International Journal of Clinical and Diagnostic Pathology

ISSN (P): 2617-7226
ISSN (E): 2617-7234
www.patholjournal.com
2024; 7(3): 283-287
Received: 15-07-2024
Accepted: 20-08-2024

Dr. Shah Priyanka Vinodkumar
3rd Year Resident, Civil Hospital Campus, B.J. Medical College, Haripura, Asarwa, Ahmedabad, Gujarat, India

Dr. Monika Nanavati
Associate Professor, Civil Hospital Campus, B.J. Medical College, Haripura, Asarwa, Ahmedabad, Gujarat, India

Dr. Mahadevan Selvaraj
3rd Year Resident, Civil Hospital Campus, B.J. Medical College, Haripura, Asarwa, Ahmedabad, Gujarat, India

Dr. Hansa Goswami
Head of Department, Civil Hospital Campus, B.J. Medical College, Haripura, Asarwa, Ahmedabad, Gujarat, India

Corresponding Author:
Dr. Shah Priyanka Vinodkumar
3rd Year Resident, Civil Hospital Campus, B.J. Medical College, Haripura, Asarwa, Ahmedabad, Gujarat, India

Histopathological analysis of testicular lesions: An experience from a tertiary care centre

Dr. Shah Priyanka Vinodkumar, Dr. Monika Nanavati, Dr. Mahadevan Selvaraj and Dr. Hansa Goswami

DOI: https://doi.org/10.33545/pathol.2024.v7.i3d.614

Abstract
Introduction: Testis is affected by both neoplastic and non- neoplastic conditions. There are various testicular lesions, ranging from paediatric to adult age groups. Though neoplastic testicular lesions are rare, incidence has been raising. Hence this study is undertaken to analyse various testicular lesions.
Aim and Objectives: This study aims to analyse the histopathological spectrum, age-wise distribution, laterality and clinical presentation of all testicular lesions (both neoplastic and non- neoplastic) reported in B. J. Medical college, Ahmedabad - a tertiary care centre in Gujarat.
Materials and Methods: This was a three-year study including all the testicular specimens referred to Department of Pathology, BJMC, Ahmedabad.
Results: Testicular tumours were uncommon, comprising only 6.7% (10/150 cases) of all testicular lesions. Seminoma accounted for 60% (n=6) of cases in neoplastic lesions followed by mixed germ tumour of about 20% (n=2). Testicular torsion 30% (n=42), testicular abscess 15% (n=21) and Epididymo orchitis 10% (n=14) were the common non neoplastic lesions found in the study.
Conclusion: Testicular tumors are uncommon in our population. As evident in other parts of the world, germ cell tumor was the common tumor found in this study as well.

Keywords: Seminoma, mixed germ cell tumor, testicular lesions, neoplastic, non-neoplastic

Introduction

Testis is affected by both non neoplastic and neoplastic conditions. There are various testicular lesions, ranging from paediatric to adult age groups. They usually present with scrotal swelling, pain and mass per abdomen. Non neoplastic testicular lesions include cryptorchid (undescended) testis, testicular torsion, testicular atrophy, epidermoid cysts, infections of testis like tuberculosis, infertility, malakoplakia and vasculitis [1].

Undescended testis is the commonest genital malformation of the boys and is found in approximately 1% of one year old boys [2, 3]. An undescended testis is more likely to develop a germ cell tumour than a normally placed testis. Atrophy of testis may result from cryptorchidism, the orchitis of mumps, liver cirrhosis,

estrogen administration, radiation exposure, chemotherapy, AIDS and exposure to environmental toxins [4] Torsion of testis is a surgical emergency, commonly seen in 10-25 years of age [5].

Nonspecific epididymo-orchitis is commonly related to infections in the urinary tract and its cause varies with age. It may progress to frank abscess formation [6]. Tubercular epididymo-orchitis is a common form of genitourinary tuberculosis. It may coexist with pulmonary tuberculosis or tuberculosis of other parts of lower genitourinary system. It almost invariably begins in the epididymis and then spreads to testis. An isolated case is rare but when it occurs, it may mimic testicular tumour [7].

The testicular tumours although relatively rare, are of great interest and importance because of their varied histological appearances and the diverse or even conflicting views held regarding their histogenesis [8]. They account for less than 1% of all malignancies in male; constitute the 4th most common cause of death from neoplasia in a younger male, usually found in age group 15-35 years. The incidence of testicular neoplasm in western countries is rising in the past 50 years [9].

