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## Histopathological pattern of testicular lesions in tertiary care hospital: our experience of 84 cases

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### Abstract

**Introduction:** Testicular cancers comprise 1% of all the male cancers worldwide. Various risk factors for development of testicular cancers include: a family history of testicular tumor in first degree relatives, infertility, cryptorchidism, Klinefelter's syndrome, 95% of testicular cancers arise from germ cells.

**Aims and objective:** To study the relative incidence of testicular lesions among different age groups and to study the various histo-morphological patterns of testicular lesions.

**Materials and methods:** All the patients those who are presented with testicular swelling and post orchietomy specimens are included in this study.

**Results:** Total testicular specimens received were 476, accounting for 1.49% of all surgical specimens. Of which 84 cases were diagnosed as tumors and tumor like lesions of testis accounting for 17.65%.

**Conclusion:** It is concluded that, despite new techniques in imaging and tumor marker assay the diagnosis of testicular lesions primarily dependent upon histo-pathological examination. Any testicular swelling must be evaluated thoroughly with clinic-pathological correlation to rule out malignancy.

**Keywords:** Testicular lesion, orchietomy, swelling

### Introduction

Testicular cancers comprise 1% of all the male cancers worldwide. Various risk factors for development of testicular cancers include: a family history of testicular tumor in first degree relatives, infertility, cryptorchidism, Klinefelter's syndrome and some other uncommon factors like trauma, hormones, etc. 95% of testicular cancers arise from germ cells<sup>[1]</sup>.

Being a very rare cancer in the Indian subcontinent, testicular cancer occurs in <1 in 100,000 populations (newly diagnosed cancer)<sup>[2]</sup>. On diagnosis, 1–2% of the cases are bilateral, and the predominant histology is germ cell tumor (90–95% of cases). In some cases, testicular neoplasia may initially be misdiagnosed as orchitis. Tumors may undergo regression, necrosis, and scarring (so-called burned-out germ cell tumors), and therefore some patients may have normal or small testes at presentation. This subgroup of patients, along with those who have an aggressive histologic tumor type, may present with metastases. The commonest presentation of testicular tumor is a nodule or painless swelling of one gonad along with other signs and symptoms like undescended testis or cryptorchidism, epididymo-orchitis, hydrocele, dull ache or dragging sensation in the lower abdomen or scrotum, and rarely infertility<sup>[4, 8]</sup>.

Various investigative modalities like X-ray, Ultrasound, CT scan, Intravenous urography, tumor marker assay are useful guide. The final diagnosis of testicular lesions is primarily dependent upon histo-pathological examination<sup>[5]</sup>.

Malignant tumors of the testicle are rare in the general population and the incidence of benign testicular tumors has been reported to be even more rare, including only 1 to 3.5 per cent of all testicular lesions<sup>[6]</sup>.

### Aims and objectives

1. To study the relative incidence of testicular lesions among different age groups.
2. To study the various histo-morphological patterns of testicular lesions.

### Materials and methods

This is an observational study. After the ethical committee approval, the patients presented

with swelling and pains in the testis are included in the study. The clinical details were recorded from the case records in all specimens. Each specimen was subjected to detailed gross examination and the histo-pathological features are noted on haematoxylin and eosin stained slides of all the specimens.

**Inclusion criteria:** All tumor and tumor like lesions of testis (post orchidectomy) are included in the study.

**Exclusion criteria**

1. Lesions of testis that occurring secondary to radiation-induced damage are not included in the present study.
2. Recurrent tumors of testis are not included in the present study.

**Study designs**

The present undertaken in Department of Pathology, The

study included 3 years retrospective and 2 years prospective. As the study covered all samples between October 2013 to October 2016 and November 2017 to November 2019, so we need not have exact sample size. Here we have taken duration. All orchietomy specimens were included in present study. It is an observational study.

**Statistical analysis**

Statistical analysis was done with the help of Microsoft excel, Office 2003 version software.

**Results**

During the study period of 5 years, 31,769 surgical specimens were received. Out of these, testicular specimens received were 476, accounting for 1.49% of all surgical specimens.

