: A Diagnostic Checklist

<p>I. Gross assessment of main tumor</p> <ol style="list-style-type: none"> 1. Origin <ul style="list-style-type: none"> Right testis _____ Left testis _____ Upper pole _____ Lower pole _____ Central _____ Diffuse _____ Paratestis _____ 2. Extent <ul style="list-style-type: none"> Hilum _____ Penetration of tunica albuginea _____ Epididymis _____ Paratesticular soft tissue _____ Spermatic cord _____ Scrotum _____ 3. Dimensions <ul style="list-style-type: none"> _____ cm × _____ cm × _____ cm 4. Extends to spermatic cord margin <ul style="list-style-type: none"> _____ yes _____ no <p>II. Histologic information</p> <ol style="list-style-type: none"> 1. Germ-cell tumor—one histologic type <ol style="list-style-type: none"> a. IGCNU only _____ b. Other forms of intratubular germ-cell neoplasia (specify type) _____ c. Seminoma _____ with syncytiotrophoblasts _____ d. Spermatocytic seminoma _____ with sarcoma (specify type and grade) _____ e. Embryonal carcinoma _____ f. Yolk sac tumor _____ g. Choriocarcinoma _____ “monophasic” type _____ h. Placental site trophoblastic tumor _____ i. Teratoma _____ Mature _____ Immature _____ With a secondary malignant component (specify type) _____ Monodermal variants Carcinoid _____ Primitive neuroectodermal tumor _____ Other (specify type) _____ 2. Germ-cell tumor of more than one type <ol style="list-style-type: none"> a. Mixed germ-cell tumor (specify components and estimate percent composition) _____ b. Polyembryoma _____ c. Diffuse embryoma _____ 3. “Burnt-out” germ-cell tumor _____ 4. Sex cord-stromal tumors <ol style="list-style-type: none"> a. Leydig cell tumor _____ b. Sertoli cell tumor, not further specified _____ Large cell calcifying Sertoli cell tumor _____ Sclerosing Sertoli cell tumor _____ c. Sertoli-Leydig cell tumor _____ d. Granulosa cell tumor Adult type _____ Juvenile type _____ e. Mixed sex-cord stromal tumor _____ f. Unclassified sex cord-stromal tumor _____ 5. Mixed germ cell-sex cord stromal tumor <ol style="list-style-type: none"> a. Gonadoblastoma _____ b. Other _____ 6. Miscellaneous <ol style="list-style-type: none"> a. Lymphoma (classify specifically) _____ b. Plasmacytoma or multiple myeloma _____ c. Granulocytic sarcoma or leukemic infiltrate _____ d. Sarcoma (specify type and grade) _____ e. Carcinoma of ovarian epithelial type (specify type and grade) _____ f. Borderline tumor of ovarian epithelial type (specify type) _____ g. Adenocarcinoma of the rete testis _____ h. Adenocarcinoma of the epididymis _____ 	<ol style="list-style-type: none"> i. Melanotic neuroectodermal tumor (retinal anlage tumor) _____ j. Malignant mesothelioma (specify type) _____ k. Desmoplastic small round cell tumor _____ l. Other (specify) _____ <p>7. Secondary tumor (specify) _____</p> <p>III. Additional histologic features for germ-cell tumors</p> <ol style="list-style-type: none"> 1. Lymphovascular space invasion Yes _____ No _____ 2. Extra-testicular extension^a Yes _____ epididymis _____ tunica vaginalis _____ paratesticular soft tissue _____ spermatic cord _____ scrotum _____ No _____ 3. Spermatic cord margin involved Yes _____ No _____ <p>IV. Additional histologic features for sex cord-stromal tumors</p> <ol style="list-style-type: none"> 1. Lymphovascular space invasion Yes _____ No _____ 2. Necrosis Yes _____ No _____ 3. Significant cytologic atypia Yes _____ No _____ 4. Mitotic rate (specify no. of mitotic figures per 10 high power fields) _____ 5. Borders Circumscribed _____ Infiltrating _____ 6. Extra-testicular extension^a Yes _____ epididymis _____ tunica vaginalis _____ paratesticular soft tissue _____ spermatic cord _____ scrotum _____ No _____ 7. Spermatic cord margin involved Yes _____ No _____ <p>V. Additional histologic features for categories other than germ-cell tumor or sex cord/stromal tumor</p> <ol style="list-style-type: none"> 1. Lymphovascular space invasion Yes _____ No _____ 2. Extra-testicular extension^a Yes _____ epididymis _____ tunica vaginalis _____ paratesticular soft tissue _____ spermatic cord _____ scrotum _____ No _____ 3. Spermatic cord margin involved Yes _____ No _____ 4. Other margins (parietal layer of tunica vaginalis, scrotum, etc.) involved Yes (specify which) _____ No _____ <p>VI. Special investigations</p> <ol style="list-style-type: none"> 1. Flow cytometry Yes _____ No _____ 2. Other (specify type) Yes _____ No _____
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^a Tumors involving rete testis, epididymis, and/or invading into (but not through) the tunica albuginea, in the absence of vascular invasion, are considered stage pT1.

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Erratum

In the July, 2000, issue of *Modern Pathology*, the incorrect author was given credit for the book review of Koss LG, Gompel C: *Introduction to Gynecologic Cytology with Histologic and Clinical Correlations* (p. 741). The correct author of this review is Larry J. Fowler, University of Texas Health Science Center, San Antonio, Texas. We regret the error.