Clinico-Pathological Study of Testicular and Paratesticular Lesions

Gaikwad Sheela L[1], Patki Supriya P[2]

ABSTRACT

Introduction: The testis are specialized paired male reproductive organs affected by distinct pathological conditions which falls in the reproductive age group of third to fifth decades. Both neoplastic and non neoplastic conditions affect the normal functioning capacity of the organ and very few studies has been done regarding these conditions. Hence this study has been done in an attempt to find the frequency of these lesions in a rural population and their clinico - pathological corelation.

Materials and methods: It is a retrospective and a prospective study carried out in the pathology department of a medical institute. All orchiedectomy specimens received in the department of pathology has been studied. Specimens were processed for paraffin embedding and blocking. Sections were stained with Haematoxylin and Eosin.

Results: In the present study, n = 120 (4.9%) of the testicular samples were received. Out of which n = 102 (85%) were non neoplastic while n = 18 (15%) were neoplastic. Testicular atrophy was the most common condition seen in non neoplastic condition while classical seminoma leaded the neoplastic group. Most common clinical finding in non neoplastic group was swelling associated with pain while neoplastic lesions presented with swelling alone.

Conclusion: Affection of a crucial organ of male reproductive system is seen in a peak age group of reproductive years and its excision is disheartening. However early clinical presentations by the patients can prevent undue excisional treatment.

Keywords: Testicular, Paratesticular, Non Neoplastic, Neoplastic Lesions

INTRODUCTION

The testis are specialized paired organs with both hormonal and reproductive functions.[1,2] Distinct pathological conditions affecting the testis and the epididymis, mainly falls in the reproductive age group of third to fifth decades. In the testis the major leions are tumours while in epididymis the most important and frequent conditions are inflammatory diseases. However, both neoplastic and non neoplastic conditions affect the normal functioning capacity of the organ and very few studies has been done regarding these conditions specially the non neoplastic lesions. Hence this study has been done to find the frequency of these lesions in a rural population, their clinical presentations and correlation with the histopathological findings.

MATERIAL AND METHODS

The present hospital based study was a simple cross sectional study carried out in the department of pathology of a medical institute. The study was carried out during the period of July 2006 to June 2011. The total sample size was 120 with application of universal sampling method. Cases involving the testis, rete testis, epididymis and spermatic cord were included in the study. Patients who were treated conservatively or referred to other hospitals were excluded from the study. Specimens received during that period were orchiedectomy specimens, epididymal cyst and cyst wall. No testicular biopsies were received. Surgical specimens were processed by routine histo – techniques using a semi automated histoprocessor and sections were stained with Haematoxylin and Eosin. Zeil – nelson (ZN) staining was done wherever needed for the detection of acid fast bacilli. The slides were reviewed by senior pathologist. For retrospective samples, blocks, slides and data regarding gross features was retrived from the records. Slides were reviewed by single pathologist, unaware of previous diagnosis in order to have unbiased opinion. Detailed clinical history was collected from the case sheets in the record sections.

STATISTICAL ANALYSIS

In the present study, frequency, mean and standard deviation was used to statistically analyse the data with the help of Microsoft office 2007.

RESULTS

In the study, n = 120 (4.9%) of the testicular samples were received out of total samples n = 2410 from male patients. Out of which n = 102 (85%) were non neoplastic while n = 18 (15%) were neoplastic. Mean age at which total testicular lesions were seen is 42.26 years with a standard deviation (SD) of 17.64. Out of these, non neoplastic lesions were seen at the mean age of 43.20 years with SD of 17.73 while neoplastic lesions were at slightly lower age with mean of 33.48 with SD of 17.62. 19 cases were of cryptorchidism (15.8%) with 8 cases operated before age of 30 years. Out of these, two cases presented with neoplasm (10.5%), one as classical seminoma (CS) in the age of 32 years while other as Mixed germ cell tumour (MGCT) in the age of 20 years. Patient of MGCT had bilateral intra - abdominal testis.

