

Scrotal neoplasms: A histopathological study

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Abstract

Background: Testicular tumours are a heterogenous group of neoplasms with variable histopathology, clinical course and prognosis. A wide range of histologic types of testicular tumours are recognized, the majority of which originate from the germ cell. Tumours of the paratesticular tissue are encountered only rarely. **Methodology:** Retrospective study of eleven cases selected from the archives of the Pathology Department. Detailed clinical and laboratory information was recorded from the patient's files. The sections were prepared from formalin fixed paraffin-embedded tissues and stained with Haematoxylin and Eosin. **Results:** Out of the twelve cases studied, there were five cases of seminoma, two cases of mixed germ cell tumour and one case of Non Hodgkins Lymphoma of the testis. The cases of seminoma were in the age group of 25-65 years. Elevated levels of serum LDH were noted in all these cases. In the case of the mixed germ cell tumour alpha-fetoprotein and human Chorionic Gonadotrophin were found to be elevated. There were three cases of papillary cystadenoma and one adenomatoid tumour of epididymis. **Conclusion:** Germ cell tumours form the largest majority of the testicular tumours. Seminoma accounts for 50% of these. It is also the most likely germ cell tumour to present with a single histologic pattern. Mixed germ cell tumours are rare. Testicular lymphomas constitute 2% of all testicular neoplasms. Adenomatoid tumours are the most common tumours of the testicular adnexa.

Key Words: Testis, germ cell tumour, epididymal tumours.

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INTRODUCTION

Testicular malignancies are relatively rare tumour types accounting for approximately 1% of all male cancers globally.¹ They constitute the most common solid malignancies in men aged between 15 and 35 years.² The histopathological type and behaviour of these tumours significantly vary in each group.³ More than 90% of testicular neoplasms originate from germ cells.⁴ More than half of the tumours contain more than one tumour type. The various germ cell tumours include seminoma, embryonal carcinoma, yolk sac tumour, polyembryoma, choriocarcinoma, and teratoma⁵ Paratesticular tumours are uncommon intrascrotal tumours. Tumours of the

epididymis constitute less than 5% of all intrascrotal tumours and approximately 30% of all paratesticular tumours.⁶ Despite new techniques in imaging and tumour marker assay, diagnosis of testicular neoplasms is primarily dependent upon histopathological examination.⁷ They appear more frequently in adults, mostly between the second and the fifth decade of life, affecting the testicular tunica, rete testis and spermatic cord.⁸ A pathologist plays a key role in management of patients with testicular tumours by precisely classifying the tumour which will be helpful in making the decision between surveillance and further treatment.⁹

MATERIAL AND METHODS

Retrospective study of eleven cases selected from the archives of the Pathology Department. Detailed clinical and laboratory information was obtained from the patient's files. The sections were prepared from formalin fixed paraffin-embedded tissues and stained with Haematoxylin and Eosin.

RESULTS

In the present study, carried out over a period of 5 years, twelve patients of clinically recognized scrotal masses were studied and histopathological examination was

done. The details are shown in Table 1. A wide range of age distribution ranging from 17 to 60 years of age was observed. All the testicular tumours were orchidectomy specimens and presented with scrotal swellings. History of cryptorchidism was identified in one of the cases. In the present study, predominant right sided involvement of testis was seen and bilateral involvement was seen in only two cases. Preoperative assay of tumour marker showed elevated α -fetoprotein (AFP) and β -human chorionic gonadotrophin (hCG) levels in the case of immature

teratoma and increased levels of LDH in five cases. Out of the twelve cases studied, nine cases comprised of testicular tumours and four cases of para-testicular tumours. Among the testicular tumours there were five cases of seminoma, two cases of mixed germ cell tumour and one case of Non Hodgkins Lymphoma of the testis. Three cases of serous cystadenoma of epididymis and one case of adenomatoid tumour of epididymis were also seen. The classification was done according to the WHO.⁵

Table 1: Showing details of testicular and paratesticular tumours in this study

Sl. No.	Age (years)	Number of cases	Percentage	Laterality	Histopathological diagnosis	Serum markers
1	25-65	5	42	Right>Left	Seminoma, testis	LDH=2150
2	40-55	3	25	Right	Serous cystadenoma, epididymis	-
3	17-29	2	16	Right	Mixed germ cell tumour, testis	LDH=687U/L BETA HCG=862IU/ML AFP=2473.5
4	57	1	8	Right	Adenomatoid tumour , epididymis	-
5	62	1	8	Bilateral	Non-Hodgkins lymphoma, testis	Bcl2 andCD20 (B cell phenotype) strongly and diffusely positive

