Original Research Article

Histopathological Study of Non-neoplastic and Neoplastic Testicular lesions- A Retrospective study

Buge Aarti K [1] , Buge Kiran H [2] , Khonde Dhanashri [3]

[1]Assistant Professor Pathology , Dr Vithalrao Vikhe Patil Medical College and Memorial Hospital, Ahmednagar, Maharashtra, India

[2]Associate Professor Physiology, Dr Vithalrao Vikhe Patil Medical College and Memorial Hospital, Ahmednagar, Maharashtra, India

3rd Year Resident Pathology DVVPF's Medical College and Memorial Hospital, Ahmednagar, Maharashtra, India

Received: 04-08-2020 / Revised: 21-09-2020 / Accepted: 17-10-2020

Abstract

Introduction: Testis is affected by wide range of non-neoplastic and neoplastic lesions. Non-neoplastic lesions are more common than neoplastic ones. Despite of availability of imaging and tumour marker assays, the diagnosis of testicular lesions depends primarily on Histopathological examination. **Aims and Objectives:** To study the Histopathological spectrum of non-neoplastic and neoplastic testicular lesions in our institute. **Material and methods:** A 4-year retrospective study was undertaken in department of pathology of our institute from 1st Jan 2016- 31st Dec 2019. **Results:** Total 39 orchidectomy specimens were studied for age distribution and Histopathological diagnosis of lesions. Non-neoplastic lesions were noted to be more common than neoplastic ones. Amongst non-neoplastic lesions, inflammatory were more common including Epididymorchitis (17.94%), testicular abscess (10.2%), Chronic orchitis (7.69%) and granulomatous orchitis (7.69%). Spectrum of neoplastic lesions included majority Seminoma testis (7.69%) followed by malignant testicular teratoma (5.12%)**. Conclusion:** Non-neoplastic testicular lesions are common than neoplastic lesions. Certain non-neoplastic lesions clinically mimic neoplastic ones, Histopathological examination forms mainstay for diagnosis and further treatment in such cases.

Keywords: Histopathology, Orchitis, Seminoma, Testicular lesions.

Introduction

Testis is affected by wide spectrum of lesions both non-neoplastic and neoplastic. Non-neoplastic lesions include Cryptorchid testis, testicular atrophy, testicular torsion, infections like tuberculosis, infertility etc. [1] Testicular malignancies constitute 1 % of all the male cancers worldwide. [2]

Common risk factors for development of testicular cancers include strong family history in first degree relatives, Cryptorchidism, infertility and Klinefelter's syndrome. [3] Despite of availability of imaging and tumor marker assays, the diagnosis of testicular lesions depend primarily on Histopathological examination. [4] Histopathology plays a key role in determining prognosis and therapeutic option. [5]

Aims and Objectives

This study was undertaken to study the Histopathological spectrum of non-neoplastic and neoplastic testicular lesions in our institute

Material and methods

A 4 year retrospective study was undertaken in department of pathology of our institute from 1st Jan 2016- 31st Dec 2019.

Inclusion criteria - Total 39 orchidectomy specimens were included in this study.

Exclusion criteria - Bilateral orchidectomy specimens of prostatic carcinoma patients were excluded from our study.

The histopathology slides were retrieved and reviewed along with their requisition forms. The data collected was analyzed and compared to similar other studies.

**Correspondence*

Dr. Kiran Haribhau Buge

Associate Professor, Department of Physiology, Dr Vithalrao Vikhe Patil Medical College and Memorial Hospital, Ahmednagar, Maharashtra, India.

E-mail: bgekiran@gmail.com

Results

In the present study, a total 39 orchidectomy specimens were studied for age distribution and Histopathological diagnosis of lesions. Age range in our study was 10- 80 years, with youngest patient of 13 years and elderly patient of 80 years (Table 1). These lesions were further divided into non-neoplastic and neoplastic categories and were studied in relation to age groups (Table 2). Total 31 of these were non-neoplastic and 8 were neoplastic (Table 2). On Histopathological examination, most common non-neoplastic lesions encountered were inflammatory including Epididymorchitis (17.94%), testicular abscess (10.2%), Hydrocele with Chronic orchitis (7.69%) and Granulomatous orchitis (7.69%). However, testicular torsion was noted in 12.8% of our cases. Spectrum of neoplastic lesions included majority Seminoma of testis (7.69%) followed by malignant testicular teratoma (5.12%). Whereas, 1 case each (2.5%) of Intratubular germ cell neoplasia (ITGCN), Malignant mixed germ cell tumour of testis and Adenocarcinoma involving testicular and paratesticular region also contributed to neoplastic spectrum of lesions (Table 3)

Table 1 : Age distribution of lesions (n=39)

Sr no	Age group (yrs)	Lesions
1	10-20	1
2	21- 40	13
3	41-60	12
4	61-80	13
Total = 39		

Table 2 : Distribution of non-neoplastic and neoplastic lesions with respect to age (n=39)

