



Protocol for the Examination of Lymphadenectomy Specimens From Patients With Malignant Germ Cell and Sex Cord-Stromal Tumors of the Testis

Version: 4.2.0.0

Protocol Posting Date: September 2023

The use of this protocol is recommended for clinical care purposes but is not required for accreditation purposes.

This protocol should be used for the following procedures AND tumor types:

Procedure	Description
Lymphadenectomy	Includes specimens designated retroperitoneal lymphadenectomy
Tumor Type	Description
Germ cell tumors	Includes seminoma and variants, all non-seminomatous germ cell tumors, mixed germ cell tumors, Leydig cell tumors
Malignant sex cord-stromal tumors	Includes Leydig cell tumors, Sertoli cell tumors, granulosa cell tumors, and mixed sex cord tumors

The following should NOT be reported using this protocol:

Procedure
Radical orchiectomy (consider Testis Radical Orchiectomy protocol)
Tumor Type
Paratesticular malignancies including appendageal, mesothelial, and soft tissue tumors (consider Soft Tissue protocol)
Non-testis germ cell tumors (consider Extragonadal Germ Cell protocol)
Lymphoma (consider the Hodgkin or non-Hodgkin Lymphoma protocols)
Sarcoma (consider the Soft Tissue protocol)

Authors

Paari Murugan, MD, FCAP*; Gladell P. Paner, MD, FCAP*; Lara R. Harik, MD, FCAP*; Mahul B. Amin, MD; Daniel Berney, MB; Scott E. Eggener, MD; Muhammad T. Idress, MD; Frank Ingram, MD; Rafael E. Jimenez, MD; Chia Sui Kao, MD; S. Joseph Sirintrapun, MD; Satish K. Tickoo, MD.

With guidance from the CAP Cancer and CAP Pathology Electronic Reporting Committees.

* Denotes primary author.

Accreditation Requirements

The use of this case summary is recommended for clinical care purposes but is not required for accreditation purposes. The core and conditional data elements are routinely reported. Non-core data elements are indicated with a plus sign (+) to allow for reporting information that may be of clinical value.

Summary of Changes

v 4.2.0.0

- WHO 5th Edition update to content and Explanatory Notes
- pNM Classification update

Reporting Template

Protocol Posting Date: September 2023

Select a single response unless otherwise indicated.

CASE SUMMARY: (TESTIS: Retroperitoneal Lymphadenectomy)

Standard(s): AJCC-UICC 8

This template is recommended for reporting retroperitoneal lymphadenectomy specimens, but is not required for accreditation purposes.

CLINICAL

+Prelymphadenectomy Treatment (select all that apply)

- No known preresection therapy
- Chemotherapy performed
- Radiation therapy performed
- Therapy performed, type not specified
- Not specified

SPECIMEN

+Regional Nodal Site(s) Examined (specify): _____

+Number of Regional Nodal Groups Examined

- Specify number: _____
- Other (specify): _____
- Cannot be determined: _____

+Nonregional Nodal Site(s) Examined (specify): _____

+Number of Nonregional Nodal Groups Examined

- Specify number: _____
- Other (specify): _____
- Cannot be determined: _____

TUMOR

Histologic Type of Metastatic Tumor (Note A) (select all that apply)

- Seminoma (specify percent): _____ %
 - Seminoma with syncytiotrophoblastic cells (specify percent): _____ %
 - Embryonal carcinoma (specify percent): _____ %
 - Yolk sac tumor, postpubertal-type (specify percent): _____ %
 - Choriocarcinoma (specify percent): _____ %
 - Placental site trophoblastic tumor (specify percent): _____ %
 - Epithelioid trophoblastic tumor (specify percent): _____ %
 - Cystic trophoblastic tumor (specify percent): _____ %
 - Teratoma, postpubertal-type (specify percent): _____ %
 - Teratoma with somatic-type malignancy
- Select all that apply*
- Adenocarcinoma
 - Embryonic-type neuroectodermal tumor

- Rhabdomyosarcoma
- Other (specify): _____
- Spermatocytic tumor
- Spermatocytic tumor with a sarcomatous component
- Yolk sac tumor, prepubertal-type
- Leydig cell tumor
- Sertoli cell tumor
- Sertoli cell tumor, large cell calcifying
- Granulosa cell tumor, adult type
- Sex cord-stromal tumor type, mixed
- Sex cord-stromal tumor type, unclassified
- Other histologic type not listed (specify): _____
- Cannot be determined: _____
- +Histologic Type Comment:** _____

Histologic Viability of Tumor (if applicable) (select all that apply)

- Not applicable
- Viable teratoma present
- Viable non-teratomatous tumor present
- Viable tumor not identified
- Other (specify): _____
- Cannot be determined: _____

LYMPH NODES (Note B)