Table 1 shows age – wise distribution of non neoplastic lesions. These were categorized into inflammatory and non inflammatory conditions. Chronic epididymoorchitis were leading cause among inflammatory condition presenting as dull dragging pain and swelling in age group > 40 yrs. Acute epididymo – orchitis was common after 4th decade mainly presenting as painful scrotal swelling n = 17 (89.4%). Tuberculous epididymo – orchitis was seen in 7 cases (6.8%) presenting as painless swelling n = 5 (71.4%). AFB was not detected in any of the case by ZN staining. However, presence of classic granulomas, caseous necrosis and positive clinical history aided a presumptive

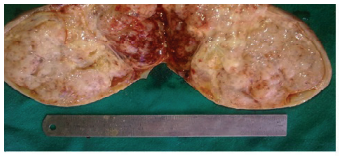
[1]Associate Professor, [2]Assistant Professor, Department of Pathology, Swami Ramanand Tirth Government Medical **College,** Ambajogai, Dist- Beed, Maharashtra, India

Corresponding author: Supriya P. Patki, 207,Laxmi Complex, 250-E, Nagala Park, Kolhapur -416003, Maharshtra, India

How to cite this article: Gaikwad Sheela L, Patki Supriya P. Clinico-pathological study of testicular and paratesticular lesions. International Journal of Contemporary Medical Research 2017;4(3):610-613.

diagnosis of tuberculosis (Figure-2).

All except 2 cases of testicular infarcts were seen in 2nd and 3rd decade with typical history of testicular torsion. 2 cases were seen in older age group >50 years with lack of typical presentation of torsion. All cases presented 12 hours after the first clinical symptom of painful swelling and showed gross swelling of the testis with haemorrhagic necrosis. 26 cases of testicular atrophy was seen distributed almost equally through out all the age group. Out of these 16 cases were of undescended testis. Remaining cases were in age group above 50 years presenting with persistent dull dragging pain.



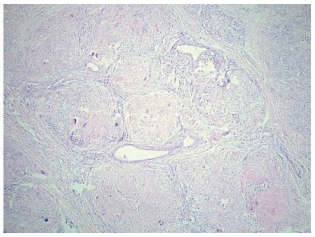
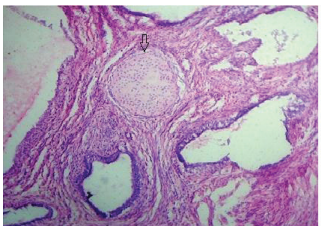


Figure-1: Gross photograph of Yolk sac Tumour showing enlarged testis. Cut section is yellow white gelatinous with areas of haemorrhage and necrosis; **Figure-2:** Microphotograph of Tuberculous epididymo-orchitis showing caseating granulomas composed of Langhans giant cells and normal epididymal ducts. (H and E: 10X)



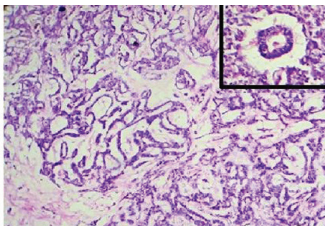
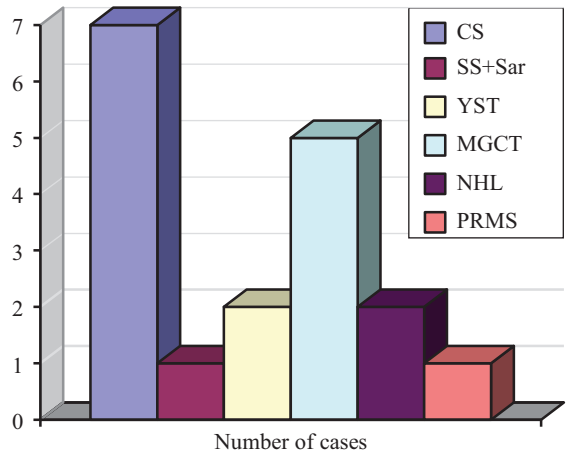


