

HISTOLOGICAL SPECTRUM OF PATHOLOGIC LESIONS OF ORCHIDECTOMY SPECIMENS

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Abstract

Background: Testicular lesions have a varied histomorphological spectrum and are classified as non-neoplastic and neoplastic lesions. **Aim:** To study the histomorphological spectrum of testicular lesions over two years, including both neoplastic and non-neoplastic lesions. **Materials and Methods:** This observational study was carried out in the pathology department of Coimbatore Medical College Hospital, a tertiary care hospital in southern India, for two years, from January 2021 to January 2023. A total of 50 radical orchidectomy specimens were included in the study, and their gross and microscopic findings were studied. **Result:** This study included 50 orchidectomy specimens, among which eight were done for therapeutic purposes like prostrate cancer, carcinoma penis, etc. Remaining are done for various causes like torsion, infective causes, Undescended testis, Primary testicular tumor, trauma, etc. Among 50 cases, 37 were non-neoplastic lesions, 5 were neoplastic lesions, and 8 were therapeutic orchidectomies. Age-wise distribution of patients varies from 5 months to 77 years old. Neoplastic lesions were prevalent in the 3rd and 4th decades. Four primary testicular tumors were noted in the 3rd and 4th decades and 1 in the 5th decade. Prophylactic orchidectomy was done for 8 cases, all above 60 years. Non-neoplastic lesions were more prevalent in the younger age group. Among 37 non-neoplastic lesions, 20 cases fall within 20yrs, and 11 cases in the 3rd and 4th decades. **Conclusion:** Testicular lesions constitute only 10% of orchidectomies. Among Neoplastic lesions, mixed germ cell tumors predominate (80%) and 20% seminoma.

INTRODUCTION

The various pathological conditions affect the testes, including congenital anomalies, inflammations and tumors. Orchidectomy is performed to remove testes in cases of tumors, trauma and undescended testis. Testicular biopsies are done for the diagnosis of infertility. In infertility biopsies, maturation arrest in spermatogenesis was the most common finding. Testicular neoplasms comprise the most common solid malignancy affecting males aged 15 to 35, even though they represent only 1% of the solid tumor of men. Testicular neoplasms can be divided into two main categories, germ cell tumors and sex cord-stromal tumors. Germ cell tumors are subdivided into seminoma and non-seminomatous tumor. Seminomas are commonest testicular malignant tumors seen worldwide. Most germ cell tumors are aggressive tumors that spread rapidly but respond very well to radiotherapy. Sex cord-stromal tumors are most commonly benign.

Orchidectomy was done for various causes like testicular torsion, infectious aetiology, and carcinoma. Non-neoplastic lesions include Torsion testis, Epididymo- orchitis, Testicular abscess, Undescended Testis and trauma.

Neoplastic lesions include Germ cell tumor, sex cord-stromal tumors, mixed tumors and paratesticular tumors.

Testicular lesions occur in varying age groups ranging from children to older age groups. Non-neoplastic lesions are more common in younger than in older age groups. Neoplastic lesions are more common in the older age group than in the young age.

Aim

The study aims to analyse the histomorphological spectrum of testicular lesions, including non-neoplastic and neoplastic lesions, and the age-wise distribution of non-neoplastic and neoplastic lesions.

MATERIALS AND METHODS

This observational study was done in Coimbatore medical college and hospital, a tertiary care hospital in southern India, for two years, from January 2021 to January 2023.

A total of 50 orchidectomy specimens were included in the study.

The orchidectomy specimens received in our department for various reasons, including both neoplastic and non-neoplastic lesions, therapeutic orchidectomy specimens were also included. Testicular biopsies were excluded.

The orchidectomy specimens were received in formalin. After overnight fixation, the gross features of orchidectomy specimens were noted. Then the representative areas were taken and processed, and the slides were stained with routine hematoxylin and

eosin stains. The slides were then viewed microscopically, and morphology was recorded.

All data were entered into MS excel and calculated. The data were presented in frequency and percentage.

RESULTS

This study included 50 orchidectomy specimens, among which eight were done for therapeutic purposes like prostrate cancer, carcinoma penis, etc. Remaining are done for various causes like torsion, infective causes, Undescended testis, Primary testicular tumor, trauma, etc.

