

CORRELATION OF AGE WITH HISTOPATHOLOGICAL TYPE OF TESTICULAR TUMORS

Syed Qaiser Hussain Naqvi¹, Abdul Latif Ansari¹, Nazar Ali Memon²,
Jan Muhammad Memon³, Anwar Ali Akhund¹

¹Department of Pathology, ²Urology and ³Surgery, Peoples Medical College, Nawabshah, Pakistan

ABSTRACT

Background: The aim of the study was to find out the frequency and histopathologic type of various testicular tumors in correlation with age of the patients in our setup.

Material and Methods: It was a retrospective, descriptive study carried out at the Department of Pathology, Peoples Medical College, Nawabshah, Pakistan. All testicular tumors diagnosed from January 1991 to December 2005 were included in the study. The clinical data and surgical pathology reports with haematoxylin & eosin stained slides were obtained from the record. All the cases were reviewed and results tabulated. The patients were divided into six age groups and the tumors classified according to the pathological classification of testicular tumors.

Results: During this period 73 cases of testicular tumors were diagnosed in the department. All cases were diagnosed as germ cell tumors (100%); consisting of 57 (78.1%) cases of single histologic type and 16 (21.9%) cases of mixed germ cell tumors. Most of the cases presented in the 3rd and 4th decades. Seminoma was found to be the commonest tumor in 27 (37%) cases, embryonal carcinoma in 29 (27.4%) cases, teratocarcinoma in 11 (15.1%) cases, yolk sac tumor and teratoma each in 5 (6.8%) cases, embryonal carcinoma with seminoma in 3 (4.1%) cases and teratoma with seminoma in 2 (2.8%) cases.

Conclusion: In this study the ages of the patients and the frequency and histopathological findings in testicular tumors, with few exceptions are similar to other studies from different parts of the world, confirming the worldwide similarity of these parameters.

Key words: Testicular tumor, Frequency, Histopathology, Testis.

INTRODUCTION

Tumors are the major pathological lesion in the testis. They are divided into two categories: germ cell tumors and non-germ cell tumors derived from stroma and sex cord commonly known as sex cord stromal tumors¹. Germ cell tumors consist of about 95% of all testicular tumors. Most of the tumors are highly aggressive and capable of rapid and wide spread dissemination.² For unexplained reasons, there is a worldwide increase in the incidence of these tumors with peak incidence between 15-34 years of age. They are responsible for 10% of all cancer deaths in men in the United States. The sex cord stromal tumors are generally benign leading to endocrinologic syndromes due to elaboration of steroids.¹

Keeping all this in view, the present study was designed to determine the frequency, age incidence and histopathologic type of various testicular tumors diagnosed during the last 15 years from January 1991 to December 2005 in our setup.

MATERIAL AND METHODS

This is a retrospective study, carried out in the Department of Pathology at Peoples Medical College Nawabshah, Pakistan. The study was done on all testicular tumors diagnosed in the Department from January 1991 to December 2005. During this period a total number of 73 cases of testicular tumors were diagnosed. The clinical data and surgical pathology reports with haematoxylin & eosin stained slides were obtained from the record, all the cases were reviewed and results tabulated. The patients were divided into six age groups. The tumors were classified according to pathological classification of common testicular tumors.¹ Since it was a retrospective study so no staging, mode of treatment and prognosis could be included in this study.

RESULTS

During January 1991 to December 2005, 73 cases of testicular tumors were diagnosed. All of the cases were diagnosed as germ cell tumors of either

single histologic type or mixed germ cell tumor. No case of sex cord stromal neoplasm was observed.

The ages of patients ranged from 3 to 57 years with a mean age of 36 years in cases of germ cell tumors of single histologic type and 27 years in cases of mixed germ cell tumors. (Table-1)

Among these 73 cases, 57 (78.1%) cases were diagnosed as germ cell tumor of one histologic type and 16 (21.9%) were diagnosed as mixed germ cell tumor.

As shown in Table-2, in germ cell tumors of single histologic type, 27 cases were diagnosed as seminoma, these contribute to 37% of all germ cell tumors and 47.4% of germ cell tumor of one histologic type, among these majority of cases were observed in 4th decade with average age of 38 years. The tumor cells were found arranged in nests outlined by fibrous bands, in majority of cases these

Table-1: Age distribution of patients with testicular tumors. (n=73)

Age group	Number of cases	Percent-age
0-10	06	08.2
11-20	03	04.1
21-30	29	39.7
31-40	26	35.7
41-50	06	08.2
51-60	03	04.1

Table-2: Histopathological diagnosis of germ cell tumors of single histologic type. (n=57)

Histopathological Diagnosis	Number of cases	Percent-age
Seminoma	27	47.4
Embryonal Carcinoma	20	35.0
Yolk Sac Tumor	05	8.8
Teratoma	05	8.8
Total	57	100

