Presentation of Patients With Testicular Tumors In Different Age Groups With Tumor Markers

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ABSTRACT

Objective — *To find out clinical presentation of patients with testicular tumors in different age groups along with tumor markers.*

Study design — *A retrospective observational study.*

Place & Duration of study — *Department of General Surgery, Liaquat University of Medical & Health Sciences (LUMHS), from January 2018 to December 2020.*

Methodology — *Patient's details like age at presentation, social and demographic information, investigations done and operative findings were filled into a predesigned form. Analysis was done to determine the common age of presentation and tumors markers in these patients.*

Results — *During the study period 53 patients having testicular tumor came to General Surgery Departments of our hospital for treatment purpose. The age of the patients was from 4 years to 85 years with the mean age of 32.3 year. Twenty-nine (54.7%) patients had their first symptom as scrotal swelling followed by hydrocele formation. Thirty-seven (69.8%) patients had involvement of right testis and 16 (30.1%) with left testicular tumor. Preoperatively tumor markers were assessed and elevated alpha fetoprotein and beta-hCG levels were found in five (9.4%) and 24 (45.2%) patients respectively.*

Conclusions — *Patients presented with typical symptoms. Tumor markers provided useful information about the type of tumor, its characteristics and possibility of recurrence.*

Key words — *Testicular tumors, Tumor Markers, Scrotal mass, Men.*

INTRODUCTION:

Testicular cancer is a rare entity occurring only in 1% of males. It usually affects males aged 14 years to 44 years and accounts for 2% of solid tumors in pediatric population.[1] Testicular tumors have a bimodal age distribution, the first peak occurs in first three years of life and the second peak in post-pubertal age.[2] Pre-pubertal testicular tumors occurs less frequently in comparison to post-pubertal testicular tumors and both have distinctive histopathological characteristics.[3]

Histologically testicular tumors can be classified into germ cell tumors and its early fetal precursors. Germ cell tumors (GCT) are further subdivided into seminomas and non-seminomatous germ cell tumors.[4] Germ cell tumors are further divided into three categories according to the age, histology and cellular origin.[5] Type I GCT includes teratomas and yolk sac tumors of neonates and infants whereas type II GCT includes seminomas and non-seminomatous tumors originating from pre-existent Germ cell neoplasia in situ (GCNIS) of the testis in adolescents and adults. Type III category of GCT

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includes only spermatocytic tumors (previously known as spermatocytic seminomas). They do not require a pre-invasive GCNIS in older adults.[6] Around 90% of the testicular tumors occurring in our population belong to type II. The stromal cell tumors are the least common variant of all testicular tumors.[7] Metastasis to the testis and primary lymphomas of testis are rare and only confined to the older age patients.[8]

Pre-pubertal testicular tumors are more often benign as compared to post-pubertal testicular tumors.[9] The largest retrospective evaluation of Maligne Keimzelltumoren (MAKEI) dataset suggested that age is the most important prognostic indicator in testicular tumors.[10] The presenting symptoms of testicular tumors include painless swelling of testis, dull scrotal pain with dragging sensation.[11]

With the recent advances in treatment options, complete remission of the tumor is possible with preservation of fertility. Preoperative workup for testicular tumor includes ultrasound of both gonads and serum tumor markers. For unilateral testicular tumors, radical inguinal orchiectomy is the standard approach. In pre-pubertal age group testis sparing surgeries can be performed for benign tumors.[12] Orchiectomy can lead to psychological side effects and fertility issues.[13] The rationale of this study was to document clinical presentation and survival outcome of testicular cancer patients.

METHODOLOGY:

This was a retrospective observational study conducted in the General Surgery Departments of Liaquat University of Medical & Health Sciences from January 2018 to December 2020. Patients of testicular tumors operated were included. According to the hospital record 61 patients presented with testicular mass. Out of these, eight patients were excluded due to non-testicular etiology. Variables assessed included age at presentation, social and demographic information, investigations and operative findings. Tumor markers measured included beta HCG, alpha fetoprotein (AFP), placental like alkaline phosphatase and lactate dehydrogenase. Data analysis were done by SPSS version 20. Descriptive statistics were used to present data.

RESULTS:

During the study period 53 patients with testicular tumors were managed. The age of the patients was from 4 years to 85 years with the mean age of 32.3 year. Table I shows the symptoms at presentation most common of which was scrotal swelling followed by hydrocele formation. On examination it was found that 37 (69.8%) patients had right testicular tumor whereas in 16 (30.1%) left side was involved. The elevated alpha fetoprotein and beta-hCG levels were found in 5 (9.4%) 24 (45.2%) patients respectively. Biopsy of excised tissues showed that 38 (71.6%) patients had malignant testicular tumors. Table II shows the distribution of cases based on histopathology.

DISCUSSION:

This study was focused on clinical presentation, diagnosis with the aid of tumor markers and

Table I: Symptoms at Presentation

Symptoms	Number (n)	Percentage (%)
Scrotal swelling	29	54.7%
Scrotal swelling with hydrocele	12	22.6%
Scrotal swelling with pain	4	7.5%
Cryptorchidism	6	11.3%
Testicular pain (dragging)	10	18.8%

Table II: Histopathological Types of Tumors

Type	Number of Cases (n)	Percentage (%)
Seminomas	23	43.3%
Spermatocytic seminomas	3	5.6%
Embryonal carcinoma	4	7.5%
Yolk sac tumor	2	37.7%
Teratomas	7	13.2%
Tumor of mixed histology	14	26.4%

histological types of testicular tumors as data on this problem is lacking. The mean age of the patients was 32.3 years though there was marked variation in the age, from 4-year to 85-year. This observation is somewhat similar to that reported by Bhatti et al where median age was 33 years with range from 17 years to 78 years.[14] It appears that they did not include pediatric population. In our study more than 50% patients had their first symptom as scrotal swelling followed by hydrocele formation. The least reported symptom was testicular swelling with pain in only four patients. In a study by Taskinen similar findings were reported.[15]

In clinical practice tumor markers are used as serologic markers either detected by immunohistochemistry or directly measured from serum.[16] Serologic markers used for testicular tumors for germ cell tumors include human chorionic gonadotropin (HCG, alpha fetoprotein (AFP), placental like alkaline phosphatase and lactate dehydrogenase etc.[17] Most frequently measured tumor markers include AFP, HCG, and LDH. They are also part of the staging workup for these tumors and prognosis.[18] In our study most common tumor found was seminoma followed by tumor of mixed histology. This is similar to other reported studies.[18]

CONCLUSIONS:

Patients of testicular tumors present with typical symptoms of painless swelling. Tumor markers also provided useful information about the nature of the tumor.

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