In our study, among 50 cases, 37 were non-neoplastic lesions, 5 were neoplastic lesions, and 8 were therapeutic orchidectomies [Table 1].

Table 1: Distribution of Testicular lesions

Lesions	No of cases	%
Non neoplastic lesion	37	74%
Neoplastic lesion	13	26%

Age-wise distribution of patients varies from 5 months to 77 years old. Neoplastic lesions were prevalent in the 3rd and 4th decades. Four primary testicular tumors were noted in the 3rd and 4th decades and 1 in the 5th decade. Prophylactic orchidectomy was done for 8 cases, all above 60 years.

Non-neoplastic lesions were more prevalent in the younger age group. Among 37 non-neoplastic lesions, 20 fall within 20 years, and 11 cases in the 3rd and 4th decades [Table 2].

Table 2: Distribution of non-neoplastic and neoplastic lesions

Lesions		No of cases	%
Non-neoplastic lesions	Torsion testis	24	48%
	Epididymo-orchitis and Testicular abscess	11	22%
	Undescended Testis	2	4%
Neoplastic lesions	Primary Testicular tumors	5	10%
	Prophylactic orchidectomy	8	16%

Among Non-neoplastic lesions, Torsion Testis constitute the major cause of orchidectomy. Torsion Testis is more common in children aged up to 20 years. Common non-neoplastic lesions are infectious, like Nonspecific Epididymo-orchitis and testicular abscess. Other causes are Undescended testis (4%), and trauma (1%) constitute minor causes.

Among neoplastic lesions, 4 cases were Mixed germ cell tumours, and 1 was seminoma. In Mixed germ cell tumors, the most common morphological types were Embryonal carcinoma with Seminoma, Teratoma, and Yolk sac tumor [Table 3].

Table 3: Age-wise distribution of non-neoplastic and neoplastic lesions

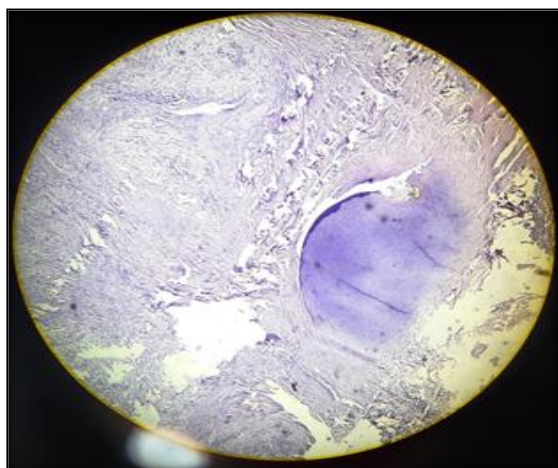
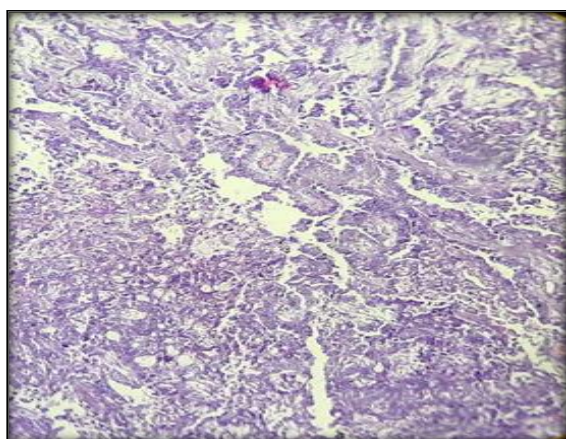
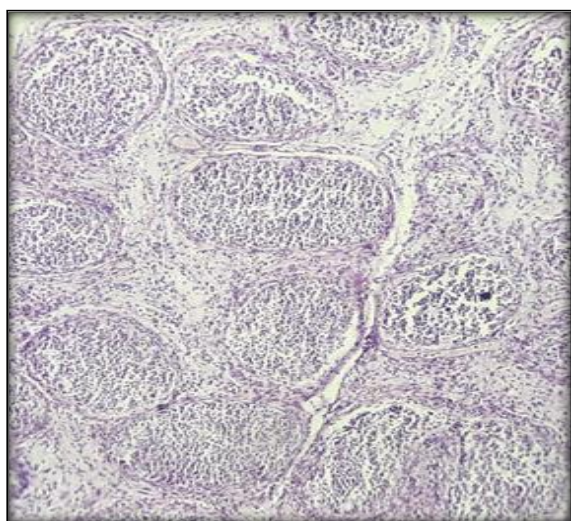
Lesions	0-10 years	11-30 years	31-50 years	Above 50 years
Non-neoplastic	6	14	11	6
Neoplastic Primary tumor	0	1	4	0
Secondary tumor	0	0	0	8