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 [10]. A definite geographic and racial distribution is seen in testicular tumours [11]. Testicular carcinoma follows a reverse pattern to most cancers with decreasing incidence rate with increasing age. Testicular cancers are rare in most parts of the world, with age-standardized incidence rate ranging from 1 per 100,000 in Asian and African/African American populations to 9.2 per 100,000 in Denmark. Its incidence has been increasing since the middle of twentieth century in many Western countries with the potential exception of children ages 14 years or less, where little variation is observed [12].

Clinically the diagnosis of testicular tumours is delayed in many cases [13] Despite new techniques in imaging and tumour marker assays, the diagnosis of testicular lesions is primarily dependent upon histopathological examination. The urologists, the radiologists and chemotherapists are eventually dependent upon histological diagnosis of tumour and tumour like lesions as histopathological features have a major stake in determining the prognosis and therapeutic option [14].

Aims and Objectives

This study was aimed to analyse the Histopathological spectrum, Age wise distribution, Laterality, Clinical presentation of all testicular lesions including both neoplastic and non-neoplastic lesions.

Materials and Methods

This was a three-year study including all the testicular specimens referred to Department of Pathology, BJMC, Ahmedabad. All the slides along with histopathology requisition forms containing clinical details were retrieved from electronic database and reviewed.

Pertinent data such as age and histopathology of tumours were collected from the histopathology reports and analyzed. Ten percent formalin was used as fixative for all specimens. Following findings were looked for during gross examination: right or left side, external surface, condition of the scrotal skin and tunica albuginea, consistency, size of tumor, appearance of cut surface, color, necrosis or haemorrhage, condition of surrounding testicular tissue, epididymis, and spermatic cord and surgical margin. Lymph nodes, whenever received, along with the specimen were scrutinized for evidence of metastasis. Grossly multiple representative tissue sections of 3–4 mm thickness varying from 2 to 10 sections from tumor, part of normal testicular tissue, epididymis, and spermatic cord (surgical margin) were taken. Tissue sections were embedded and processed.

Then, these sections were stained by hematoxylin and eosin. Histological features were studied in detail and correlated with other findings such as clinical, gross features, and tumor marker values. The tumours were classified according to WHO classification (2004) [15]

Results

All orchidectomy specimens were analyzed and categorized into non-neoplastic and neoplastic lesions. Age wise distribution of all cases was studied. Various non-neoplastic lesions and neoplastic lesions observed in this region was noted.

Total of 150 cases studied over a period of 3 yrs. Out of 150 cases 140 were non-neoplastic and 10 cases were neoplastic accounting for 93.3% & 6.7% respectively.

Testicular torsion is the most common non-neoplastic lesion accounting for 30% of cases (n=42) followed by testicular abscess accounting for 15% (n=21). Epididymo orchitis was reported in 10% (n=14) of cases and Testicular inflammation in (n=12) 8.6% of cases. Fournier gangrene 5.7% (n=8) and undescended testis was reported in 4.3% (n=6) of cases and Epididymo funiculitis and testicular atrophy in 3.6% (n=5) of cases. (Table 1)

Table 1: Histopathological spectrum of non-neoplastic testicular lesions

S. no	Lesion	No of cases (n)	Percentage of cases (%)
1.	Testicular torsion	42	30
2.	testicular abscess	21	15
3.	Epididymo orchitis	14	10
4.	Inflammation	12	8.6
5.	Fournier's gangrene	8	5.7
6.	Undescended testis	6	4.3
7.	Epididymo funiculitis	5	3.6
8.	Testicular atrophy	5	3.6
9.	Epididymal cyst	5	3.6
10.	Hydrocele	4	2.9
11.	Prostate androgen insufficiency syndrome	2	1.4
12.	Undescended torsion of testis with hematocele	2	1.4
13.	Testicular gangrene	2	1.4
14.	Testicular agenesis	2	1.4
15.	Crush injury	2	1.4
16.	Testicular Necrosis	2	1.4
17.	Testicular TB	2	1.4
18.	Pseudo tumour of scrotum	2	1.4
19.	Scrotal cellulitis	2	1.4

Out of 150 cases, 6.7% (n=10) cases were found to be neoplastic lesions. Seminoma accounted for 60% of cases (n=6) in neoplastic lesions followed by mixed germ tumour of about 20% (n=2). Para testicular adenoma and dysgerminoma were diagnosed in 10% (n=1) cases respectively. (Table 2)

Table 2: Histopathological spectrum neoplastic testicular lesions along with age distribution

S. no	Neoplastic Lesion	Number of cases	Age distribution				
			0-20	21-40	41-60	60-80	>80
1.	Seminoma	6 (60%)	-	2	4	-	-
2.	Mixed germ cell tumour	2 (20%)	-	-	1	1	-
3.	Para testicular adenoma	1 (10%)	1	-	-	-	-
4.	Dysgerminoma	1 (10%)	1	-	-	-	-

Laterality

Of the 150 cases reported, all the neoplastic lesion were unilateral. Out of 10 cases in neoplastic lesions, 40% (n=4) were present in the right side and 60% (n=6) were present in left side of the testis.