Among the germ cell tumours of one histologic type, Seminoma was the most common constituting 42% of the cases. It was observed between second and sixth decades of life. Grossly, the tumour was capsulated, grey white and nodular (Figure 1a). Microscopically, monotonous tumour cells arranged in sheets with distinct cell borders was noted (Figure 1b). Elevated levels of serum LDH were noted in these cases.

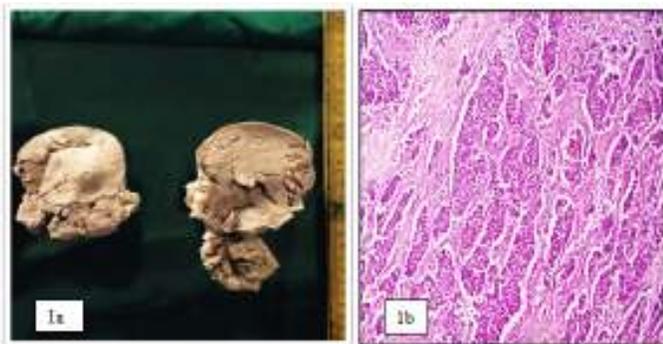


Figure 1a: Gross photograph of orchidectomy specimen of seminoma appearing capsulated with grey white areas. **1b:** Photomicrograph showing monotonous tumour cells in cords and sheets. (Haematoxylin and Eosin x 100)

Figure 1a: Gross photograph of orchidectomy specimen of seminoma appearing capsulated with grey white areas. **1b:** Photomicrograph showing monotonous tumour cells in cords and sheets. (Haematoxylin and Eosin x 100) Two cases of mixed germ cell tumours were studied. One of them comprising of yolk sac, embryonal, polyembryoma and seminomatous components. Alpha-fetoprotein and human Chorionic Gonadotrophin were found to be elevated in this case. There was a case of immature teratoma with yolk sac component (Figure 2). LDH, Beta hCG and AFP was found to be elevated.

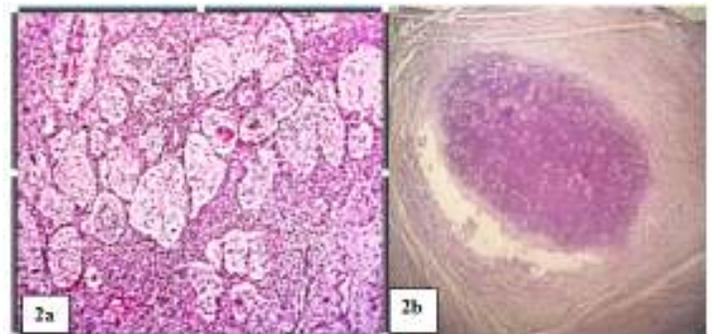


Figure 2a: Photomicrograph of mixed germ cell tumour showing yolk sac components (Haematoxylin and Eosin x 100). **2b:** Microscopy showing teratomatous component (Haematoxylin and Eosin x 100)

A solitary case of NHL, diffuse large B cell type was seen in a 62 year old. Bcl2 and CD20 showed strong and diffuse positivity. Gross examination revealed mostly fleshy, cream tan, homogenous mass. Microscopic examination showed round to oval tumour cells with visible nucleoli in some (Figure 3).

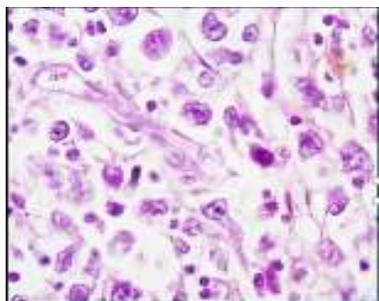


Figure 3: Microscopy showing round to oval tumour cells with visible nucleoli. (Haematoxylin and Eosin x 400)

Four cases of paratesticular neoplasms were seen in the present study, of which three cases were of serous cystadenoma of epididymis and one case of adenomatoid tumour of epididymis. Serous cystadenoma of epididymis was grossly cystic which on cut section yielded straw coloured fluid and appeared multiloculated. On microscopy, the cyst wall was lined by cuboidal to flattened epithelium (Figure 4).

