

## Original Research Article

# Clinicopathological study of testicular lesions

Manjusha Dhawle, Ashwini Tangde\*, Anil Joshi, Rajan Bindu

Department of Pathology, Government Medical College, Aurangabad, Maharashtra, India

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**\*Correspondence:**

Dr. Ashwini Tangde,

E-mail: [ash.51090@gmail.com](mailto:ash.51090@gmail.com)

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### ABSTRACT

**Background:** Testis is affected by both neoplastic and non neoplastic conditions. Non neoplastic lesions of the testis include epididymo-orchitis, testicular atrophy, undescended testis, testicular abscess etc. Testicular tumors are relatively rare. They constitute the 4<sup>th</sup> most common cause of death from neoplasia in the young males. This study was undertaken to study the histopathological spectrum, age wise distribution and clinical symptoms of testicular lesions.

**Methods:** This is a retrospective study of three years conducted in the department of pathology, Aurangabad from June 2015 to May 2018. It included all the orchidectomy specimens received from the department of surgery and excluded the orchidectomy specimens sent for infertility and prostatic carcinoma. A detail clinical history was taken. Histopathological examination was done after routine processing and staining with H and E. The data collected was tabulated, analysed and compared to other similar studies.

**Results:** We studied 70 cases. Non neoplastic testicular lesions were 57 and 13 were neoplastic. Non neoplastic testicular lesions were more common than the neoplastic ones. Non neoplastic testicular lesions presented most commonly in the 2<sup>nd</sup> decade. Most common non neoplastic lesion was epididymo-orchitis followed by torsion, atrophy and testicular abscess. Most common neoplasm was malignant mixed germ cell tumor. Most of the patients of neoplasms presented in the 3<sup>rd</sup> decade. The most common complaint was testicular swelling and pain.

**Conclusions:** Majority of testicular lesions are non neoplastic. Neoplastic lesions are rare. Non neoplastic lesions mimic neoplastic ones clinically, as testicular swelling is the most common complaint. So histopathological diagnosis is necessary for an accurate diagnosis of testicular lesions.

**Keywords:** Epididymo-orchitis, Malignant mix germ cell tumor, Seminoma, Undescended testis

### INTRODUCTION

Testis is a male gonad, it is homologous with the ovary of the female genital system and it is a unique and important organ of male reproductive system.<sup>1</sup> They are a paired oval organ that lies within the scrotum suspended by spermatic cord.<sup>2</sup>

There are various testicular lesions. They may be non neoplastic or neoplastic. They may be seen from paediatric age group to adult age group. They may present with scrotal swelling, pain, fever. Non neoplastic lesions of the testis include epididymo-orchitis, testicular

atrophy, undescended testis, testicular torsion, abscess etc.

Undescended testis is the commonest genital malformation of boys and is found in approximately 1% of one year old boys.<sup>3</sup> Atrophy of testis may result from cryptorchidism, orchitis of mumps, liver cirrhosis, estrogen administration, radiation exposure, chemotherapy, AIDS and exposure to environmental toxins.<sup>4</sup> Torsion of testis is a surgical emergency commonly seen in 10-25 years of age.<sup>5</sup> Non specific epididymo-orchitis is commonly related to infections in the urinary tract and its cause varies with age. It may

progress to frank abscess formation.<sup>6</sup> The testicular tumors are relatively rare. They constitute 4<sup>th</sup> most common cause of death in young males. They account for less than 1% of malignancies in the males.<sup>7</sup> The incidence of testicular neoplasm is rising in the past 50 years.<sup>8</sup> Though the etiology of testicular cancer is not well understood, various factors such as cryptorchidism, trauma, infections and genetic and endocrine factors appear to have a role in their development.<sup>9</sup> Despite new techniques in imaging and tumor marker assays, the diagnosis of testicular lesions is primarily depends upon histological examination.<sup>5</sup>

The present study is undertaken to study the diverse clinical and histopathological patterns of testicular lesions.

## METHODS

This is a retrospective study carried out in a tertiary care centre in the department of pathology from June 2015 to May 2018. The study consists of 70 cases. It included the orchidectomy specimens received from the department of surgery. The bilateral orchidectomy specimens of prostatic carcinoma patients and specimens sent for infertility, were excluded from our study.

A detail clinical history was taken. Routine hematogram, x-ray chest, ultrasound of abdomen, CT scan, when required serum marker assays for Alfa fetoproteins, beta human chorionic gonadotropin were done.