Non neoplastic lesions were present unilaterally as well as bilaterally. Out of 140 cases, 51.4% (n=72) of cases were on right side, 45% (n=63) of cases were on left side. 3.6% (n=5) of cases had bilateral lesions.

Clinical Presentation

Among both neoplastic and non-neoplastic lesions, the most common symptom was testicular (scrotal/inguinoscrotal) swelling. 83.02% of non-neoplastic lesions presented with swelling with 50.94% having painless swelling. The second most common presenting complaint was empty scrotum (39.62%) followed by pain (32.07%). Inflammatory lesions in addition had history of fever.

No tumour was found in undescended testes unlike western countries. All 10 neoplasms presented with painless swelling.

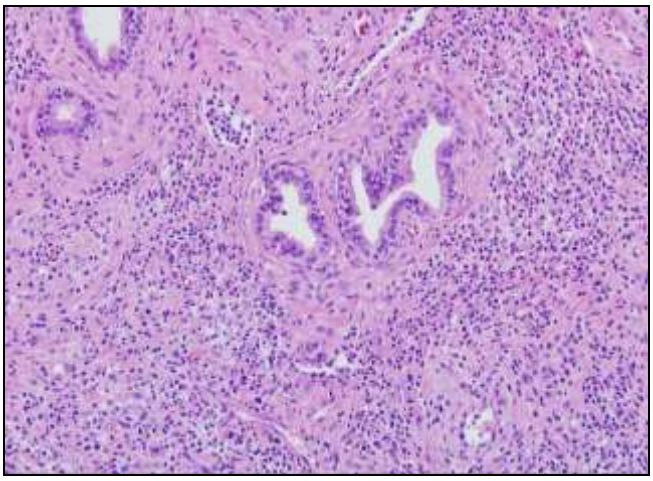

Fig 1: Epididymo-Orchitis

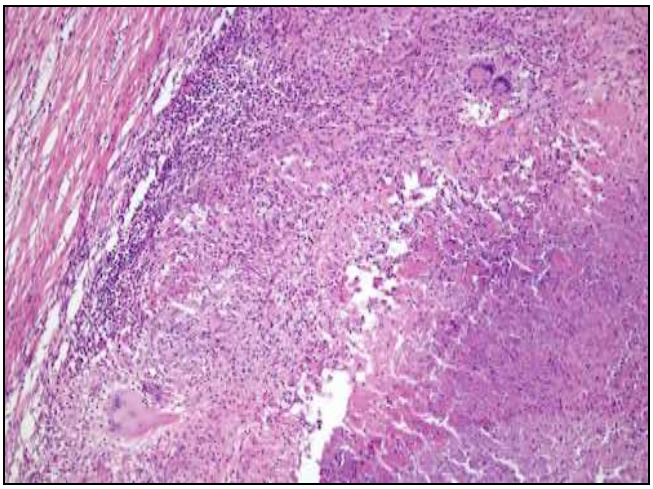

Fig 2: Testicular TB

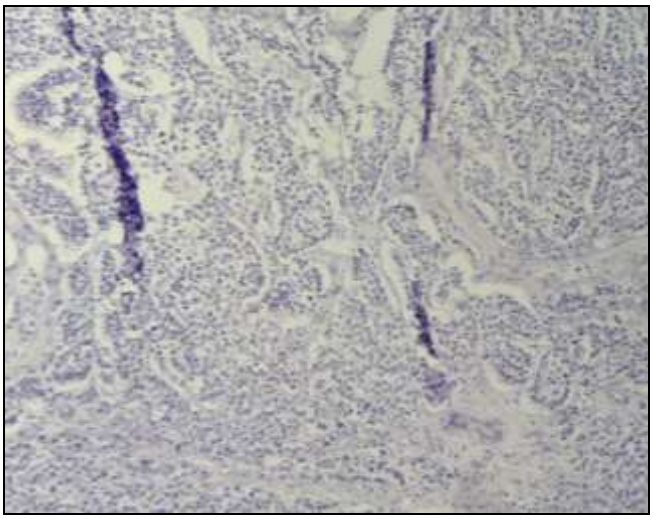

Fig 3: Seminoma testis

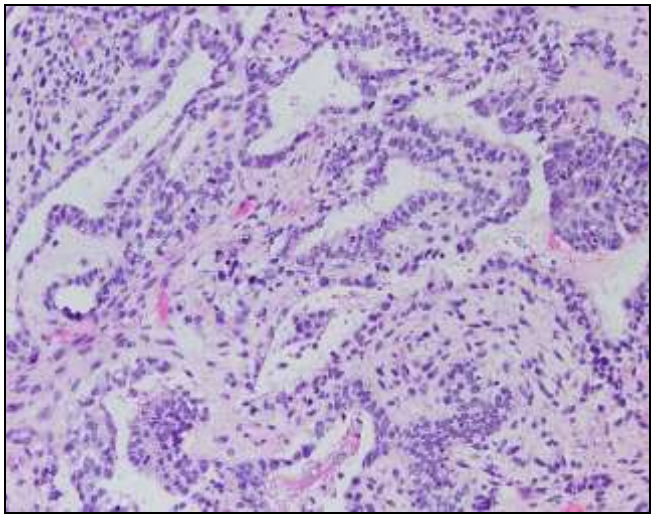

Fig 4: Mixed germ cell tumor – testis

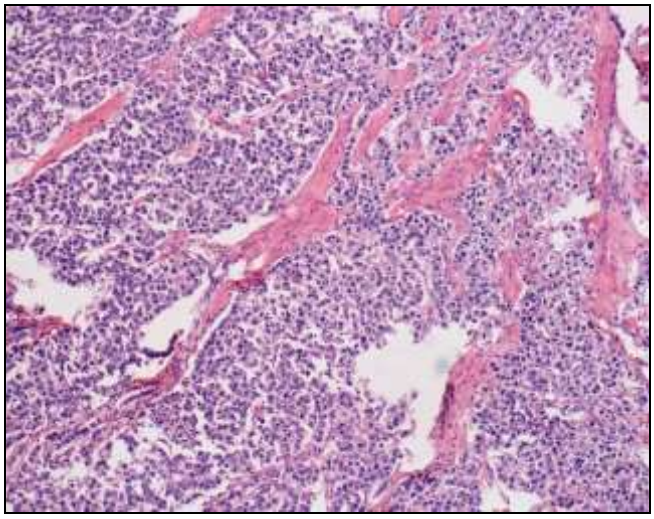

Fig 5: Dysgerminoma

Discussion

In our study, the non-neoplastic testicular lesions were more common than the neoplastic ones (93.3% & 6.7%). This is in concordance with Reddy H *et al.* (86 vs 14%) [16] and Patel MB *et al.* (85 vs 15%) [13].

Though the incidence of testicular tumour is low, it is one of the most common malignancies occurring in young adults. As described in the literature, testicular tumours were found to be rare in this study also. Most of the malignant cases were seen in the third and the fifth decades (10; 6.7%). Testicular tumors are limited to three age group: infancy, late adolescence to young adulthood (20–35 years), and 50 years and above [17]. According to the literature, the histological pattern and behaviour of the tumor differ with age.