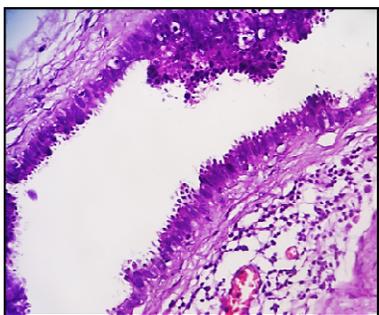


Figure 4: Microscopy of cystadenoma of epididymis showing cyst filled with intracystic papillary projections. (Haematoxylin and Eosin x 400)

Biopsy from epididymal tumour was diagnosed as adenomatoid tumour on histopathological evaluation. Neoplastic cuboidal cells having vacuolated cytoplasm with lymphoplasmacytic infiltrate was noted on microscopy (Figure 5).

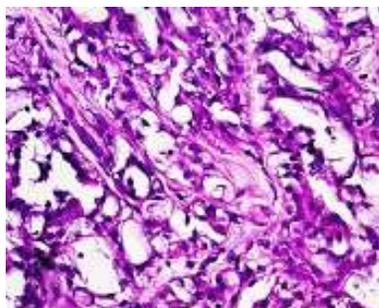


Figure 5: Microscopy of Adenomatoid tumour showing neoplastic tumour cells having vacuolated cytoplasm (Haematoxylin and Eosin x 400)

DISCUSSION

As described in literature, testicular tumours were rare in the present study. Testicular and paratesticular neoplasm are relatively less compared to other cancers, and constitute 10.5% of all male reproductive cancers in India.⁷ There is a marked discrepancy in the incidence of testicular tumours worldwide, with the Western countries^[10] showing a higher rate compared to African^{11,12} and Asian countries^{13,14,15}. Germ cell tumours (GCT) accounted for highest percentage of cases with a commonest type being seminoma. According to Mostof *et al*, germ cell tumours constitute more than 94% of testicular tumours.⁷ In the present study predominant right side involvement was seen similar to the studies by Gupta *et al* and Mahesh B Patel *et al*.¹⁶ Seminoma is the most common testicular neoplasm and comprises 40% to 50% of all testicular GCTs.⁵ In the present study, Seminoma was the most common neoplasm constituting about 42 % of all tumours. Similar finding was recorded in studies conducted by various authors, Mushtaq *et al* and Gupta *et al*.⁴ The next most common among testicular tumours was found to be mixed germ cell tumours. Similar findings were noted by Karki S *et al*.^[7] In the present study, we had two cases of mixed germ cell tumours, one comprising of yolk sac, embryonal, polyembryoma and seminomatous components and the other comprising of immature teratoma and yolk sac components. A single case of non Hodgkins lymphoma was studied in a 62 year old patient. Peak age of occurrence in non Hodgkins were also noted in men over 60 years in studies by Mushtaq *et al*¹⁴ and Karki *et al*.⁷ Non-Hodgkins lymphoma is the most common neoplasm presenting as metastasis to the testis. It may occur at any age, with most of the cases presenting in the sixth and seventh decades.¹⁷ Paratesticular tumours are masses with indolent growth pattern and in most cases they are of benign nature.⁸ Papillary cystadenoma of the epididymis is a rare benign neoplasm of the epididymis. Histopathologically, they are characterized by cysts filled with intracystic papillary projections. The papillae contain fibrovascular cores and are lined by a single layer of bland cuboidal or columnar epithelium.¹⁸ Adenomatoid tumour is a benign tumour of mesothelial cells. Microscopic features of adenomatoid tumour comprise of tumour cells arranged in cords and tubules of cuboidal to columnar cells with vacuolated cytoplasm and fibrous stroma¹⁹ In our study, histological examination revealed the presence of neoplastic cuboidal cells having vacuolated cytoplasm with lymphoplasmacytic infiltrate.

CONCLUSION

The incidence of testicular neoplasm remains low in India. Most common tumour was germ cell tumour in our study. Our study thus emphasizes the need for the

categorization of the various neoplasms of the testis especially the mixed germ cell tumours as their recognition has important prognostic and therapeutic implications.

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