Original Article

TESTICULAR TUMOURS

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ABSTRACT

OBJECTIVE: To assess presentation and pattern of Testicular Tumors at Liaquat University Hospital Jamshoro / Hyderabad.

DESIGN: This descriptive study was conducted at surgical unit one of Liaquat University Hospital Jamshoro / Hyderabad with collaboration of Atomic Energy Medial Centre Jamshoro from January 1993 to December 1995.

PATIENTS AND METHODS: The patients were evaluated on especially prepared proforma by taking history, examination and carrying out relevant investigations. All patients after surgical procedure and proper diagnosis were referred to Atomic Energy Medical Centre for further management.

RESULTS: Seventy - two cases of Testicular tumors were dealt with during study period. Majority of patients (83.33%) belonged to rural areas with highest incidence in 3rd, 4th and 5th decades (76.38%) of their life. Right testis was involved relatively in more cases (55.55%) than the left and all patients presented with mass either involving testes or abdomen as main clinical feature. Orchidectomy for descended testes and laparotomy for undescended testes were performed. Seminoma (66.11%) and Teratoma (29.16%) were main types of testicular tumor confirmed on histopathology. Post-operatively, 67 patients received radiotherapy or chemotherapy or both and were followed up for 5 years. Only 3 cases (4.47%) were alive after 5 years showing poor prognosis.

CONCLUSION: Testicular tumors affect mainly young population during their reproductive age and have poor prognosis in our set up as compared to developed countries.

KEY WORDS: Testicular tumors. Presentation. Pattern. Management.

INTRODUCTION

Testicular tumors account for 1-2% of all cancers in men[1,2] and are the most common tumors seen in young males[3] at age varying from 15-44 years[4] affecting mainly the reproductive age[5]. These are uncommon in children and comprise of about 1% of pediatric malignancies[6] and are often benign[7].

The exact etiology of these tumors is not known but germ cell mutations occurring in utero may be the one cause of tumor development[1]. Another risk factor is abnormal development or maldescent testicle like cryptochidism[4]. There is stronger evidence between undescended testis and pure seminoma that may reflect genuine difference in etiology from other tumours[8]. The incidence of disease is rising steeply, presumably as a result of changing environmental factors and life style issues[1].

Malignant neoplasms of the testes may be of germinal or non-germinal origin i.e arising from gonadal stroma (interstitial cell tumors). Germ cell tumors include 97.24% and non - germinal cell tumors 2.75%[9]. Seminoma is the most common tumor followed by mixed germ cell tumor in germinal cell type[10]. Where as leydig cell tumors are most common neoplasms in non-germinal type of testicular tumours[11].

Though a good work has been done to see the epidemiology of this tumor in developed world but there is a dearth of data in this regard in developing countries including Pakistan. Therefore, we present our experience with testicular tumors focusing on their presenting pattern and outcome in our setting.

PATIENTS AND METHODS

This descriptive study of 72 patients was carried out from January 1993 to December 1995 with a follow up

of 5 years duration. Study was conducted in surgical unit one at Liaquat University Hospital Jamshoro, Pakistan with collaboration of Atomic Energy Medical Centre (AEMC) Jamshoro. Fifty patients (69.55%) were directly admitted and operated in surgical unit one whereas 22 cases (30.55%) were selected from AEMC who were referred from other hospitals as diagnosed cases after surgical treatment. All patients operated at Liaquat University Hospital were also referred to AEMC after being discharged for further management.

The patients were evaluated on especially prepared proforma comprising history, clinical examination and investigations after their admission in ward or from biodata record available in AEMC. All patients admitted in surgical department were investigated for routine as well special investigations like ultrasound examination of abdomen, pelvis and testes and CT Scan of abdomen in order to assess diagnosis and grade the tumors, where as tumor markers were only done in selected cases. The patients recruited from AEMC were assessed from medical record available there.

After clinical diagnosis of testicular tumors the patients were operated for orchidectomy and laparotomy (for cases of undescended testes) and their specimens were sent for histopatholgy in order to get tissue diagnosis for oncologist treatment depending upon the type of tumor. All ethical considerations related with study were also taken into account.