Out of the 10 neoplastic cases reported in this study, 60% (n=6) cases were seminoma and 20% (n=2) cases were germ cell tumours. According to Mostofi and Price [18], germ cell tumors constitute more than 94% of testicular tumors.

This variation in data may be due to the small number of cases included in this study. One solitary case of Para testicular adenoma and Dysgerminoma was reported in this study as well.

As described in literature, testicular tumours were found to be rare in present study also. In fact, we found them to be rarer than previous studies. We found only 10 cases amounting to only 3.33 case per year in our three-year study. Incidence of testicular tumours varies from country to country and place to place thus pointing to various causative factors. (19)

Table 3: Comparison of Average number of testicular neoplasms per year

S. no	Study (Year)	Country	Average no of cases
1.	This study	India	3.33
2.	Chakrabarti PR *et al.* (2016) [20]	India	3.7
3.	Chalaya PL *et al.* (2014) [21]	Tanzania	5.6
4.	Horwich *et al.* (2013) [22]	England	64.9

Conclusion

Majority of testicular lesions are non- neoplastic and neoplastic lesions are rare, most common being seminoma in this study. Both neoplastic and non-neoplastic lesion had varied distribution in age criteria according to pathophysiology of the lesion. Non- neoplastic lesions mimic neoplastic ones clinically, testicular swelling being the most common complaint. Histopathological examination is necessary to serve an accurate diagnosis of testicular swellings. Our findings are comparable with most studies.

