QUIZ 1 (2019-20)

Answers

Q 1-2: Leydig cell hyperplasia; 3-5 Intraductal carcinoma of prostate

1. **1**
2. **2**
3. **1**
4. **3**
5. **3.**

Q. 2. The lesion shown in the pictures, characteristically presents as

1. Well circumscribed, golden-brown intraparenchymal mass, forming the most common type of sex-cord stromal tumor (Leydig ell tumor).
2. Multiple foci pattern with interstitial growth between seminiferous tubules (Leydig cell hyperplasia).
3 Solid growth pattern, with expression of cytokeratin and synaptophysin (carcinoid).
1. Solid sheets of cells with sinusoidal growth pattern, and expression of Glypican 3 by the neoplastic cells (yolk sac tumor).

Q. 4 The lesion is associated with

1. *TMPRSS2-ERG* fusion in less than 18% of the cases (Ductal carcinoma ~11%)
2. *TMPRSS2-ERG* fusion in around 18% of the cases (HGPIN)
3. *TMPRSS2-ERG* fusion in ≥45% of the cases (Acinar and intraductal carcinoma)

4. No association with *TMPRSS2-ERG* fusion

Q. 5. The following morphologic feature/s is/are helpful in the diagnosis of the lesion:

1. Single or several glands with rounded contours, simple architecture, uniform nuclei with visible nucleoli on 20X lens. HGPIN
2. Back to back, large, infiltrative, cribriforming glands, with rounded punched out luminal spaces, lined by cuboidal cells with absence of basal cells. Infiltrating cribriform acinar carcinoma
3. Large acini with cribriform pattern, lined by cells displaying marked nuclear pleomorphism (nuclei > 6 times normal). Intraductal carcinoma
4. Cribriform glands with slit like lumens, pseuostratified tall columnar lining, often with amphophilic cytoplasm. Ductal adenocarcinoma

LEYDIG CELL HYPERPLASIA

Nodular aggregates of Leydig cells that occur in

- atrophic testis (including patients with Klinefelter's syndrome)
- in testicular parenchyma adjacent to germ cell neoplasia

Morphologically:

- Leydig cells infiltrate between seminiferous tubules without displacing or obliterating them.
- Common practice to consider any nodule 5 mm or greater as leydig cell tumor
- But this rule is arbitrary
- If the adjacent testicular parenchyma is atrophic and multiple foci of Leydig cell hyperplasia are evident, the presence of one or more

nodules measuring 5 mm or more should not trigger a diagnosis of 'tumor'

- The lesion should be described in the pathology report and a suggestion should be made to the clinician for establishing a medical reason for the findings of Leydig cell hyperplasia.
- In fact, the size of the nodule in this case was 6 mm, I changed it to 4 mm for the question. I called it Leydig cell hyperplasia.

INRADUCTAL CARCINOMA OF PROSTATE

- Defined as atypical glandular lesion that spans the entire lumen of prostatic ducts or acini, while the normal architecture is maintained
- Etiology/Pathogenesis
    - Usually associated with invasive acinar carcinoma
    - Rarely present as pure form with associated carcinoma
    - *TMPRSS2-ERG* fusion and loss of *PTEN* cytoplasmic expression in some proportion of cases
- Clinical Issues
    - Rarely identified in biopsies, - up to 0.3% without associated carcinoma; and 2.8% with invasive carcinoma
    - More common in prostatectomies – 20 to 40%
    - Associated with high grade, high volume, high stage prostatic acinar adenocarcinoma
    - Pure, without associated acinar adenocarcinoma, very rare in prostatectomies
- Microscopically
- Major criteria for diagnosis include

- Malignant epithelium filling large acini or ducts with preservation of basal cells and
    - Solid or dense cribriform architecture (tumor cells filling 50 to 70% of the involved glands); or
    - Loose cribriform or micropapillary pattern with either
        - Marked nuclear atypia and pleomorphism (nuclei 6x normal) or
        - Non focal comedonecrosis
- Treatment
    - Radical prostatectomy – treatment of choice
    - Re-biopsy – if found without invasive carcinoma
    - Androgen deprivative therapy – generally poor response
- Prognosis
    - Associated with high risk features and considered to follow aggressive course
    - Prostatectomies generally show
        - High Gleason score (median score 8)
        - Advanced stage, extra-prostatic and seminal vesicle invasion
- IHC
    - Cytoplasmic AMACR expression
    - Expression of basal markers
    - Nuclear ERG in subset of patients
    - Loss of cytoplasm PTEN in subset of cases