Original Research Article

Clinico-pathological spectrum of testicular and paratesticular lesions: a retrospective study

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ABSTRACT

Background: Both neoplastic and non neoplastic conditions affect the testis. Although non neoplastic testicular lesions are more common, still most of the studies were done on testicular neoplasms only. Hence the present study was undertaken to study histopathological spectrum of testicular and paratesticular lesions, their age distribution and clinical presentation.

Methods: This is a retrospective study of 77 cases of orchidectomy specimens, testicular biopsies and paratesticular lesions received in the department from Jan 2015 to June 2018.

Results: Non neoplastic testicular lesions were more common than neoplastic (90.1% Vs 9.8%) with majority in the second and third decade. Undescended testis comprised 46.1% of the total orchidectomy specimens followed by Torsion/Infarction testis (15.3%). None of the undescended testis showed tumour unlike western countries. Majority of patients presented with empty scrotum (31.16%) and testicular/scrotal swelling (18.11%). Only 5 cases of testicular neoplasm were diagnosed during the study period amounting to only 1.42 cases per year. All were germ cell tumours (4 classic seminoma and 1 yolk sac tumour).

Conclusions: Non neoplastic testicular lesions were more common than neoplastic lesions. Complete neonatal examination for testicular descent should be mandatory to avoid late presentations and future malignancies. Germ cell tumours formed the bulk of testicular tumours.

Keywords: Germ cell tumour, Orchidectomy, Paratesticular lesions, Seminoma, Torsion testis, Undescended testis

INTRODUCTION

Testis is a male gonad which is homologous with the ovary of the female genital system. Testis is a unique and important organ of the male reproductive system.¹

Testicular lesion usually present with scrotal swelling, pain in scrotum and abdominal lump. Both neoplastic and non neoplastic conditions affect the testis. Non neoplastic testicular lesions include cryptorchid (undescended) testis, testicular torsion, testicular atrophy, epidermoid cysts, infections of testis like tuberculosis, malakoplakia and vasculitis.²

About 1% of one-year old boys are affected with undescended testis.³ A germ cell tumour is more likely to develop in an undescended testis than a normally placed testis. Atrophy of testis may develop from cryptorchidism, infections like mumps, liver cirrhosis, radiation therapy, chemotherapy, estrogens administration, AIDS and exposure to environmental toxins.⁴
Though the testicular tumours account for less than 1% of all malignancies in males, they constitute the fourth most common cause of death from neoplasia in younger males. Its incidence has been increasing in the western countries since the middle of twentieth century. There is a definite geographic and racial distribution in testicular tumours and its age distribution is also distinct from other tumours. The present study was undertaken to study histopathological spectrum of testicular and paratesticular lesions, their age distribution and clinical presentation from one of the tertiary care hospitals of Kashmir valley.

METHODS

The retrospective study was conducted in the department of pathology SKIMS Medical college and hospital Bemina, Srinagar, J and K, India over a period of three years and six months from January 2015 to June 2018. There were total of 77 cases. It comprises 52 orchidectomy specimens, 20 testicular biopsies and 5 paratesticular swellings.

Age, clinical details and indications of surgery/biopsy were noted from the requisition forms obtained from the record section of the department of pathology. The corresponding histopathology slides were also retrieved and reviewed wherever required.

The specimens received were fixed in 10% neutral buffered formalin and processed by routine histotechniques using an automated tissue processor and sections were stained with Haematoxylin and Eosin. Ziehl-Neelsen (ZN) staining was done wherever required for detection of acid fast bacilli (AFB). Immuno histochemistry (IHC) was done wherever necessary. Data was analysed using the SPSS Version 20 and presented as frequency and percentage. Testicular tumours were classified according to WHO classification (2004).

RESULTS

A total of 77 cases of testicular and paratesticular lesions received in the department over a period of three years and six months were included in the study. It comprises 52 orchidectomy specimens, 20 testicular biopsies and 5 paratesticular swellings.