Regional Lymph Node Involvement

Number of Regional Lymph Nodes with Tumor

- Exact number (specify): _____
- At least (specify): _____
- Other (specify): _____
- Cannot be determined (explain): _____

Regional Nodal Site(s) with Tumor (select all that apply)

- Interaortocaval: _____
- Paraaortic: _____
- Paracaval: _____
- Preaortic: _____
- Precaval: _____
- Retroaortic: _____
- Retrocaval: _____
- Other (specify): _____
- Cannot be determined: _____

+Size of Largest Nodal Metastatic Deposit

Specify in Centimeters (cm)

- Exact size: _____ cm
- At least (specify): _____ cm
- Greater than: _____ cm
- Less than: _____ cm
- Other (specify): _____
- Cannot be determined (explain): _____

Site of Largest Nodal Metastatic Deposit (select all that apply)

- Interaortocaval: _____

- Paraaortic: _____
- Paracaval: _____
- Preaortic: _____
- Retroaortic: _____
- Retrocaval: _____
- Other (specify): _____
- Cannot be determined: _____

Size of Largest Lymph Node or Nodal Mass

Specify in Centimeters (cm)

- Exact size: _____ cm
- At least (specify): _____ cm
- Greater than: _____ cm
- Less than: _____ cm
- Other (specify): _____
- Cannot be determined (explain): _____

Histologic Subtype of Tumor in Largest Involved Lymph Node (if applicable):

Extranodal Extension (ENE)

- Not identified
- Present
- Cannot be determined: _____

Number of Regional Lymph Nodes Examined

- Exact number (specify): _____
- At least (specify): _____
- Other (specify): _____
- Cannot be determined (explain): _____

Nonregional Lymph Node Status (Note B)

- All nonregional lymph nodes negative for tumor metastasis
- Tumor metastasis present in nonregional lymph node(s) (M1a, AJCC 8th edition)

+Number of Nonregional Lymph Nodes with Tumor

- Exact number (specify): _____
- At least (specify): _____
- Other (specify): _____
- Cannot be determined (explain): _____

+Nonregional Nodal Site(s) with Tumor: _____

+Number of Nonregional Lymph Nodes Examined

- Exact number (specify): _____
- At least (specify): _____
- Other (specify): _____
- Cannot be determined (explain): _____
- Other (specify): _____
- Cannot be determined (explain): _____
- Not applicable

pNM CLASSIFICATION (AJCC 8th Edition)

Reporting of pN and (when applicable) pM category is based on information available to the pathologist at the time the report is issued. As per the AJCC (Chapter 1, 8th Ed.) it is the managing physician's responsibility to establish the final pathologic stage based upon all pertinent information, including but potentially not limited to this pathology report.

Modified Classification (required only if applicable) (select all that apply)

- Not applicable
- y (post-neoadjuvant therapy)
- r (recurrence)

pN Category

- pN not assigned (cannot be determined based on available pathological information)
- pN0: No regional lymph node metastasis
- pN1: Metastasis with a lymph node mass 2 cm or smaller in greatest dimension and less than or equal to five nodes positive, none larger than 2 cm in greatest dimension
- pN2: Metastasis with a lymph node mass larger than 2 cm but not larger than 5 cm in greatest dimension; or more than five nodes positive, none larger than 5 cm; or evidence of extranodal extension of tumor
- pN3: Metastasis with a lymph node mass larger than 5 cm in greatest dimension

pM Category (required only if confirmed pathologically)

- Not applicable - pM cannot be determined from the submitted specimen(s)
- pM1: Distant metastasis*
- pM1a: Non-retroperitoneal nodal or pulmonary metastases
- pM1b: Non-pulmonary visceral metastases
- pM1 (subcategory cannot be determined)

COMMENTS

Comment(s): _____

Explanatory Notes

A. Histologic Type

The protocol mainly applies to metastatic tumors of the testis, the vast majority of which are of germ cell origin.^{1,2,3,4} It may also be applied to metastatic sex cord stromal tumors of the testis included in the classification shown below.

Often the most important distinction in patients with metastatic testicular germ cell tumor following initial chemotherapy is the differentiation of metastatic residual teratoma from nonteratomatous types of germ cell tumor. Pure teratomatous metastasis, unless accompanied by somatic-type malignancy, is generally treated by surgical excision alone, whereas patients who have other residual germ cell tumor components are usually treated with additional chemotherapy.

