

Histopathological Spectrum of Testicular Tumors in a Tertiary Care Centre

Aparna Dutta¹, Roshmi Gogoi²

¹Assistant Professor, ²Post-Graduate Trainee, Department of Pathology,
Assam Medical College, Dibrugarh, Assam, India

Abstract

Background: Testicular tumors are rare type of tumors affecting adolescents and young adults. However, in many western countries, its incidence has been increasing. These tumors contribute for 1-2% of all malignant tumors and most malignancy in men in the age-group of 15-25 years. This study was undertaken to analyse the histopathological pattern of testicular tumors at the tertiary level hospital in Assam Medical College, Dibrugarh highlighting pathological findings, diagnostic evaluation and laterality. **Objective:** The purpose of the study was to analyse the histopathological pattern, age-wise distribution and laterality of testicular tumors. **Materials and Method:** This one year study was performed in the Department of Pathology, Assam Medical College, Dibrugarh, India from January 2018 to December 2018. For the study, the orchidectomy specimens received in Pathology department were subjected to routine histopathological processing followed by a detailed gross and microscopic examination. Tumor typing and subtyping were done according to WHO classification (2004). **Results:** A total of 12 cases of testicular tumors were included in the present study. Out of these 12 cases, right testis was affected in 58.4% of cases whereas left testis was affected in 41.6% cases. Germ cell tumor was the most common type accounting for 91.5% of tumors followed by Sex cord stromal tumor (8.5%). Most tumors were seen between the age-group of 21-30 years. **Conclusion:** Testicular tumors are uncommon in our population. Study of testicular tumor is important for pathologist because grossly identifiable benign pathology may harbour focus of malignancy. At the end, we conclude that despite new technique in imaging and tumour marker assay, the diagnosis of testicular tumor is dependent on HPE only.

Keywords: Testicular tumor, Orchidectomy, Germ cell tumor, Sex cord stromal tumor, HPE

Introduction

Testicular tumors are the most common malignancy in men in the age-group of 15-35 years⁽¹⁾. More than 90% of the testicular neoplasm originates from germ cells. Although the testicular tumors are rare, it contributes to the 4th most common cause of death from neoplasia in a young male. It accounts for <1% of all malignancies in male⁽²⁾. Testicular carcinoma follows a reverse pattern to most cancers with decreasing incidence rate with

increasing age. The age distribution of testicular cancers is also distinct from other types of cancer.

Most of the tumors are from germ cell and about half of the tumors are mixed germ cell tumors. Various factors such as cryptoorchidism, trauma, infection, genetic and endocrine factors play an important role in the development of testicular tumors.

In 2014, WHO has classified testicular neoplasia in various sub-groups and some were incorporated in the present study⁽³⁾.

I – Germ cell tumor: Intratubular Germ Cell Neoplasia, Unclassified other types.

A – Tumor of one histological type (Pure forms)

Corresponding Author:

Dr. Roshmi Gogoi,

Post-Graduate Trainee, Department of Pathology,
Assam Medical College, Dibrugarh, Assam, India

E-mail id: Roshmi.gogoi55rg@gmail.com

Phone no: 8811818895

B – Tumor of more than one histological type (Mixed forms)

II – Sex cord/ Gonadal stromal tumors

A – Pure forms

B – Tumors containing both Germ cell and Sex cord/ gonadal Stromal elements

III – Miscellaneous tumors of the testis

IV – Haematopoietic tumors

V – Tumors of collecting duct and rete testis

VI – Tumors of paratesticular structure

VII – Mesenchymal tumors of the spermatic cord and testicular adnexa

VIII – Secondary tumors of the testis

Aims and Objectives

Our study was undertaken with the following objectives:

Histopathological spectrum

Laterality

Relative incidence of various testicular tumors among different age-groups

Materials and Method

A total of 12 cases of testicular tumors were analysed in this study in regard with their histopathological findings, age wise distribution and laterality.

The study was done on testicular radical orchidectomy specimens and biopsies of the 12 cases received in the Department of Pathology, Assam Medical college and Hospital, a tertiary care centre of Assam over a period of 1 year from January, 2018 to December 2018.