Sr no	Age (Yrs)	Non-neoplastic	Neoplastic
1	10-20	1	-
2	21-40	10	6
3	41-60	9	1
4	61-80	11	1
	Total	**31**	**8**

Table 3 : Histopathological diagnosis of lesions (n= 39)

Sr no	HP Diagnosis	No of cases	Percentage of cases
1	Hydrocele with chronic orchitis	3	7.69%
2	Abscess	4	10.25%
3	Epididymal cyst	1	2.5%
4	Cryptorchid testis	3	7.69%
5	Testicular atrophy	4	10.25%
6	Granulomatous epididymo-orchitis	3	7.69%
7	Epididymorchitis	7	17.94%
8	Torsion testis	5	12.8%
9	Sertoli cell only syndrome	1	2.5%
10	Seminoma testis	3	7.69%
11	Intratubular germ cell neoplasia (ITGCN)	1	2.5%
12	Malignant mixed germ cell tumour of testis	1	2.5%
13	Malignant teratoma of testis	2	5.12%
14	Adenocarcinoma of testis and paratesticular region	1	2.5%
Total = 39			

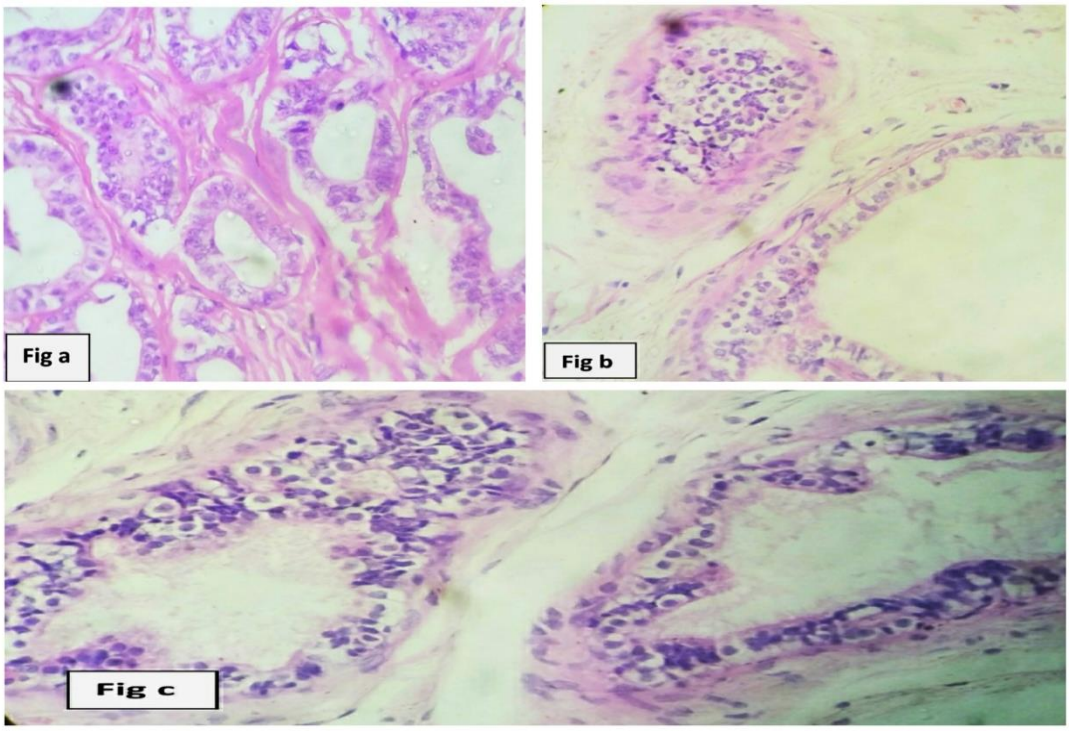

Fig 1: a Adenocarcinoma of testis showing tumour cells in glandular pattern; b & c- Atrophic seminiferous tubules with thickened basement membrane and presence of atypical cells with clear cytoplasm within the tubular lumen and lining epithelium

Discussion

In our 4 year retrospective study, total 39 orchidectomy specimens were studied. Both non-neoplastic and neoplastic lesions were included. Age group considered for our study was from 10 years to 80 years. In present study, non-neoplastic lesions (31 cases) were more common than neoplastic ones (8 cases). This is in accordance with other authors. [6, 7, 1, 8] The most common non-neoplastic lesion vary from study to study. We found inflammatory lesions to be most common. This variation could be due to variable sample size and difference in relative proportion of different histological types. Genital TB accounts for 18% of cases of tuberculosis in India. [9] We encountered 3 cases of Granulomatous epididymo-orchitis. This infection usually begins in epididymis and then spreads to testis. Isolated case is rarely seen but when it occurs, may mimic testicular tumour. [10] In such cases Histopathological examination is must for appropriate diagnosis and treatment. Testicular torsion is an acute urological emergency which needs timely intervention. It is well documented that irreversible changes begin after 6 hrs. Delay can be fatal leading to impaired fertility and loss of testis. [11] In present study, we encountered 5 cases of testicular torsion.