Figure-3: Microphotograph of Mixed germ cell tumour showing component of teratoma showing immature cartilage (arrow) alongwith cystic spaces. (H and E: 40X); **Figure-4:** Microphotograph of Yolk sac tumour showing reticular pattern. (H and E: 10X) inset shows a Schiller Duval body.(H and E: 40X)



(CS-Classical Seminoma, SS+Sar -Spermatocytic Seminoma with sarcomatous change, YST-Yolk sac tumour, MGCT-Mixed Germ cell tumour, NHL-Non Hodgkins Lymphoma, PRMS-Paratesticular rhabdomyosarcoma)

Tumour variants	Number of cases
CS	7
SS+Sar	1
YST	2
MGCT	5
NHL	2
PRMS	1

Graph-1: Proportion of histo-pathological variants of Testicular Neoplasms

A single case of testicular vein thrombosis was seen during herniotomy. While testicular femininizing syndrome was seen in 22 years of a phenotypical female who presented with bilateral inguinal painless swellings.

The number of germ cell neoplasia and other testicular neoplasms were n = 15 (83.3%) n = 3 (16.70%) respectively. Most common in these were classical seminomas n = 7 (38.8%) followed by mixed germ cell tumour (Figure-3) n = 5 (27.8%) (Graph-1). The most affected age group was 3rd and 4th decade (n = 10) while n = 3 was seen in 60 – 69 years of age. Out of these, n = 2 (16.7%) were of non Hodgkins lymphoma (Table-2).

DISCUSSION

Present study shows n = 9 (18.7%) of acute epididymo-orchitis, n = 20 (19.7%) of chronic epididymo-orchitis, n = 7 (6.8%) of tuberculous epididymo-orchitis and n = 15 (14.7%) of epididymal cyst. Epididymitis was not found separately and was in association with orchitis.

Mathew (1981) found similar frequencies of inflammatory lesions however epididymal cyst was the leading cause in non neoplastic lesions.[3]

In present study, Testicular infarct presented as painful swelling with varying duration of symptoms.Various causes of testicular haemorrhage and infarction includes trauma, torsion, haematological disorders, blood vessel compression, thromboembolism and vasculitis. Infarct usually appears in testes that have been ischaemic for 12 hours or more.[2]

Bird K et al (1984) reported 4 cases of testicular infarct following acute testicular infections and stated that it is due to obstruction of the adjacent testicular blood supply, resulting in focal or diffuse infarction of the testis or epididymis in the absence of torsion.[4]

Sue SR (1998) and Marks R (2009) reported a case of testicular infarct following acute epididymo-orchitis while infarction following chronic inflammation was reported by Nariculam et al (2007).[5-7]

When diagnosed, epididymitis and orchitis are managed conservatively with antibiotics, anti- inflammatories, analgesics, rest and scrotal elevation. If no clinical improvement is seen with conservative treatment, alternative treatment to antibiotic should be given.[8] According to Oleg Banyra et al orchiectomy is performed for subtotal destruction of testis.[9]

In present study, we found 19 cases of undescended testes (15.8%) of the total testicular specimens received with maximum orchiectomies in 3rd and 4th decade similar to Honark (1987).[10] High incidence of undescended testis can be due to preference of conservative management of non neoplastic lesions, referral of advanced cases of neoplasms, restrictions of certain surgical procedures and ignorance of the rural population towards undescended testis resulting into late presentations.