The specimens were fixed in 10% formalin. Gross features were noted down and then multiple representative tissue sections of 3-4mm thickness varying from 2 to 6 sections from tumor, part of normal testicular tissue, epididymis, and spermatic cord (surgical margin) were taken. Then routine processing was carried out. Slides were stained with hematoxylin and eosin stain. Special stains were not done.

Histological features were studied in detail and correlated with other findings such as clinical, gross features, and tumor marker values mainly in germ cell tumors. The data collected was tabulated, analysed and compared to other similar studies.

## RESULTS

The study consists of 70 cases out of which 57 cases were non neoplastic and 13 cases were neoplastic lesions. Table 1 and 2 show the age wise distribution of non neoplastic lesions and neoplastic lesions of testis.

Youngest patient in non neoplastic lesions was 8 years old while the oldest patient was 78 years old. Maximum number of patients presented in the second decade of life (24.56%) followed by the fifth decade (17.54%).

Among the neoplastic lesions the youngest patient was 20 years old while the oldest patient was 72 years old. Maximum number of malignant lesions were present in the third decade of life (38.46%).

**Table 1: Histopathological spectrum of non neoplastic lesions of testis along with age distribution.**

Lesion	Age (yrs)	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	Total No (%)
Epididymo-orchitis	-	-	3	3	5	2	4	3		20(35.08)
Abscess	-	-	1	1	4	2	-	-		8(14.03)
Torsion	-	7	2	1	-	-	-	-		10(17.54)
Undescended testis	1	3	-	-	-	-	-	-		4(7.01)
Atrophic testis	-	3	2	3	-	1	-	-		9(15.78)
Granulomatous E-O	-	1	-	-	-	-	-	-		1(1.75)
Gangrene	-	-	1	-	-	1	-	-		2(3.50)
Hydrocele	-	-	-	-	-	1	-	-		1(1.75)
Pyocele	-	-	-	-	-	1	-	-		1 (1.75)
Spermatocele	-	-	-	-	-	1	-	-		1(1.75)
Total		1	14	9	8	9	9	4	3	57
No (%)		(1.75)	(24.56)	(15.78)	(14.03)	(15.78)	(15.78)	(7.01)	(5.26)	(81.42)

Patients with testicular lesions presented with testicular swelling, pain, fever. Maximum patients complained about testicular swelling (84.2%) (Table 3). All the non neoplastic and neoplastic lesions of the testis had unilateral involvement.

Amongst the non neoplastic lesions of testis, maximum number of cases were of epididymo-orchitis 20 cases (35.08%) (Figure 1 and 2), followed by torsion 10 cases (17.54%), testicular atrophy 9 cases (15.78%) and abscess 8 cases (14.03%). We found 4 cases (7.01%) of undescended testis out of total 57 cases. None of them showed malignancy.

The patients with epididymo-orchitis presented from age range of 22 years to 78 years, that of abscess from 25

years to 55 years; torsion of 11 years to 25 years and undescended testis from 8 years to 20 years.

**Table 2: Age distribution of neoplastic testicular lesions.**

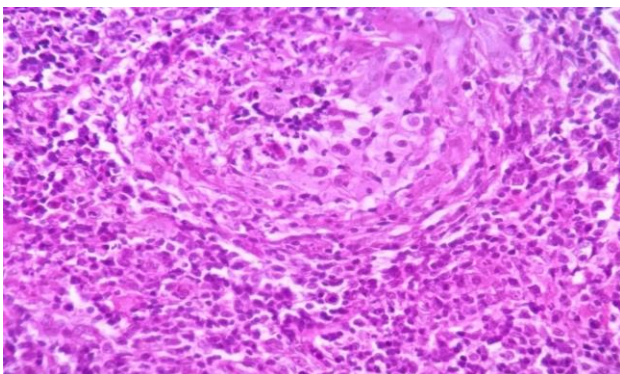
Age group(yrs)	Seminoma	Embryonal Ca	MMGT	NHL	Total No (%)
10-20	-	-	1	-	1(7.69)
21-30	-	1	4	-	5(38.56)
31-40	1	1	-	-	2(15.38)
41-50	-	-	1	-	1(7.69)
51-60	1	-	-	-	1(7.69)
61-70	2	-	-	-	2(15.38)
>70	-	-	-	1	1(7.69)
Total No (%)	4(30.76)	2(15.38)	6(46.15)	1(7.69)	13(18.58)

