Acta Scientific CANCER BIOLOGY (ISSN: 2582-4473)

Volume 9 Issue 2 February 2025

Editorial

Dank and Drizzly-Mucinous Borderline Tumour Testis

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Received: June 11, 2025

Published: August 01, 2025

Mucinous borderline tumour of the testis configures as an extremely exceptional, primary mucinous tumour comprised of ovarian subtype of surface epithelium. Tumefaction is endowed with borderline malignant potential.

Mucinous borderline tumour predominantly emerges as an intra-testicular or para-testicular tumefaction. Of obscure genesis, ovarian subtype of mucinous surface epithelial tumour arising within testis and para-testis is posited to emerge from Müllerian remnants or may arise due to metaplasia of mesothelium layering the tunica vaginalis [1,2]. Generally, neoplasm occurs within middle aged, male subjects > 40 years of age although mucinous borderline tumour may appear within 42 years to 69 years [2,3]. Clinically, individuals may represent with painless enlargement of the scrotum. Alternatively, minimal tenderness of scrotum may emerge [2,3].

Grossly, neoplasm represents with para-testicular or intra-testicular, preponderantly uni-locular cystic mass of mucinous tissue. In contrast to ovarian counterpart, a tumefaction of minimal magnitude is encountered [3,4].

Upon microscopy, tumefaction manifests with unilocular or multilocular cystic spaces layered by endocervical or intestinal subtype of mucinous epithelium. Lining epithelium depicts a scattering of goblet cells, tufting and cellular pseudo-stratification wherein epithelial cells display mild to severe nuclear atypia. Occasional papillae may be enunciated [4,5]. Surrounding stroma depicts extravasation of mucin with fibrosis. Focal calcification, foci of dystrophic calcification and ossification may be observed. Mitotic figures are occasional. Neoplasm may expound a complex intra-cystic architecture indicative of intraepithelial carcinoma. Foci of tumour micro-invasion may be observed. Generally, foci of intra-tubular germ cell neoplasia appear absent [4,5].

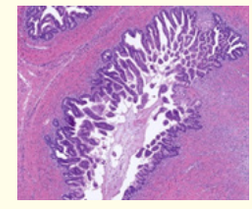

Figure 1: Mucinous borderline tumour depicting cystic spaces lined by pseudostratified mucinous epithelium smattered with goblet cells, tufting and papillae. Circumscribing stroma is fibrotic [10].

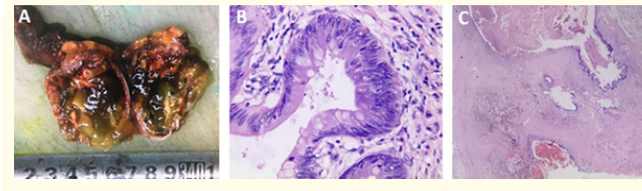

Figure 2: Mucinous borderline tumour delineating cystic spaces lined by pseudostratified mucinous epithelium with tufting. Circumscribing stroma is fibrotic. Mitotic figures are exceptional [11].

Tumour, Node, Metastasis (TNM) staging of carcinoma testis as per American Joint Committee on Cancer (AJCC) 8th edition [5].

Primary tumour

- TX Primary tumour cannot be assessed
- Tis Germ cell neoplasia in situ (GCNIS)
- T0 No evidence of primary tumour within the testis
- T1 Primary tumour confined to testis and rete testis. Vascular or lymphatic infiltration is absent. Tunica albuginea is invaded. Tumour invasion into tunica vaginalis is absent.
- Pure seminoma is subdivided as

- T1a Tumour magnitude < 3 centimetres
- T1b Tumour magnitude ≥ 3 centimetres

- T2 Tumour confined to testis, rete testis and extends into ≥ one components of testis as blood vessels, lymphatics, epididymis, adipose tissue confined to hilar soft tissue adjacent to epididymis or tunica vaginalis
- T3 Tumour extends into spermatic cord
- T4 Tumour extends into scrotum.

Regional lymph nodes

Clinical staging of regional lymph nodes is assessed with imaging techniques as computerized tomography(cN). Pathological staging of regional lymph nodes is assessed with dissection of regional, retroperitoneal, para-aortic, peri-aortic, inter-aortocaval, paracaval, pre-aortic, precaval, retro-aortic and retrocaval lymph nodes(pN).

- NX Regional lymph nodes cannot be assessed
- N0 Regional lymph node metastasis absent
- N1 Regional lymph node metastasis confined to one to five retroperitoneal lymph nodes with magnitude < 2 centimetres
- N2 Regional lymph node metastasis into minimally a singular enlarged lymph node or lymph node mass >2 centimetre and <5 centimetre diameter OR metastasis into >5 regional lymph nodes <5 centimetre diameter OR metastasis into minimally a singular lymph node between 2 centimetre and 5 centimetre diameter
- N3 Regional lymph node metastasis into minimally a singular enlarged retroperitoneal lymph node or lymph node mass > 5 centimetre magnitude OR metastasis into minimally a singular enlarged lymph node or lymph node mass > 5 centimetre diameter

Distant metastasis

- MX Distant metastasis cannot be assessed
- M0 Distant metastasis into distant lymph nodes or various organs absent
- M1 Distant metastasis into
  - M1a Metastasis into pulmonary parenchyma or distant lymph nodes as pelvic, thoracic, supraclavicular or visceral lymph nodes apart from retroperitoneal lymph nodes
  - M1b Distant metastasis into viscera as hepatic parenchyma, skeletal system or brain. Pulmonary parenchyma may or may not be incriminated.