In laboratory, thorough gross examination was carried out and important points were noted down. The gross specimens received were fixed in 10% neutral buffered formalin for overnight fixation. Next day morning, gross examination of fixed specimen was done and the sections were taken from the representative sites. These sections were further processed into an automated tissue processor. After processing, sections were embedded in paraffin to make paraffin blocks. These

blocks were then cut serially using rotator microtome to prepare slides. Slides were then stained using routine Haematoxylin and Eosin stain and then mounted with DPX.

We classified the tumor based on WHO classification (2004).

Result

The study comprised of 12 cases

Histo-pathological spectrum:

On histological typing of the 12 cases according to WHO classification, a predominance of Germ cell tumors was seen (91.5%)

Of the 12 cases, 4 cases (33%) were mixed type of Germ cell tumors. 3 cases (25%) of Classical seminomas, 3 cases (25%) of Yolk Sac tumors, 1 case (8.5%) of teratoma were found along with 1 case (8.5%) of Sex cord stromal tumor (Leydig cell tumor).

	Tumor	No of cases	Percentage (%)
1	Germ Cell tumor	11	91.5
	Mixed germ cell tumor	4	33
	Seminoma	3	25
	Yolk sac tumor	3	25
	Teratoma	1	8.5
2	Sex cord stromal tumor	1	8.5

Age distribution:

Age (in years)	No of cases	Percentage (%)
<10	1	8.5
11-20	1	8.5
21-30	6	50.0
31-40	4	33.0
>40	0	0.0

Age of occurrence:

Tumor	Occurring age
Seminoma	24 yrs, 30 yrs, 31 yrs
Mixed germ cell tumor	19 yrs, 22 yrs, 23 yrs, 40 yrs
Yolk Sac tumor	5 yrs, 26 yrs, 33 yrs
Teratoma	30 yrs
Leydig cell tumor	31 yrs

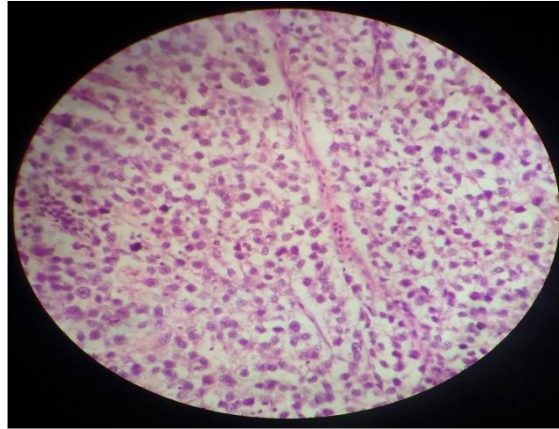
Laterality:

All the tumors were unilateral.

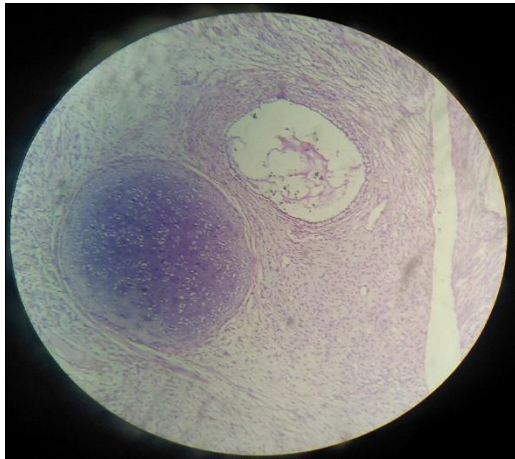
Side of testis	No of cases	Percentage (%)
Right	7	58.4
Left	5	41.6



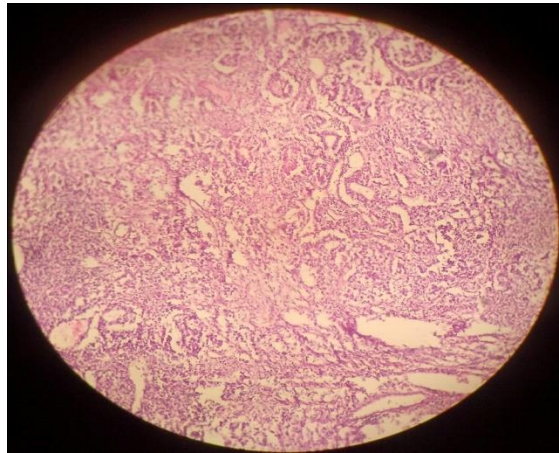
Gross Picture of Testicular Tumour



Seminoma in 40X



Teratoma in 40X



Yolk Sac Tumour in 40X

Discussion

Although the incidence of testicular tumor is low, it is one of the most common malignancies occurring in young adults.