Osifo OD (2010) found (44.4%) of adults presented with

Lesions	Age (yrs)									Total
	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	
AEO	-	-	2	2	6	3	4	-	2	n = 19 (18.7%)
CEO	-	-	2	3	8	1	5	1	-	n = 20 (19.7%)
TBEO	-	-	-	4	2	-	1	-	-	n =7 (6.8%)
TI	-	4	6	1	-	1	1	-	-	n =13 (12.8%)
TA	-	4	2	4	2	3	6	2	-	n =23 (25.4%)
EC	-	1	1	4	1	2	5	1	-	n =15 (14.8%)
TVT	-	-	-	1	-	-	-	-	-	n =1 (0.9%)
TFS	-	-	1	-	-	-	-	-	-	n =1 (0.9%)
Total	0	9	14	19	19	11	24	4	2	102

(AEO – Acute epididymo-orchitis, CEO- Chronic epididymo-orchitis,TBEO-Tuberculous epididymo-orchitis,TI-Testicular Infarct, TA-Testicular atrophy, EC – Epididymal cyst, TVT-Testicular vein thrombosis, TFS-Testicular Feminizing syndrome.)

Table-1: Frequency of Non neoplastic lesions of the testis with age wise distribution

		Age (yrs)									Total
Lesions		0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	
Germ cell tumours		-	-	-	-	-	-	-	-	-	-
One histo. Type	CS	-	1	-	4	1	-	1	-	-	7
	SS+SAR	-	-	-	-	-	1	-	-	-	1
	YST	1		1	-	-	-	-	-	-	2
More than one histo. Type	MGCT	-	1	3	1	-	-	-	-	-	5
Haematopoietic		-	-	-	-	-	-	-	-	-	-
NHL		-	-	-	-	-	-	2	-	-	2
Paratesticular Mesenchymal tumours		-	-	-	-	-	-	-	-	-	-
PRMS		-	-	1	-	-	-	-	-	-	1
Total		1	2	5	5	1	1	3	-	-	18

(CS-Classical Seminoma, SS+ SAR -Spermatocytic Seminoma with sarcomatous change, YST-Yolk sac tumour, MGCT-Mixed Germ cell tumour, NHL-Non Hodgkins Lymphoma, PRMS-Paratesticular rhabdomyosarcoma)

Table-2: Frequency of histological variants of Neoplastic lesions with age-wise distribution.

Studies	% germ cell tumours	% non germ cell tumours
Moghe et al (1970)[13]	91.6%	8.4%
Gill et al (2000)[14]	83.5%	16.5%
Tsai et al (2007)[15]	91.4%	8.6%
Mushtaq et al (2007)[16]	67.3%	32.7%
Present study (2012)	83.3%	16.7%

Table-3: Percentage of germ cell and non germ cell tumours in other studies

Studies	CS	SS	YST	MGCT	GST	NHL	PRMS
Moghe et al (1970)[13]	41.6%	-	-	10.4%	3.1%	2.08%	-
Gill et al (2000)[14]	36.5%	1.18%	7.65%	28.82%	0.6%	8.23%	-
Tsai et al (2007)[15]	29.8%	-	4.3%	31.9%	-	4.3%	-
Mushtaq et al (2007)[16]	29.9%	0.9%	5.6%	14.01%	6.54%	18.70%	-
Present study (2012)	38.8%	5.5%	11.2%	27.8%	0	11.2%	5.5

Table-4: Percentage of histological variants of testicular neoplasm in other studies

infertility and only5 were self discovered or by health worker suggesting poor awareness regarding undescended testis.[11] In the present study 68.4% presented with inguinoscrotal region however in 3rd decade.

Testicular vein thrombosis was seen in one case after herniorrhaphy. Testicular ischaemia and necrosis after laparoscopic surgery is uncommon complication and is thought to be due to acute thrombosis of the pampiniform venous plexus.[12]

Similar percentage of germ cell and non germ cell tumours in

different studies and present study is closest to the studies done by Gill et al. (Table 3).

Studies done by Moghe et al and Gill et al shows 3rd and 4th decade as most commonly affected age group with classic seminoma been the most common tumour [Table 4] followed by MGCT similar to present study. Association of cryptorchidism with testicular neoplasm is seen in n = 2 (11.2%) of total neoplastic lesions which was comparable with stone et al (1991).[17] The most common presenting symptom was painless swelling which was similar to other studies.