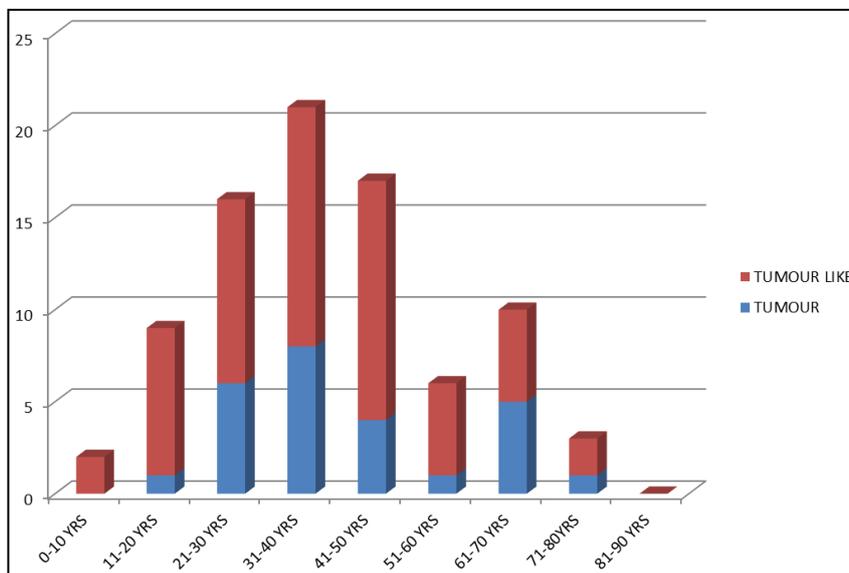
We have studied total 84 cases comprising both tumors and tumor like lesions of testis.

**Table1:** Distribution of testicular lesions. (N=84)

S. No.	Lesions	Total number of cases	Percentage
1	Tumor of testis	26	30.95%
2	Tumor like lesions	58	69.04%
3	Total	84	100%

Table 1, shows out of total 84 cases, 26 cases (30.95%) were histological confirmed as testicular tumor and 58 cases

(69.04%) as tumor like lesions of testis.



**Bar diagram 1:** Showing age wise distribution of tumor and tumor like lesion of testis.

Above bar diagram shows there are maximum number of cases in the age group 31-40 years with highest number of cases, Followed by 41-50 years.

**Table 2:** Laterality of testis involved. (N=84)

Side involved	Number of cases	Percentage
Right	45	53.58%
Left	39	46.43%
Total	84	100%

Table 2, shows in all testicular lesions, right testis involvement (53.58%) more common than the left testis (46.43%), No case of bilateral testicular involvement was found.

**Mode of presentation of testicular lesions**

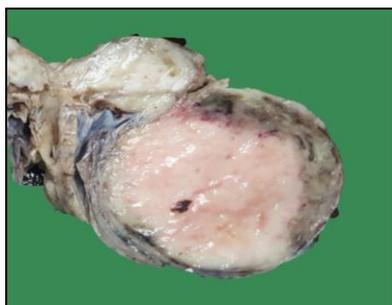
Maximum patients complained about testicular swelling (40.47%) followed by swelling with pain and fever (27.38%) followed by swelling with weight loss (32.14%)

**Incidence of tumor like lesions of testis. (N=58)**

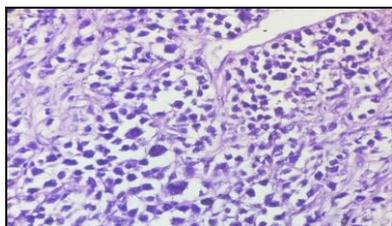
Distribution of tumor like lesions of testis shows majority of cases were of epididymo-orchitis constituting 35 cases i.e. 60.34% followed by 14 cases of torsion (24.14%). Infarction, nonspecific granulomatous diseases consisted 3 cases each i.e. 5.17%. Fibrous pseudo tumor, spermatocele, orchitis with adrenal rest with spermatic cord represented 1 cases each (1.72%)

**Incidence of testicular tumors. (N=26)**

Distribution of tumors of testis, maximum number of cases were of malignant mixed germ cell tumor 9 cases (34.61%). Amongst malignant mixed germ cell tumors, 3 cases were composed of teratoma and embryonal carcinoma. 3 cases were composed of teratoma and seminoma. 1 case was composed of yolk sac tumor and seminoma. 1 case was composed of seminoma, embryonal carcinoma, yolk sac tumor and teratoma. 1 case was composed of yolk sac tumor, teratoma and seminoma. Second highest number was of seminoma with 7 cases (26.92%). Lymphoma constituted of 4 cases (15.38%). Spermatocytic tumor and embryonal carcinoma represented 2 case each (7.69%). Malignant teratoma and Leydig cell tumor constituted 1 case each (3.84%).