**Table 3: Mode of presentation of testicular lesions.**

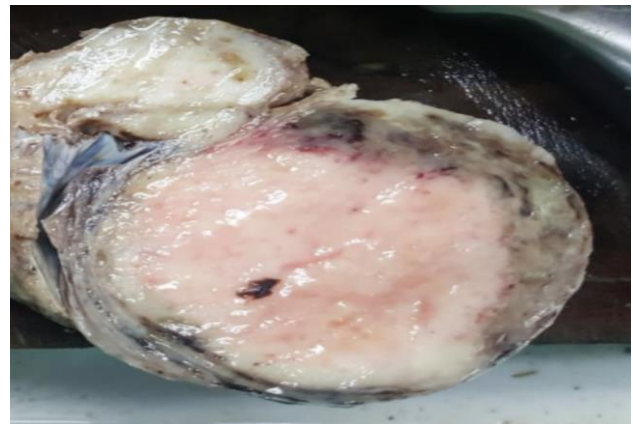
Mode of presentation	No of cases (n=70)	Percentage (100%)
Testicular swelling	59	84.20%
Testicular pain	47	67.14%
Fever	30	42.85%
Weight loss	15	21.40%
Anorexia	13	18.57%



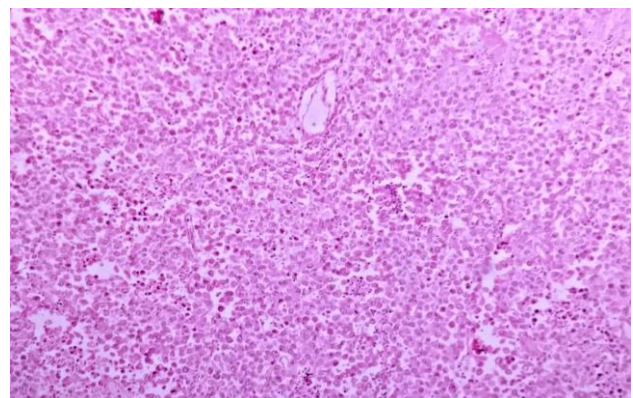
**Figure 1: Gross picture of epididymo-orchitis.**



**Figure 2: Microphotograph of epididymo-orchitis (H and E 200x).**



**Figure 3: Gross picture of seminoma.**

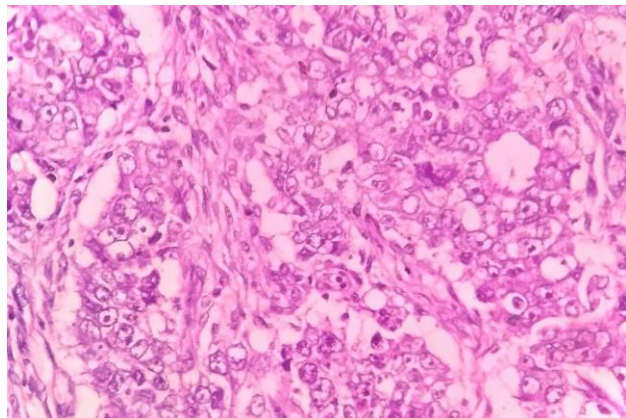


**Figure 4: Microphotograph of seminoma (H and E 200x).**

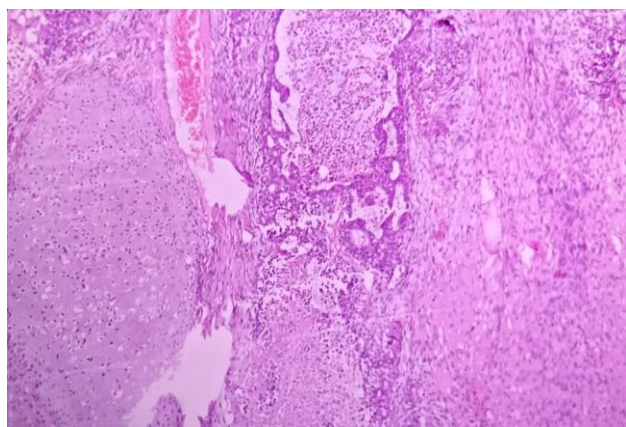
Amongst the neoplastic lesions of testis, maximum number of cases of were malignant mixed germ cell tumor (46.15%) (Figure 6) followed by seminoma (Figure 3 and 4) (30.76%) and embryonal carcinoma (15.38%) (Figure 5) and of Non hodgkins lymphoma (7.69%) (Figure 7). Out of 6 cases of malignant mixed



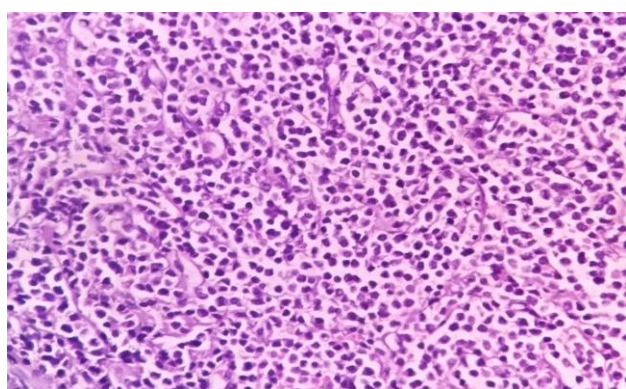
germ cell tumor 3 cases show raised alfa fetoproteins, beta human chorionic gonadotropin levels.