2022 WHO Classification of Testicular Tumors

Germ cell tumors derived from germ cell neoplasia in situ

Non-invasive germ cell neoplasia

- Germ cell neoplasia in situ
- Specific forms of intratubular germ cell neoplasia
- Gonadoblastoma

The germinoma family of tumors

- Seminoma

Non-seminomatous germ cell tumors

- Embryonal carcinoma
- Yolk sac tumor, postpubertal-type
- Choriocarcinoma
- Placental site trophoblastic tumor
- Epithelioid trophoblastic tumor
- Cystic trophoblastic tumor
- Teratoma, postpubertal-type
- Teratoma with somatic-type malignancy

Mixed germ cell tumors of the testis

- Mixed germ cell tumors

Germ cell tumors of unknown type

- Regressed germ cell tumors

Germ cell tumors unrelated to germ cell neoplasia in situ

- Spermatocytic tumor
- Yolk sac tumor, prepubertal-type
- Testicular neuroendocrine tumor, prepubertal-type
- Mixed teratoma and yolk sac tumor, prepubertal-type

Sex cord-stromal tumors of the testis

Leydig cell tumor

- Leydig cell tumor

Sertoli cell tumors

- Sertoli cell tumor
- Large cell calcifying Sertoli cell tumor

Granulosa cell tumors

- Adult granulosa cell tumor

Mixed and other sex cord-stromal tumors

Mixed sex cord-stromal tumor
Sex cord stromal tumor NOS

References

1. WHO Classification of Tumours Editorial Board. Tumours of the testis In: *WHO Classification of Tumours. Urinary and male genital tumours*. 5th edition. Geneva, Switzerland: WHO Press; 2022.
2. Moch H, Humphrey PA, Ulbright TM, Reuter VE. Tumours of the testis and paratesticular tissue In: *WHO Classification of Tumours of the Urinary System and Male Genital Organs*. Geneva, Switzerland: WHO Press; 2016.
3. Eble JN, Sauter G, Epstein JI, Sesterhenn IA. *World Health Organization Classification of Tumours: Pathology and Genetics of Tumours of the Urinary System and Male Genital Organs*. Lyon, France: IARC Press; 2004.
4. Ulbright TM, Amin MB, Young RH. *Tumors of the Testis, Adnexa, Spermatic Cord, and Scrotum. Third Series. Fascicle 25*. Washington, DC: Armed Forces Institute of Pathology; 1999.

B. Lymph Nodes

The testicular lymphatic drainage follows the testicular veins in the spermatic cord and drains into the retroperitoneal lumbar nodes (Figures 1 and 2).¹ These lymph nodes, i.e., interaortocaval, paraaortic, periaortic, paracaval, preaortic, precaval, retroaortic, and retrocaval are considered regional lymph nodes, usually termed “landing zones” of testicular tumors. The intrapelvic, external iliac, and inguinal lymph nodes can be considered regional if there is bulky lumbar lymphadenopathy, if the tumor extends to the scrotum, or if there is prior scrotal or inguinal surgery. Nodes along the spermatic vein are also considered regional. All nodes outside the regional nodes, including the nodes above the diaphragm, are considered non-regional and their involvement should be labeled as M1a.

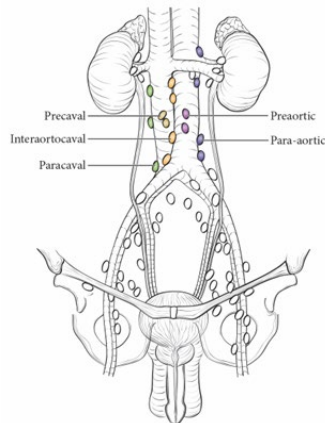


Figure 1. Regional lymph nodes of the testis. From: Amin MB, Edge SB, Greene FL, et al, eds. *AJCC Cancer Staging Manual*. 8th ed. New York, NY: Springer; 2017. Reproduced with permission.

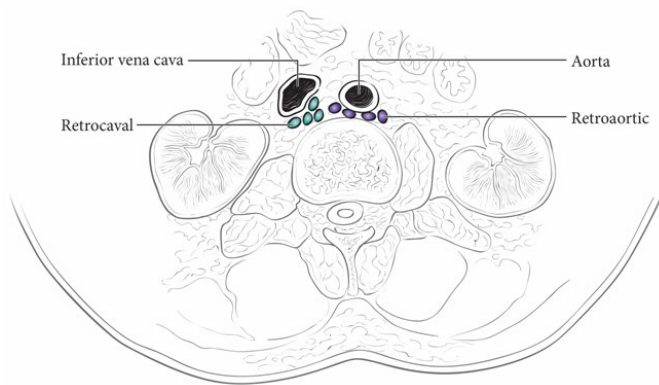


Figure 2. Regional lymph nodes of the testis. From: Amin MB, Edge SB, Greene FL, et al, eds. *AJCC Cancer Staging Manual*. 8th ed. New York, NY: Springer; 2017. Reproduced with permission.

The N categories are distinguished by the size of lymph node mass and/or number of positive lymph nodes. The size cut-offs in the N category refer to the size of the involved lymph node on imaging or by histological examination and not the size of the metastatic deposit.

References

1. Amin MB, Edge S, Greene F, et al., eds. *AJCC cancer staging manual*, 8th ed. Springer, 2017