In the present study, 12 cases of testicular tumors were studied. Various parameters were studied thoroughly and compared with various reknowned authors who studied testicular tumors.

In our study, age of patients presenting with testicular tumors ranged from 5 years to 40 years. Our findings were similar to the findings of Salako A. A et al (2010) ⁽⁴⁾ who found age variation of 4 to 70 years. We found maximum number of cases in the age range of 21-30 years. Our findings were in concordance with the findings of various other authors: Fischer C.G et al (1998) ⁽⁵⁾: 25-35 years, Gill et al (2000) ⁽⁶⁾: 20-29 years, Salako A.A et al (2010) ⁽⁴⁾: 20-39 years, Shirish et al (2012) ⁽⁷⁾: 21-39 years.

In our study, germ cell tumors comprised of 91.5% of all tumors. Among the germ cell tumors, 33% of the tumors were diagnosed as mixed germ cell tumor followed by seminoma (25%) and yolk sac tumor (25%) and teratoma (8.5%). Sex cord stromal tumor i.e Leydig cell tumor comprised 8.5%. Our findings were very close to the findings of Moghe et al (1970) ⁽⁸⁾ and Tsung-Hsun Tsai et al (2007) ⁽⁹⁾.

In our study, testicular tumors were predominately right sided (58.4%). This right sided predominance was observed by various other authors in their studies such as Deotra et al ⁽¹⁰⁾ (60%) and Shirish et al ⁽⁷⁾ (56%). There was no bilateral involvement.

Most of our findings were comparable to previous studies. Variation found may be because of small number of cases.

Conclusion

The incidence of testicular tumors still remains low in our population. Maximum number of patients was seen in the age range of 21-30 years (50%). Histologically, germ cell tumors accounted for highest percentage (91.5%) of cases. Right side of the testis gets affected in most of the cases. From this study, we conclude that despite new techniques in imaging and tumor marker assay, the diagnosis of the testicular tumors is dependent upon histopathological examination.

Source of Funding - Self

Ethical Clearance – Taken from Institutional Ethics Committee, Assam Medical College, Dibrugarh

Conflict of Interest: None

References

1. Russell SS. Testicular cancer: Overview and implications for healthcare providers. *Urol Nurs.* 2014 July-August; 34(4): p. 172-76,192.
2. Chapter in book: Sabiston; *Textbook of Surgery; Eighteenth edition; Volume II; Testis: 2280-2285*
3. Eble JN, Sauter G, Epstein JI, Sesterhenn IA. *The World Health Organisation classification of tumors of the urinary system and male genital system.* Lyon; 2004.
4. Salako AA. Testicular and paratesticular tumors in South-western Nigeria. *Afr Health Sci.* 2010; 10(1): p. 14-17.
5. Fischer CG, Waechter W, Kraus S, Perez EF, Weidner W, Dudeck J. Urologic tumors in the Federal Republic of Germany. *Cancer.* 1998; 82: p. 775.
6. Gill MS, Shah SH, Soomro IN, Kayani N, Hasan SH. Morphological pattern of testicular tumors. *Journal of Pakistan Medical Association.* 2000; 50(4): p. 110-3.
7. Chandanwale S, Chawala R, Buch A, Dharwadker A, Gore C, Rajpal M. Pathology of testicular tumors- Review of 50 cases. *Int J Pharma Biomed Sci.* 2012; 3(4): p. 167-176.
8. Moghe KV, Agarwal RV, Junnarkar RV. Tumors of the testis. *The Indian Journal of Cancer.* 1970 June;; p. 92-97.
9. Tsai TH, Tang SH, Huang WC, Wu ST, Lee SS, Cha TL. *J Med Sci.* 2007; 3: p. 121-124.
10. Deotra A, Mathur DR, Vyas MC. A 18 year study of testicular tumors in Jodhpur, Western Rajasthan. *J Postgrad Med.* 1994; 40: p. 68-70.