RESULTS

The age range of patients was 15 to 80 years with mean age at presentation of 24.3 years (**Table I**). Sixty (83.33%) patients belonged to rural and 12 (16.66%) to urban areas. Highest incidence of tumor was seen in 3rd, 4th and 5th decades of their life (55 cases; 76.38%). In 40 (55.55%) cases tumor involved right testis and in 32 (44.4%) cases left testis was affected whereas in none of the patient, bilateral involvement was seen. All 62 patients (86.11%) with normally descended testes presented with swelling of testes whereas 10 cases (13.88%) having undescended testes presented with mass in lower abdomen as main complaint (**Table II, III**). Forty-five cases (67.49%) revealed metastasis in different parts of body as assessed by ultrasound, CT scan and tumor markers. Majority of patients (73.51%) were found in stage I and II whereas 26.38% in Stage III and IV (**Table IV**).

Fifty-six patients (77.77%) under went inguinal route orchidectomy, 6 cases (8.33%) scrotal route orchidectomy and 9 cases (12.5%) laparotomy and debulkation of tumor as main surgical procedures (**Table V**). Histopathology revealed seminoma in 44 cases (66.11%), teratoma in 21 cases (29.16%) as main testicular tumors (**Table VI**). Post-operatively 20 (27.77%) cases received radiotherapy, 32 (44.44%) cases chemotherapy and 15 (20.83%) combined chemoradiotherapy while 5 patients (6.94%) left against medical advise. Sixty - seven patients were followed up for a duration of 5 years. Thirty patients (44.77%) came for one year follow up, 12 (17.91%) for 2 years and 3 cases (4.47%) up to 5 years period showing very poor 5 year survival rate and prognosis.

Table I showing age distribution of the patients

Age in years	No. of Patients	Percentage
10-20 years	06	8.33%
21-30 years	27	37.50%
31-40 years	18	25.00%
41-40 years	10	13.88%
51-60 years	08	11.11%
61-70 years	02	2.77%
71-80 years	01	1.38%
TOTAL	**72**	**100%**

Table II showing clinical features of patients

Symptoms	No. of Patients	Percentage
Swelling of Testis (Descended Testis)	62	86.11%
Pain in swelling	14	19.44%
Lump in lower Abdomen (undescended testes)	10	13.88%
Lump in upper abdomen	12	16.66%
Pain in abdomen	11	15.27%
Generalized weakness	08	11.11%
Lump in Neck	05	6.94%
Cough with Hemoptysis	05	6.94%

Table III showing findings of examination

Finding	No. of Patients	Percentage
Testicular Swelling (Descended testes)	62	86.11%
Lump in lower abdomen (undescended testes)	10	13.88%
Lump around umbilicus	17	25.00%
Thickening of spermatic cord	05	6.94%
Absence of testes		
i. Unilateral	07	9.72%
ii. Bilateral	03	4.16%
Hydrocele	04	5.55%
Lump in Neck	10	13.88%
Enlarged Liver	02	2.77%

Table IV showing staging of tumors

Stage	No. of Patients	Percentage
Stage-I	27	37.50%
Stage-II	26	36.11%
Stage-III	10	13.88%
Stage-IV	09	12.50%
TOTAL	**72**	**99.99%**

Table V showing operative procedures

Procedure	No. of Patients	Percentage
Orchidectomy		
i. Inguinal Route	65	77.77%
ii. Scrotal route	06	8.33%
Laparotomy		
i. Orchidectomy	05	6.94%
ii. Debulkation	03	4.16%
iii. Biopsy	01	1.38%
FNAC from abdominal mass	01	1.38%
TOTAL	**72**	**100%**

Table VI showing findings of Histopathology

Finding	No. of Patients	Percentage
Seminoma	44	66.11%
Teratoma (n=21 = 29.16%)		
i. Malignant teratoma	07	9.72%
ii. Malignant teratoma Intermediate (Teratocarcinoma)	02	2.77%
iii. Malignant teratoma anaplastic	10	13.88%
iv. Maligant teratoma trophoblastic	02	2.77%
Combined seminoma and teratoma	05	6.94%
Lymphoma (Buirkitts)	01	1.38%
Teratosarcoma (Rhabdomyosarcoma)	01	1.38%

DISCUSSION

Testicular tumors, though not a common malignancy but account for 1-2% of all malignant tumors in men[2] and particularly affect during the reproductive age[5]. These usually occur between the age of 15-44 years with highest incidence in 3rd and 4th decades of life.[10] In this study, maximum incidence was found in 3rd, 4th and 5th decades (76.38%). A slight predominance of right sided testicular tumors have been reported[10] and the same was found in this study, where right sided involvement was 55.55%. Bilateral testicular tumors account for 3.5% of all testicular malignancies,[12] however, no any case has been seen in this study.