Serum tumour markers

- SX Serum tumour marker levels unavailable
- S0 Serum tumour marker levels appear normal
- S1 Minimally a singular tumour marker level exceeds normal range as
  - Lactic dehydrogenase (LDH) <1.5 times upper normal limit (ULN)
  - βHCG < 5,000 mIu/mL
  - Alpha fetoprotein (AFP) <1,000 ng/mL
- S2 Minimally a singular tumour marker appears substantially above normal range as
  - Lactic dehydrogenase (LDH) between 1.5 times to 10 times upper normal limit (ULN)
  - βHCG between 5,000 to 50,000 mIu/mL
  - Alpha fetoprotein(AFP) between 1,000 to 10,000 ng/mL
- S3 Minimally ≥ one or more tumour markers are significantly elevated
  - Lactic dehydrogenase (LDH) > 10 times upper normal limit (ULN)
  - βHCG > 50,000 mIu/mL
  - Alpha fetoprotein (AFP)> 10,000 ng/mL

Prognostic stages of carcinoma testis [4,5].

- Stage 0: Tis, N0, M0, S0
- Stage I: T1 - 4, N0, M0, SX
- Stage IA: T1, N0, M0, S0
- Stage IB: T2 - 4, N0, M0, S0
- Stage IS: T1 - 4, TX, N0, M0, S1 - 3
- Stage II: T1 - 4, TX, N1 - 3, M0, SX
- Stage IIA: T1 - 4, TX, N1, M0, S0 - 1
- Stage IIB: T1 - 4, TX, N2, M0, S0 - 1
- Stage IIC: T1 - 4, TX, N3, M0, S0 - 1
- Stage III: T1 - 4, TX, N0 - 3, M1, SX
- Stage IIIA: T1 - 4, TX, N0 - 3, M1a, S0 - 1
- Stage IIIB: T1 - 4, TX, N1 - 3, M0, S2 OR T1 - 4, TX, N0 - 3, M1a, S2
- Stage IIIC: T1 - 4, TX, N1 - 3, M0, S3 OR T1 - 4, TX, N0 - 3, M1a, S3 OR T1 - 4, TX, N0 - 3, M1b, S0 - 3

Testicular mucinous borderline tumour appears immune reactive to cytokeratin CK7 and CK20 [6,7]. Testicular mucinous borderline tumour requires segregation from neoplasms as teratoma or distant metastasis from mucinous adenocarcinoma arising from appendix, colon, gastric region, pancreas, pulmonary parenchyma or prostate [6,7].

Cogent clinical evaluation appears mandatory for exclusion of distant metastasis from primary adenocarcinoma emerging within appendix, colon, gastric region, pancreas, pulmonary parenchyma or prostate. Ultrasonography depicts a cystic tumefaction confined to the testis, Tumour mass is impregnated with viscous fluid. Focal calcification, irregular, solid bulges or protrusions confined to the cyst wall and minimal vascularity may be discerned [7,8]. Serum levels of alpha fetoprotein(AFP), beta human chorionic gonadotropin(βHCG) or lactate dehydrogenase(LDH) appear within normal range. Renal function tests, inflammatory biomarkers and haematological parameters appear unaltered [7,8]. Testicular mucinous borderline tumour may be appropriately subjected to surgical manoeuvers as radical orchiectomy [8,9]. Tumour necessitates meticulous monitoring with evaluation of serum tumour markers, ultrasonography of scrotum, computerized tomography of abdomen and pelvis and procedures as colonoscopy or gastroscopy, which may be adopted in order to ascertain occurrence of distant metastases or various primary adenocarcinomas [8,9].

Bibliography

1. Ramakrishnan V., *et al*. "Primary Testicular Mucinous Adenocarcinoma-a Case Report and Review of Literature". *Indian Journal of Surgical Oncology* 15.1 (2024): 125-128.

2. Shi Y., *et al*. "Primary borderline mucinous tumour of the testis with postoperative metastasis: A rare case report". *Radiology Case Reports* 18.9 (2023): 3203-3205.

3. Wang Z and Cao H. "Borderline mucinous tumor of testis: a case report". Asian Journal of Surgery 44.10 (2024): 1336-1337.

4. Hao C., *et al*. "Primary Borderline Mucinous Testicular Tumor: A Case Report and Literature Review". *Frontiers in Oncology* (2021).

5. Gaddam SJ and Chesnut GT. "Testicle Cancer. Stat Pearls International. Treasure Island, Florida (2023).

6. MarMoch H., *et al*. "The 2016 WHO classification of tumours of the urinary system and male genital organs-part A: renal, penile, and testicular tumours". *European Urology* 70.1 (2016): 93-105.

7. Lei H., *et al*. "Primary mucinous adenocarcinoma of the testis: a case report and review of the literature" (2020).

8. Tanriverdi O., *et al*. "Management of a patient with primary mucinous testicular adenocarcinoma as a rare case with adjuvant and metastatic sequential treatments". *Journal of Oncology Pharmacy Practice* 26.6 (2020): 1520-1523.

9. Kim G*., et al. "*Mucinous cystadenoma of the testis: a case report with immunohistochemical findings". Journal of Pathology and Translational Medicine 51.2 (2017): 180-184.v

10. Image 1 Courtesy: Pathology outlines.

11. Image 2 Courtesy: Frontiers.com.