Table 1: Mode of presentation.

| Clinical presentation | Number of cases | %  |
|-----------------------|-----------------|----|
| Empty scrotum         | 24              | 31.16% |
| Infertility/azoospermia | 20         | 25.97% |
| Scrotal/testicular swelling | 14    | 18.18% |
| Testicular pain       | 10              | 12.98% |
| Scrotal swelling+pain+fever | 04     | 5.19% |
| As part of hernia repair or treatment | 05 | 6.49% |
| Total                 | 77              | 100% |

Table 1 shows the mode of presentation. The most common presenting complaint was empty scrotum (31.16%) followed by scrotal/testicular swelling (18.11%) and testicular pain (12.98%). About 6.41% of orchidectomies specimens received were part of hernia repair or treatment. The histopathological spectrum of orchidectomies specimen along with age distribution is summarized in Table 2.

Table 2: Histopathological spectrum of orchidectomy specimens along with age distribution.

| Testicular lesions                  | 0-10 | 11-20 | 21-30 | 31-40 | 41-50 | 51-60 | 61-70 | 71-80 | Total (%) |
|-------------------------------------|------|-------|-------|-------|-------|-------|-------|-------|-----------|
| Undescended testis                 | 04   | 08    | 06    | 04    | 01    | 01    | 0     | 0     | 24 (46.1%)|
| Atrophic testis                    | 0    | 0     | 0     | 0     | 0     | 02    | 0     | 0     | 02 (3.8%) |
| Torsion/infarction testis          | 0    | 04    | 03    | 0     | 01    | 0     | 0     | 0     | 08 (15.3%)|
| Testicular abscess                 | 0    | 0     | 02    | 0     | 02    | 0     | 0     | 0     | 04 (7.6%) |
| Granulomatosus orchitis            | 0    | 0     | 0     | 01    | 0     | 0     | 0     | 0     | 01 (1.92%)|
| Leydig cell hyperplasia            | 0    | 0     | 0     | 01    | 0     | 0     | 0     | 0     | 01 (1.92%)|
| Miscellaneous (hernia, hydrocele)  | 0    | 0     | 01    | 01    | 02    | 01    | 0     | 0     | 07 (13.4%)|
| Seminoma –classic                  | 0    | 0     | 01    | 0     | 01    | 02    | 0     | 0     | 04 (7.6%) |
| Yolk sac tumour                    | 0    | 0     | 0     | 01    | 0     | 0     | 0     | 0     | 01 (1.92%)|
| Total                              | 04   | 13    | 13    | 07    | 03    | 08    | 03    | 01    | 52 (100%) |

Undescended testis comprised 46.1% of the total orchidectomies received. It was followed by torsion/infarction testis (15.3%) and testicular abscess (7.6%). Atrophic testis was noted in 3.8% of orchidectomies specimens received. A single case of granulomatosus orchitis and leydig cell hyperplasia was seen. AFB was not detected by ZN staining. Orchidectomies formed the part of treatment in 2 cases (3.8%) of hydrocele.

Only 5 cases (9.6%) of testicular neoplasm were diagnosed during the study period amounting to only 1.42
cases per year. All the 5 cases were germ cell tumour with age range of 15-67 years. Seminoma (n=4, 80%) was the commonest neoplasm followed by yolk sac tumour (n=1, 20%). In our study, none of the orchidectomy specimen received for undescended testis showed tumour.

About 33% cases of undescended testis were noted in the 11-20 years age group and 25% in 21-30 years age group. Age range of 6 to 55 years was noted. Torsion/infarction testis was mostly observed in the second decade of life (50%) followed by third decade (37.5%). Among testicular abscess, 2 cases each were seen in the age group of 21-30 and 51-60 years. In contrast to other studies, 2 cases (50%) of classic seminoma were noted in the elderly groups of patients of 61-70 years. A single case of yolk sac tumour was noted in a 15-year-old boy.

About 98.07% (n=51) of orchidectomies were unilateral and 1.92% (n=1) was bilateral with 52.94% right sided and 47.05% left sided.