The most frequent presentation is painless scrotal swelling[9,10] which has been supported by our findings of 86.11% in cases of descended testes whereas in cases of undescended testes (13.88%), abdominal mass was presenting feature.

Ultrasound examination is the most frequently ordered imaging modality once a palpable scrotal mass is discovered[13] and for testicular tumors, high resolution ultrasound should be performed[14] which may reveal 100% accuracy[4]. In our patients also

ultrasound abdomen and scrotum was the main investigation for clinical assessment of tumors along with basic investigations. For further staging of tumors CT Scan abdomen and pelvis and tumor markers were carried out which revealed 37.50% patients in stage I, 36.11% in stage II, 13.88% in stage III and 12.50% in stage IV category tumor. However, Ogawa T et al[9] in their study found 73.39% stage I, 19.26% stage II and 7.33% stage III tumors. Fetoproteins and beta submit of HCG are also widely used for diagnosis and therapeutic monitoring and follow up of patients with germ cell tumours[15,16]. Magnetic resonant imaging (MRI) is a high performance tool for morphological assessment and tissue characterization of scrotal tumours[17]. In this study, ultrasound examination of abdomen and scrotum in every patient and tumor markers in selected patients were done in follow up of the patients.

Histopathology results revealed 97.22% germinal cell tumors and 2.77% non-germinal cell tumors (Lymphoma and Rhabdomyosarcoma) which correlates with findings of Ogawa et al[9] who found germinal cell tumors in 97.24% of cases and non-germinal cell tumors in 2.75% of cases. In germinal cell tumors, seminoma presented in 66.11% of patients, teratoma in 29.16% and combined seminoma and teratoma in 6.94% of cases. Ogawa et al[9] found seminoma in 55.96% and non-seminomatous tumors in 41.28% of cases where as Tsukamoto T and Fukui I[18] found semioma in 50% of germinal cell tumors, which shows different percentage from present study. Lymphoma and Rhabdomyosarcoma were found as rare tumors each in one case.

Testicular lymphoma[19] and sarcoma[20] are unusual tumors as seen in different studies. However, epidemiology and histology of testicular tumors in Africa differ considerably from other reported series and Burkitt's lymphoma is the commonest tumor seen there[21]. Ogawa et al[9] found malignant lymphoma in 1.83% and rhabdomyosarcoma in 0.91% of cases.

All the patients after histopathological confirmation were referred to oncology department for further work up and management. The management of testicular tumors depend upon the stage of tumor, presence of tumor markers in blood and presence or absence of vascular invasion as assessed by pathologist[22]. Excellent results are found in stage I and II than stage III and IV tumors. Stage I and II seminoma are best treated by orchidectomy and prophylactic radiotherapy where as in stage I non-seminomatous tumors surveillance alone is successful.[23,24,25] Standard treatment for a patient with metastatic non-seminoma (II, III & IV) and more extensive seminoma (stage III & IV) is combination chemotherapy[25]. Lymph node dissection can be utilized in small volume metastatic tumours or masses which remain after chemotherapy in non-seminomatous tumours.[26] Germ cell cancer is highly sensitive to cisplatinum based chemotherapy along with etoposide and bleomycin resulting in cure rates of over 90% for patients with minimal metastatic disease or low tumor markers, 70% for intermediate disease and 50% for advanced disease.[27] COMPE (Cisplatinum, Oncovin, Methotraxate, Peplomycin and Etoposide) is also an effective chemotherapy for disseminated germ cell testicular tumours.

After oncology treatment, 67 patients remained for follow up, out of them, 58 patients regularly visited for their assessment whereas 9 (13.48%) patients did not attend the follow up. In 58 patients, 44.77% came upto one year, 17.91% upto 2 years, 11.94% for 3 years, 7.46% for 4 years and only 4.47% upto 5 years, giving a poor 5 year survival rate. However, different studies with therapeutic regimens currently available have given 5 year survival rate of more than 84.5% and 95.3%.

CONCLUSION

We conclude that testicular tumors affect young people in their reproductive age in our set up. Painless scrotal swelling in descended testes and abdominal mass in case of undescended testes is the common presentation of tumors. Majority of patients present in stage I and II disease showing awareness of people regarding the condition. Seminoma followed by teratoma are common testicular tumors. Five year survival is still poor in spite of early diagnosis and management with surgery and chemoradiotherapy.

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