References

1. Reddy H, Chawda H, Dombale VD. Histomorphological analysis of testicular lesions. Indian Journal of Pathology and Oncology. 2016 Oct-Dec;3(4):558-563.
2. Mathers MJ, Sperling H, Rubben H, Roth S. The undescended testis: Diagnosis, treatment and long term consequences (Review Article). Deutsches Ärzteblatt International. 2009;106(33):527-532.
3. Rozanski TA, Bloom D. The undescended testis: theory and management. Urologic Clinics of North America. 1995;22:107.
4. Rosai J. Male reproductive system. In: Rosai and Ackerman's Surgical Pathology. 10th ed. Elsevier; 2011;1:1335-1336.
5. Patel MB, Goswamy HM, Parikh UR, Mehta N. Histopathological study of testicular lesions. Gujarat Medical Journal. 2015;70(1):41-46.
6. Kumar V, Abbas AK, Fausto N, Epstein JI. The lower urinary tract and male genital system. In: Robbins and Cotran Pathological Basis of Disease. 7th ed. Saunders; 2004:1039-1047.
7. Badmos KB. Tuberculous epididymo-orchitis mimicking a testicular tumour: a case report. African Health Sciences. 2012;12(3):395-397.
8. Pratap VK, Agarwal S. Testicular neoplasms. Indian Journal of Cancer; c1971:40-53.
9. Bergstrom R, Adami HO, Mohner M, Zatonski W, Storm H, Ekbom A, *et al.* Testicular cancer in nine European countries. International Journal of Cancer. 1996;59:33-38.
10. Garner MJ, Turner MC, Ghadirian P, Krewski D. Epidemiology of testicular cancer: an overview. International Journal of Cancer. 2005;116:331-339.
11. Liu S, Wen SW, Mao Y, Mery L, Pouleau J. Birth cohort effects underlying the increasing testicular cancer incidence in Canada. Canadian Journal of Public Health. 1999;90:176-180.
12. Dos Santos Silva I, Swerdlow AJ, Stiller CA, Reid A. Incidence of testicular germ cell malignancies in England and Wales: trends in children compared with adults. International Journal of Cancer. 1999;83:630-634.
13. Deore KS, Patel MB, Gohil RP, Delvadiya KN, Goswami HM. Histopathological analysis of testicular tumours - a 4-year experience. International Journal of Medical Science and Public Health. 2015;4(4):554-557.
14. Kinkade S. Testicular cancer. American Family Physician. 1999;59(9):2539-2550.
15. Eble JN, Sauter G, Epstein JI, Sesterhenn IA, editors. Pathology and genetics of tumours of the urinary system and male genital organs. Lyon: IARC Press; 2004.
16. Reddy H, Chawda H, Dombale VD. Histomorphological analysis of testicular lesions. Indian Journal of Pathology and Oncology. 2016 Oct-Dec;3(4):558-563.
17. Mathers MJ, Sperling H, Rubben H, Roth S. The undescended testis: Diagnosis, treatment and long term consequences (Review Article). Deutsches Ärzteblatt International. 2009;106(33):527-532.
18. Mostofi FK, Price EB Jr. Tumors of the male genital system. Atlas of Tumor Pathology, Washington, DC: Armed Forces Institute of Pathology; 1973;7(2):1186-1200.
19. Dieckmann KP, Pichlmeier U. Clinical epidemiology of testicular germ cell tumours. World Journal of Urology. 2004;22(1):2-14.
20. Chakrabarti PR, Dosi S, Varma A, Kiyawat P, Khare G, Matreja S. Histopathological trends of testicular neoplasm: An experience over a decade in a tertiary

care centre in the Malwa belt of central India. Journal of Clinical and Diagnostic Research. 2016 Jun;10(6)
21. Chalya PL, Simbila S, Rambau PF. Ten-year experience with testicular cancer at a tertiary care hospital in a resource-limited setting: a single centre experience in Tanzania. World Journal of Surgical Oncology. 2014;12:356.
22. Horwich A, Nicol D, Huddart R. Testicular germ cell tumours. BMJ. 2013, 347

How to Cite This Article
Vinodkumar SP, Nanavati M, Selvaraj M, Goswami H. Histopathological analysis of testicular lesions: An experience from a tertiary care centre. International Journal of Clinical and Diagnostic Pathology. 2024;7(3):283-287.