All the 20 testicular biopsies received were for evaluation of infertility/azoospermia. Out of these, 9 cases were in the 21-30-year age group and 11 cases in 31-40 year age group. Atrophic testis (n=5, 25%) was the most common histopathological diagnosis followed by maturation arrest (n=4, 20%) and sertoli cell only syndrome (n=2, 10%). Normal spermatogenesis was seen in 2 cases (10%). About 1 case (5%) each of granulomatous orchitis and leydig cell hyperplasia was observed. Biopsy was considered unsatisfactory in 5 cases (25%) as only epididymal tissue was received.

Among paratesticular swellings, 2 cases of epididymal cyst, 1 case each of adenomatoid tumour and spermatocoele were seen in 41-50-year age group. A single case of inflammatory leiomyosarcoma of epididymis was noted in a 34-year-old male which was confirmed by IHC.

**DISCUSSION**

Both neoplastic and non neoplastic conditions affect the testis. In our study, non neoplastic lesions of testis were more common than neoplastic lesions (90.1% vs. 9.8%) which are correlating with other Indian studies as shown in Table 3.9,11

| Authors (years)             | Benign | Malignant |
|-----------------------------|--------|-----------|
| Karki S et al (2012)        | 88.5%  | 11.4%     |
| Patel MB et al (2015)       | 85%    | 15%       |
| Deore KS et al (2015)       | 91.7%  | 8.2%      |
| Mansi Sharma et al (2017)   | 93%    | 7%        |
| Present study (2018)        | 90.1%  | 9.8%      |

We found undescended testis (46.1%) as the most common non neoplastic lesion. However, none of the cases showed malignancy. A study by Sharma M et al, also showed the same results.9 In other studies from India, inflammatory lesions and torsion testis is the most common non neoplastic lesion.

In our study, undescended testis and torsion testis was commonly noted in second decade of life which is similar to study by Patel MB et al.3 Comparison of histopathological types of non neoplastic testicular lesions among other similar studies is given in Table 4.2,5,9,12

| Testicular lesion          | Reddy H et al (n=86) | Mansi Sharma et al (n=53) | Patel MB et al (n=85) | Gaikwad SL et al (n=120) | Present study (n=77) |
|----------------------------|----------------------|---------------------------|-----------------------|-------------------------|----------------------|
| Undescended testis         | 14%                  | 39.62%                    | 8.24%                 | 15.6%                   | 46.1%                |
| Torsion/infarction testis  | 22.1%                | 18.86%                    | 55.29%                | 12.8%                   | 15.3%                |
| Testicular abscess         | 19.76%               | 5.66%                     | 16.47%                | 18.7%                   | 7.6%                 |
| Granulomatous orchitis     | 3.5%                 | 3.77%                     | 9.4%                  | 6.8%                    | 2.59%                |
| Atrophic testis            | -                    | 16.98%                    | -                     | 9.80%                   | 9.09%                |

Testicular tumours were found to be rare in our study also, as described in the literature. All the 5 cases of neoplasm belonged to germ cell tumour category with 80% classical seminoma and 20% yolk sac tumour. Thus, amounting to only 1.42 cases per year. According to Mostofi et al, germ cell tumours constitute more than 94% of testicular tumours.11 Studies by Moghe KV et al, and Deotra A et al showed seminoma commonest in the third and fourth decades.14,15 In our study, we found 2 out of 4 cases of classic seminoma in 61-70-year age group.

In the study, we found high incidence of undescended testis and its late presentation. It can be due to the ignorance of the rural population which the hospital caters and referral of advanced cases of malignancies to the other tertiary care hospitals of Kashmir.
CONCLUSION

Non-neoplastic lesions of testis are more common than neoplastic. All the testicular and paratesticular specimens should be thoroughly grossed and examined to rule out neoplasia. Proper and complete neonatal examination for testicular descent should be mandatory to avoid late presentations and future malignancies. Germ cell tumours formed the bulk of testicular tumours in our study.

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