Table-3: Histopathological diagnosis of mixed germ cell tumors. (n=16)

Histopathological Diagnosis	Number of cases	Percent-age
Teratoma + Embryonal Carcinoma (Teratocarcinoma)	11	68.7
Embryonal carcinoma + Seminoma	03	18.8
Teratoma+Seminoma	02	12.5
Total	16	100

bands were infiltrated by lymphocytes, plasma cells and histiocytes. In 13 cases tumor cells were arranged in trabecular or tubular patterns, 3 cases showed syncytio-trophoblastic giant cells and these patients also had elevated serum human chorionic gonadotrophin (hCG) levels mentioned in their file records, in one case osseous metaplasia was seen.

Embryonal carcinoma was present in 20 (27.4%) cases with peak incidence in the 3rd and 4th decades, these cases showed sheets of undifferentiated cells or papillary pattern with areas of necrosis and haemorrhage.

Yolk sac tumors were observed in 5 (6.8%) cases, all of these patients were in the 1st decade. They showed intermingling of epithelial and mesenchymal elements in an organoid fashion, microcystic spaces were seen with characteristic perivascular Schiller Duval bodies. Teratoma was seen in 5 (6.8%) cases with peak incidence in the 3rd decade.

As shown in Table-3, among mixed germ cell tumors, teratocarcinoma (Teratoma with Embryonal carcinoma) was seen in 11 (68.7%) cases. Embryonal carcinoma with seminoma was observed in 3 (18.8%) cases and Teratoma with Seminoma in 2 (12.5%) cases.

DISCUSSION

Testicular neoplasms span an amazing gamut of anatomic types.^{3,4} About 99% of neoplasms of the testis are malignant, and they only constitute about 1-2% of malignant tumors in male.⁵

In the current study maximum number of cases were seen in the 3rd decade. (Table-4), which confirms the results of other studies,⁶ but some studies show their occurrence in the 4th decade as well.^{7, 8}

Table-4: Histopathological diagnosis of testicular tumors with correlation to age groups. (n=73)

Histopathological Diagnosis	Age Group wise Number of Cases						Total
	0-10	11-20	21-30	31-40	41-50	51-60	
Seminoma	—	01	05	16	04	01	27 (37%)
Embryonal Carcinoma	01	01	11	05	01	01	20 (27.4%)
Teratocarcinoma	—	—	07	02	01	01	11 (15.1%)
Yolk Sac Tumor	05	—	—	—	—	—	05 (6.8%)
Teratoma	—	01	03	01	—	—	05 (6.8%)
Embryonal Carcinoma + Seminoma	—	—	02	01	—	—	03 (4.1%)
Teratoma + Seminoma	—	—	01	01	—	—	02 (2.8%)
Total	06	03	29	26	06	03	73 (100%)

Seminoma was found to be the commonest tumor among all germ cell tumors in the 3rd and 4th decades, contributing to 37% of cases (Table-4), similar findings were observed by Deotra,⁶ who observed it in 34% of cases, but some workers show up-to 50% of cases of seminoma in germ cell tumors.^{1,9} The various histological findings in our study were also observed by other workers.¹⁰ For example the presence of osseous metaplasia, trabecular and tubular patterns, and the association of syncytiotrophoblastic giant cell with raised hCG levels are observed by other workers in similar way.^{6, 11, 12, 13}

Embryonal carcinoma was observed in 27.4 % of cases in the current study. Similar frequency and histological findings were also observed by others.^{6, 14}

Yolk sac tumor and teratoma, each were observed in 6.8 % of cases. The age incidence, frequency and histological findings in current study confirm the similar findings of other workers.^{15, 16}

Among the mixed germ cell tumors, the teratocarcinoma was observed in 15.1% of cases; similar observation was seen in other studies.⁶ But a high frequency of 40 %¹⁷ and low frequency of 6.8 %¹⁸ were recorded by some workers. Embryonal carcinoma with seminoma was observed in 4.1% of the cases and teratoma with seminoma in 2.8 % in the current study, these findings are similar to some studies.⁶ Though a higher frequency of 6.3%⁷ of embryonal carcinoma with seminoma and 8.7%¹⁹ of teratoma with seminoma are on record. Majority of cases of mixed germ cell tumors were observed in

the 3rd decade, Deotra⁶ also observed similar findings with same histological observations.

CONCLUSION

In the current study the ages of patients, the frequency of subtypes and histopathological findings in testicular tumors are with few exceptions similar to other studies from different parts of the world. This confirms the worldwide similarity of these parameters.

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Address for Correspondence:

Dr. Syed Qaiser Hussain Naqvi
Assistant Prof. Pathology
Department of Pathology
Peoples Medical College
Nawabshah, Pakistan
Cell: 03003210687