Testicular carcinoma follows a reverse pattern to most other cancers with decreasing incidence with increasing age. [12] Same was noted in our study.Testicular tumours of germ cell origin is common malignancy in men between 18-35 years. [13] Of our 8 neoplastic cases, 3 were seminomatous tumours found in men younger than 40 years. This is in accordance with other authors. [6, 7] Non-seminomatous tumours are known to present in younger age than seminomatous type. [14] Amongst 3 non-seminomatous tumours, 1 case was of Malignant mixed germ cell tumour in 55 years male. Whereas, 2 cases were of teratoma testis encountered at the age of 29 and 30 years respectively.However, we encountered two uncommon neoplastic lesions in our study which included- adenocarcinoma of testicular and paratesticular region and Intratubular germ cell neoplasia (ITGCN).We received one specimen of skin covered scrotal mass which was grossly noted to involve entire testis and epididymis. On Histopathological examination, it showed classical

features of adenocarcinoma comprising of well formed glandular structures and metastatic deposits to superficial and deep inguinal lymph nodes (Fig 1, a)

Intra-Tubular Germ cell Neoplasia (ITGCN) is believed to be the precursor of most invasive germ cell tumours. If it is identified, is treated by low dose radiotherapy which destroys the germ cells yet maintain the androgen production of leydig cells. There is 15-20% risk for development of ITGCN in the contralateral testis in patients with history of undescended testis and testicular carcinoma. [8] Of our 8 neoplastic cases, 4 cases had undescended testis, ITGCN was seen as an incidental Histopathological finding in 1 of it, showing atrophic seminiferous tubules with absence of spermatogenesis. Patchy involvement of seminiferous tubules was seen showing thickened basement membrane with presence of atypical cells with clear cytoplasm and angulated nuclei giving fried egg appearance (Fig 1, b & c).

Conclusion

1. Major bulk of testicular lesions is comprised of non-neoplastic lesions with rare neoplastic lesions, most being germ cell neoplasms.
2. Non-neoplastic lesions are seen in all age groups. Unlike other cancers, testicular cancers show decreasing incidence with increasing age.
3. Certain non-neoplastic lesions can mimic neoplastic ones clinically, in such cases Histopathological examination is needed for appropriate diagnosis and treatment of testicular swelling.
4. Our findings are comparable with other studies.

References

1. Reddy H, Chawda H, Dombale VD. Histomorphological analysis of testicular lesions. Indian Journal of Pathology and Oncology, Oct-Dec 2016;3(4);558-63.
2. Purdue MP, Devesa SS, Sigurdson AJ, McGlynn KA. International patterns and trends in testis cancer incidence. Int J Cancer . 2005;15:822-27.
3. Sagalowsky AI. Current consideration in the diagnosis and initial treatment of testicular cancer. Compr Ther. 1994;20:688-90.
4. Patel MB, Goswamy HM, Parikh UR, Mehta N. Histopathological study of testicular lesions. Gujarat Medical Journal 2015; 70(1):41-46.
5. Kinkade S. Testicular cancer. Americal family Physician 1999:59(9):2539-50.
6. Natarajan S, Josephine A. Histomorphological study of Orchidectomy specimens. Int Journal of Scientific research 2019;8(7):23-24.
7. Sharma M, Mahajan V, Suri J, Kaul KK. Histopathological spectrum of testicular lesions-A retrospective study. Indian journal of Pathology and Oncology, july-september 2017;4(3):437-41.
8. S. Srikanth. Histopathological study of 40 Orchidectomy specimens in a tertiary care hospital in North Telangana. IP Journal of Diagnostic Pathology and Oncology, July-September 2017;2(3):56-9.
9. Das P, Abhuja A, Datta Gupta S. Incidence, etiopathogenesis and pathological aspects of genitourinary tuberculosis in India. A journey restricted. Indian J. Urol 2008;24: 356-61.
10. Badmos KB. Tuberculous epididymo-orchitis mimicking atesticular tumour: a case report. Afr Health Sci 2012: 12(3): 395-97.
11. Feher A, Bajory, Z. A review of main controversial aspects of acute testicular torsion. Journal of Acute Disease 2016;5(1):pp.18
12. 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; Vol 4(4):554-57.
13. Shanmugalingam T, Soultati A, Chowdhary S, Rudman S, Van Hemelrijck M. Global incidence and outcome of testicular cancer. Clin Epidemiol. 2013; 5: 417-27.
14. Ruf CG, Isbaran H, Wagner W, et al. Changes in the epidemiological features of testicular germ cell cancer: age at diagnosis and relative frequency of seminomas are constantly and significantly increasing. Urol Oncol. 2014; 32:33.

Source of Support:Nil
Conflict of Interest: Nil