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A Rare Case of Testicular Seminoma with Unique Histomorphological Features

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Introduction

Seminomas are the most common testicular Germ Cell Tumors (GCT) accounting for almost 50% of all testicular GCT with a median age of presentation in the 5th decade [1,2]. Seminomas are believed to arise from Germ Cell Neoplasia In Situ(GCNIS) which rarely occurs in the pre pubertal age. After puberty the transformed germ cells can either progress to Seminoma or other non seminoma tumors as a result of gain or loss of specific chromosomal regions and/or associated kit mutations [3]. Risk factors for Seminoma include undescended testis, subfertility, family history and testicular microloithiasis in sub fertile patients [4].

Here we present a case of seminoma in a 25 year old male with left testicular mass. High inguinal orchidectomy was done for this patient.

Case history

The patient presented with heaviness of left side of scrotum and discomfort without pain since 8 months. On examination 8x6cm mass was palpable on left side of scrotum. Right testis was normal on palpation. On CT scan a diagnosis of non seminomatous germ cell tumor was considered.

Morphology and immunohistochemical findings

Grossly, the testits was 8x8x5.5cm in size and outer surface showed intact capsule and tunica vaginalis. On serial slicing a cream coloured fleshy tumor was seen involving the whole of testis while sparing the epididymis. Multiple small foci of necrosis were also seen in the tumor.

Microscopy

Extensive serial sections from the tumor showed an well circumscribed growth limited to testis. The tumor predominantly showed a microcystic and cord like arrangement with some areas showing intratubular growth. Focal areas showed nests of tumor cells separated by delicate fibrous septae. Lymphocytic infiltrate was seen within the fibrous septa. On higher magnification the tumor cells were monotonous, evenly spaced, had well defined pale to clear cytoplasm, rounded to polygonal nuclei with squared off edges having vesicular chromatin, prominent nucleoli and crisp cytoplasmic margins. Typical seminomatous morphology was not seen in the tumor and hence a differential diagnosis of yolk sac tumor was kept in consideration.

On immunohistochemistry the tumor cells showed diffuse cytoplasmic membrane positivity with CD 117 (ckit), Oct 3/4 and Placental Alkaline Phosphatase (PLAP). Immunostaining with Glypican was negative.

On the basis of minimal pleomorphism of tumor cells, typical cellular morphology and immunohistochemical features a diagnosis of Seminoma was made.

Discussion

Seminomas usually show a diffuse sheet like pattern of growth with intervening fibrous septa or sometimes a lobular pattern of growth. Cord like pattern, inter tubular pattern or microcytic pattern have been described in occasional cases of seminoma but they are usually present in small foci in an otherwise typical tumor. Tumors having a predominantly microcystic and cord like pattern without the typical sheet like or lobular pattern is rare and hence has to be differentiated from yolk sac tumor where these patterns are more common [5]. But in a yolk sac tumor it is seen that the microcystic spaces are often irregular and may form anastomosing channels. But more importantly the cells of yolk sac tumor are often flattened with compressed nucleoli and don't have a prominent nucleoli unlike Seminoma. And finally when morphology alone cannot differentiate between the two entities Immunohistochemistry can be of great help to the pathologist. While Seminomas typically show strong positivity for PLAP, OCT3/4, Podoplanin and CD117, yolk sac tumors are almost always positive for Glypican, AFP while showing variable positivity for PLAP and CD117. However OCT3/4 and Podoplanin are usually negative in yolk sac tumors and hence more reliable in differentiating from Seminoma [6].

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Conclusion

Differentiating Germ cell tumors from each other based on architectural patterns is not completely reliable and individual cellular morphology and immunohistochemistry findings should be given more weightage during diagnosis.

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