CONCLUSION

Affection of a crucial organ of male reproductive system is seen in a peak age group of reproductive years and its excisison is disheartening. However an early clinical presentations by the patients as in cases of acute epididymo- orchitis and testicular torsion can prevent undue excisional treatment and early neonatal examinations for complete testicular descent can avoid future malignancies.

ACKNOWLEDGEMENTS

A very sincere thanks to Dr. A. R. Joshi, Professor, presently in G.M.C. Aurangabad and Dr. Rasika U. Gadkari, Associate Professor, presently in IGMC, Nagpur for their valuable advises. Also a sincere thanks to non teaching histopathology staff for their kind co-operation.

REFERENCES

1. David OO, Iyekoretin E. Undescended testis in a developing country: A study of the management of 71 patients. Afr J Paediatric Surgery. 2008;5:11.
2. Damjanov I. Male reproductive system. In: Damjanov I, Linder J, editors. Anderson's Pathology. 10th ed. Missouri: Mosby Elsevier; Vol.2.
3. Mathew T. The pathologic spectrum of paratesticular adnexal diseases: A ten year review of surgical biopsies. Singapore medical journal. 1981;22:342-46.
4. Bird K, Rosenfield AT. Testicular infarction secondary to inflammatory disease: demonstration by B-scan ultrasound. Radiology. 1984;152:785-8.
5. Sue SR, Pelucio M, Gibbs M. Testicular infarction in a patient with epididymitis. Acad Emerg Med. 1998;5:1128-30.
6. Marks R, McNeil K. Significance of reversal of diastolic blood flow in the evolution of testicular infarction as a complication of epididymo-orchitis. Journal of radiology case reports. 2009;3:21-25.
7. Nariculum J, Minhas S, Adeniyi A, Ralph DJ, Freeman A. A review of the efficacy of surgical treatment for and pathological changes in patients with chronic scrotal pain. BJU Int. 2007;99:1091-3.
8. https://www.cdc.gov/ Epididymitis – 2015 STD treatment guidelines
9. Oleg Banyra and Alexander Shulyak. Acute epididymo-orchitis: staging and treatment. Cent European J Urol. 2012;65:139-143.
10. Honark Hornak M, Pauer M, Bardos A, Ondrus D. The incidence of carcinoma in situ in post pubertal undescended testis. International urology and nephrology. 1987;19:321-325.
11. Osifo. OD Osifo, EO Osaigbovo. Adult Patients Presenting with undescended testis in awareness-Poor Region. African Journal of Urology. 2010.16(2).
12. Moore JB Hasenboehler EA. Orchiectomy as a result of ischemic orchitis after laparoscopic inguinal hernia repair: Case report of a rare complication. Patient safety in Surgery. 2007;1:3.
13. Moghe KV, Agarwal RV, Junnarkar RV. Tumours of the testis. The Indian Journal of Cancer. 1970:90-97.
14. Gill MS, Shah SH, Soomro IN, Kayani N, Hasan SH. Morphological Pattern of Testicular Tumors. Journal of Pakistan medical association. 2000;50:110-3.
15. Tsai TH, Tang SH, Huang YC, Wu ST, Lee SS, Cha TL et al. Analysis of the presenting symptoms of testicular cancers in young adults: Ten year experience at the Tri-Service General Hospital. J Med Sci. 2007;27:121-124.
16. Mushtaq S, Jamal S, Mamoon N, Akbar N, Khadim T. The pathological spectrum of malignant testicular tumours in northern Pakistan. J Pak Med Assoc. 2007;57:499-50.
17. Stone JM, Cruickshank DG, Sanderman TF, Matthews JP. Laterality, maldescent, trauma and other clinical factors in the epidemiology of testis cancer in ictoria, Australia. Br J Cancer. 1991;64:132-38.

Source of Support: Nil; **Conflict of Interest:** None

Submitted: 27-02-2017; **Accepted:** 18-03-2017; **Published:** 29-03-2017