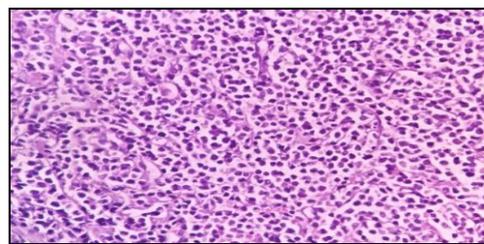
**Fig 1a:** Gross picture (cut section) of seminoma: Solid, homogenous with sharply circumscribed. Cut section is fleshy.



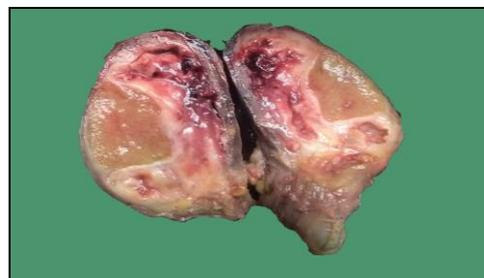
**Fig 1b:** Micrograph of seminoma (H&E stain, 40x): Shows Relatively uniform cells evenly spaced with abundant clear cytoplasm, sharply outlined cell membranes, and large centrally located nuclei with finely granular chromatin.



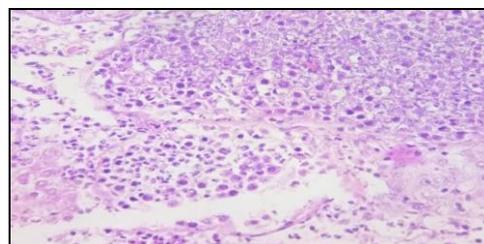
**Fig 2a:** Gross picture (cut section) of Non-Hodgkin's lymphoma: Shows solid homogenous tumor replacing almost all testicular parenchyma.



**Fig 2b:** Micrograph of Non-hodgkin's lymphoma (H&E stain, 40x): shows predominant interstitial proliferation of tumor cells.



**Fig 3a:** Gross picture (cut surface) of epididymo-orchitis: showing abscess formation with marked destruction of testicular parenchyma



**Fig 3b:** Microscopic picture of epididymorchitis. (H & E stain 40x): shows numerous polymorphnuclear leucocytes and few histiocytes.

**Discussion**

The present study dealt with tumor and tumor like lesions of testis and was based on total 84 cases over a period of 5 years.

**Incidence**

During the present study period of 5 years, 31,769 surgical specimens were received. Out of these, testicular specimens received were 476, accounting for 1.49% of all surgical specimens.

M S R *et al.* 2018 <sup>[10]</sup> reported incidence of testicular lesion was 1.47% of all surgical specimens. Similar incidence is reported in our study.

**Table 3:** Comparative analysis of tumor and tumor like lesions

Study group	Sanjay M <i>et al.</i> (2016) <sup>[11]</sup>	M SR <i>et al.</i> (2018) <sup>[10]</sup>	Singh SR <i>et al.</i> (2018) <sup>[9]</sup>	Present study
Tumors of testis	28.07%	30.50%	20%	30.95%
Tumor like lesions	82.54%	69.50%	80%	69.04%

Sanjay M *et al.* 2016 <sup>[11]</sup> reported total 59 cases out of which tumor like lesions were 41 (82.54%) and tumor of testis

were 16 (28.7%). M SR *et al.* 2018 <sup>[10]</sup> reported total 59 cases out of which tumor like lesions were 41 (69.50%) and

tumor of testis were 18 (30.50%) which is in close agreement with present study. Singh SR *et al.* 2018<sup>[9]</sup> reported total 50 cases out of which tumor like lesions were 40 (80%) and tumors of testes were 10 (20%). In present study, incidence of tumor and tumor like lesions are comparable with M SR *et al.* 2018<sup>[10]</sup> and Sanjay M *et al.* 2016<sup>[11]</sup>.

### Comparative analysis of most commonly involved age group

In present study lesions, minimum numbers of cases were observed in the age group of 0-10 years which consist of 2 cases i.e. 2.38% & maximum numbers of cases were observed in age group 31-40 years i.e. 25%.

Sanjay M *et al.* (2016)<sup>[11]</sup> reported maximum cases in 31-40 age group i.e. 35.60%, M SR *et al.* 2018<sup>[10]</sup> reported maximum cases in 31-40 age group constituting 22.03%. Singh SR *et al.* (2018)<sup>[9]</sup> also reported maximum cases in same age group 22%. All these findings are close to the present study.