**Figure 5: Microphotograph of embryonal carcinoma (H and E 400x).**



**Figure 6: Microphotograph of malignant mixed germ cell tumor (teratoma+ embryonal ca) (H and E 200x).**



**Figure 7: Microphotograph of non Hodgkin's lymphoma (H and E 200X).**

## DISCUSSION

In our study the non neoplastic testicular lesions (81.42%) were more common than the neoplastic ones (18.58%). These findings are similar to the findings of

Patel MB (85% and 15% respectively), Reddy H (86% and 14% respectively), but does not correlate with Mahesh BP (20% and 80% respectively) (Table 4).<sup>5,10,9</sup>

**Table 4: Comparison of percentage of incidence of benign and malignant lesions.**

Authors(years)	Benign	Malignant
Mahesh BP (2013) <sup>9</sup>	20%	80%
Patel MB (2015) <sup>5</sup>	85%	15%
Reddy H (2016) <sup>10</sup>	86%	14%
Present study (2018)	81.42%	18.58%

Testicular swelling was the commonest symptom in the present study which is similar to the previous studies by Patel MB and Reddy H.<sup>5,10</sup>

The most common non neoplastic testicular lesions vary from study to study. Out of all non neoplastic lesions in our study, epididymo-orchitis were (35.02%) followed by torsion (17.54%) and testicular atrophy (15.78%). The incidence of epididymo-orchitis was higher in our study as compared to Patel MB and Reddy H.<sup>5,10</sup> While the percentage of testicular atrophy in our study is similar to the study done by Reddy H.<sup>10</sup> We found non neoplastic lesions in the second decade of life which were similar to the findings of Patel MB<sup>5</sup> (Table 5).

**Table 5: Comparison of histological type of non neoplastic testicular lesions.**

Lesions	Patel MB (2015) <sup>5</sup> N=85	Reddy H (2016) <sup>10</sup> N=86	Present study N=57
Epididymo-orchitis	9.4%	3.5%	35.08%
Torsion	55.29%	22.1%	17.54%
Atrophic testis	-	19.8%	15.78%
Abscess	16.47%	19.7%	14.03%
Undescended testis	8.24%	14%	7.01%

In our study most of the neoplastic lesions were seen in third decade (38.46%). In our study we found a higher incidence of malignant mixed germ cell tumor (46.15%) which was similar to the study done by Reddy H but Gupta A observed a lower incidence.<sup>10,11</sup> The incidence of seminoma in our study was lower than the studies of Patel MB, Reddy H and Gupta A, but similar to the study by Deore KS.<sup>5,10,11,12</sup> The incidence of embryonal carcinoma in our study was 15.38% which is similar to the findings by Gupta A and it is higher than Reddy H (Table 6).<sup>11,10</sup>

Non-Hodgkin's lymphoma is an uncommon disease. It comprises 5% of all testicular neoplasm. It is most common testicular tumors in the elderly. In the present study we found 1 case of Non-Hodgkin's lymphoma (7.69%) in a 72 years male.

**Table 6: Comparison of histological type of testicular neoplasm in various studies.**

Tumor type	Patel MB (2015) <sup>5</sup> N=15	Reddy H (2016) <sup>10</sup> N=14	Gupta A (2016) <sup>11</sup> N=50	Present study N=13
Seminoma	40%	42.9%	48%	30.76%
Embryonal CA	-	7.2%	16%	15.38%
MMGT	-	43%	16%	46.15%

MMGT: malignant mixed germ cell

## CONCLUSION

Majority of the testicular lesions are non neoplastic than the neoplastic lesions. Non neoplastic lesions of the testis are common in the 2nd decade followed by 5th decade of life, while neoplastic lesions are common in the 3rd decade of life. Testicular swelling was the most common complaint. Amongst non neoplastic lesions epididymo-orchitis was the predominant finding. Amongst neoplastic lesions malignant mixed germ cell tumor was the commonest followed by seminoma and embryonal carcinoma.

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