Table 4: Age-wise distribution of Neoplastic and non-neoplastic lesions

Tumors		0-10 years	11-20 years	21-40 years	41-60 years	Above 60 years
Neoplastic	Primary tumor seminoma	0	0	1	0	0
	Mixed germ cell tumor	0	0	3	1	0
	Secondary tumor	0	0	0	0	8
Non-neoplastic	Torsion	4	18	2	0	0
	Non-specific Epididymo-orchitis	0	0	4	7	0
	Undescended Testis	2	0	0	0	0

Table 4: Age-wise distribution of Neoplastic and non-neoplastic lesions

Tumors		0-10 years	11-20 years	21-40 years	41-60 years	Above 60 years
Neoplastic	Primary tumor seminoma	0	0	1	0	0
	Mixed germ cell tumor	0	0	3	1	0
	Secondary tumor	0	0	0	0	8
Non-neoplastic	Torsion	4	18	2	0	0
	Non-specific Epididymo-orchitis	0	0	4	7	0
	Undescended Testis	2	0	0	0	0

**Figure 1: Tertoma testis in low power field****Figure 2: Microscopy of Yolk sac tumor in 10x****Figure 3: Microscopic image of Epididymo-orchitis in 10x**

DISCUSSION

A literature review of Testicular lesions shows that the testicular lesions were generally categorized into neoplastic and non-neoplastic lesions. Our present study aimed to discover histomorphological patterns of Testicular lesions of various age groups.

In this study, neoplastic lesions constitute 26%, and non-neoplastic lesions include 74%. These results were similar to a study conducted by Reddy et al., Patel et al., Sharma M et al.^[1,2,3] and Sanjay et al.^[4]

Testicular torsion was the most common non-neoplastic lesion, followed by Epididymo-orchitis. This is similar to Reddy et al., Patel et al.^[1,2] and Abba et al.^[5]

In our study, Undescended testis constituted only 2%, which was not similar to a study of Sharma S et al.^[6] Where Undescended testis included the major non-neoplastic lesion.

Testicular tumors were rare in our study, constituting only 10%, which is similar to Sharma S et al.^[6] Most of the primary neoplastic lesions of the testis were found in 3rd decade (80%) and 4th decade (20%), which was similar to the study of Sharma S et al.^[6] Reddy et al.^[1] Mostofi et al.^[7] described that Germ cell tumors constitute more than 94% and stromal tumors 3%.

In our study, Germ cell tumors are the only tumors noted. No stromal tumors were seen in this study. Most germ cell tumours are non-seminomatous mixed germ cell tumors, including Embryonal carcinoma mixed with teratoma, Yolk sac tumor and Seminomatous tumor. These findings were similar to studies done by Pratap et al.^[8] Sanjay et al.^[4]

Among non-seminomatous germ cells, mixed germ cells were the most common tumor. Embryonal carcinoma and teratoma were the common Mixed germ cell tumor and rarely Yolk sac tumors. The youngest person with a neoplastic lesion (Mixed Germ cell tumor) was 27. In our study, prophylactic orchidectomies were done for 8 cases. All eight patients were above 60 years, and the microscopy of the testis showed normal histology.

CONCLUSION

Non-neoplastic lesion accounts for the most common lesion in the testis compared to Neoplastic lesion. Neoplastic primary to testis lesions is common in the 3rd and 4th decade. Among Non-neoplastic lesions, Torsion Testis constitute the

major cause. We need more studies with larger populations to determine the incidence and categorize the Testicular lesions.

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