### Laterality of lesion

In present study lesions were more common in right side constituting 45 cases i.e. 53.58% & left side was involved in 39 cases i.e. 46.43%. Sanjay M *et al.* 2016<sup>[11]</sup> reported right testis involved more than left i.e. 31 case constituting 52.54%. M SR *et al.* (2018)<sup>[10]</sup> reported right testis involved more than left i.e. 35 case constituting 59.32%. Singh SR *et al.* (2018)<sup>[9]</sup> did not comment about the laterality of lesions. Our study is resembles with the previous studies done by Sanjay M *et al.* 2016<sup>[11]</sup> and SR *et al.* 2018<sup>[10]</sup>.

### Mode of presentation

In present study, mode of presentation was scrotal swelling i.e. 34 cases (40.74%) and swelling along with pain and fever in 23 case (27.38%). Weight loss was noticed along with these symptoms in 27 cases (32.17%). Sanjay M *et al.* 2016<sup>[11]</sup> reported scrotal swelling as most common mode of presentation constituting 93.22%. Singh SR *et al.* (2018)<sup>[9]</sup> also mentioned that majority of cases were scrotal swelling. Our study also shows comparable results.

### Distribution of tumor like lesions

In present study majority of cases were of epididymo-orchitis constituting 35 cases i.e. 60.34% followed by 14 cases of torsion of cases (24.14%) infarction, nonspecific granulomatous diseases consisted 3 cases each i.e. 5.17%. fibrous pseudo tumor, spermatocele, orchitis with adrenal rest in spermatic cord represented 1 cases each (1.72%).

Sanjay M *et al.* 2016<sup>[11]</sup> reported maximum cases of non-specific orchitis constituting 80.49% of cases. M SR *et al.* (2018)<sup>[10]</sup> reported maximum cases of non-specific orchitis constituting 55.93% of cases and one case of granulomatous orchitis constituting 2.44%. Manasi Sharma *et al.* 2017<sup>[7]</sup> reported 18.86% of cases of torsion. Dhawle M *et al.* 2001<sup>[12]</sup> reported 17.54% of cases of torsion. Fibrous pseudo tumor, spermatocele, orchitis with adrenal rest with spermatic cord represented 1 cases each (1.72%) Present study is comparable with the above studies.

### Distribution of tumors of testis

In present study maximum number of cases were of

malignant mixed germ cell tumor 9 cases (34.61%) followed by seminoma with 7 cases (26.92%). Lymphoma constituted of 4 cases (15.38%). Spermatocytic tumor and embryonal carcinoma represented 2 case each (7.69%). Malignant teratoma and Leydig cell tumor constituted 1 case each (3.84%)

Deore Ket *al.* (2015)<sup>[3]</sup> reported case of malignant teratoma accounting for 1% which is in close agreement with the present study (3.84%). Sanjay M *et al.* 2016<sup>[11]</sup> reported maximum cases of seminoma constituting 38.90% followed by mixed germ cell tumor 33.33%. 2 cases each of teratoma and lymphoma constituting 11.11% each. Singh SR *et al.* (2018)<sup>[9]</sup> reported maximum cases of seminoma constituting 40% followed by mixed germ cell tumor 33.33%. Teratoma constitutes 10% of tumors and lymphoma constitutes 2% of tumors of testis. M SR *et al.* 2018<sup>[10]</sup> reported maximum cases of seminoma constituting 38.90% followed by mixed germ cell tumor 33.33%. Teratoma and lymphoma constitutes 11.11% each. Non-Hodgkin's lymphoma is an uncommon disease. It comprises 5% of all testicular neoplasm. In the present study we found 4 cases of Non-Hodgkin's lymphoma (15.38%) similar to previous studies by Sanjay M *et al.* 2016<sup>[11]</sup> and Deore K *et al.* 2015<sup>[3]</sup> but it was higher than previous studies by Takumalla *et al.* 2019<sup>[13]</sup>. Dhawle M *et al.* 2019<sup>[12]</sup> reported seminoma constituting 30.70% and malignant mixed germ cell tumor constituting 46% which is in close agreement with present study

### Conclusion

It is concluded that, despite new techniques in imaging and tumor marker assay the diagnosis of testicular lesions primarily dependent upon histo-pathological examination. Any testicular swelling must be evaluated thoroughly with clinico-pathological correlation to rule out malignancy and helps in determining the prognosis of these rare tumor and tumor like lesions of testis.

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