CLINICOHISTOPATHOLOGICAL STUDY OF TESTICULAR TUMOURS IN DR. HASAN SADIKIN GENERAL HOSPITAL BANDUNG

[1]Rindra Rizqyahya Retossa, [2]AnglitaYantisetiasti, [4]Gita Tiara Dewi Nasution, [3]Ahmad Agil [4] Muhammad Hasan Bashari.

[1] Undergraduate School, Faculty of Medicine/University ofPadjadjaran, Bandung.
[2]Department of Anatomic Pathology, Faculty of Medicine/University of Padjadjaran, HasanSadikinGeneral Hospital, Bandung.
[3]Department of Urology, Faculty of Medicine/University of Padjadjaran, HasanSadikinGeneral Hospital, Bandung.
[4]Department of Basic Medical Sciences, Faculty of Medicine/University ofPadjadjaran, Bandung.

ABSTRACT

Objective: *The purpose of this research was to describe the clinical and histopathological characteristics of testicular tumours at Hasan Sadikin General Hospital(RSHS) between 2017-2021.* ***Material & Methods:*** *This research was a cross-sectional descriptive study examining the clinical and histopathological profiles of testicular tumours. The secondary data sources included medical records from the Department of Urology, Anatomic Pathology, Medical Records, and Hospital Information System (SIRS). The collected data coveredage, ethnicity, clinical symptoms, site, stage, annual prevalence rate, and analyzed using Microsoft Excel.* ***Results:*** *There were 42 patients who had primary testicular tumour. The highest prevalence of testicular tumours at RSHS was in 2019 consist of 12(29%) patients and the lowest in 2020 were 6(14%) patients. Most patients were >35 years old amounting 19(45%) patients, Sundanese ethnicity were 29(69%) patients, and testicular enlargement revealed in 27(64%) patients. Majority patients were in stage 0/IB 36(86%) patients and occurred in unilateral testis which 34(80%) patients, with 3(7%) patients metastasized. The most common histopathological type was seminoma 18(43%) cases followed by prepubertal-type yolk sac tumour 9(21%) patients. Seminomas, and the fibroma-the coma group were mostly in patients over 35 years old, while prepubertal-type yolk sac tumour was more commonly in children under 15 years old.* ***Conclusion:*** *Prevalence of testicular tumours increased from 2017 to 2019, then started to decrease in 2020. Histopathologically, seminoma was the most common type. These tumours were most commonly found in older individuals (>35 YO) and unilateral, diagnosed in stage 0/IB, and were mostly presented with enlargement of testis.*

Keywords: *Testicular tumours,clinical features, histopathology.*

ABSTRAK

Tujuan: *Tujuan penelitian ini adalah untuk mengetahui gambaran klinis dan histopatologis tumor testis di RSUP DR. Hasan Sadikin (RSHS) Tahun 2017-2021.* ***Bahan & Cara:*** *Penelitian ini merupakan deskriptif cross-sectional profil klinis dan histopatologi tumor testis. Sumber data yang diteliti merupakan data sekunder meliputi rekam medis dari Departemen Urologi, Patologi Anatomik, Rekam Medis, dan Sistem Informasi Rumah Sakit (SIRS). Data yang dikumpulkan meliputi usia, etnis, gejala klinis, lokasi, stadium, tingkat prevalensi tahunan, kemudian dianalisis menggunakan Microsoft Excel.* ***Hasil:*** *Terdapat 42 pasien mengalami tumor testis. Insidensi tumor testis tertinggi di RSHS terdapat pada tahun 2019 terdapat 12(29%) pasien dan terendah pada tahun 2020 dengan 6(14%) pasien. Mayoritas pasien berusia >35 tahun berjumlah 19(45%) pasien, bersuku sunda terdapat 29(69%) pasien, mengalami pembesaran testis terdapat 27(64%) pasien, mengidap stadium 0 atau IB yaitu sebanyak 36(86%) pasien dan terjadi pada testis unilateral pada 34(80%) pasien, dengan 3(7%) pasien mengalami metastasis. Jenis histopatologis yang paling umum adalah seminoma dengan 18(43%) pasien, diikuti oleh yolk sac tumor tipe prapubertas dengan 9(21%) pasien. Kebanyakan seminomadan tumor dalam kelompok fibroma-tekoma ditemukan pada pasien berusia lebih dari 35 tahun, sedangkan pada usia kurang dari 15 sering ditemukan berupa yolk sac tumor prapubertas.* ***Simpulan:****Angka kejadian tumor testis meningkat dari tahun 2017-2019, dan menurun pada tahun 2020. Seminoma adalah yang paling umum terjadi. Tumor testis lebih banyak ditemukan pada lansia dan testis unilateral, dengan diagnosis stadium 0/IB, dan menunjukkan pembesaran pada testis.*

Kata kunci: *Tumor testis, gambaranklinis, histopatologis.*

Correspondence: AnglitaYantisetiasti, c/o: Department of Anatomic Pathology, Faculty of Medicine/University of Padjadjaran, Hasan Sadikin General Hospital, Jl. Raya Bandung Sumedang KM.21, Hegarmanah, Kec. Jatinangor, Kabupaten Sumedang, Jawa Barat 45363. Telp/Fax (022) 842 88898. Mobile Phone: 08122444150. Email: anglita.yantisetiasti@unpad.ac.id.

INTRODUCTION

Testicular cancer is a relatively uncommon type of malignancy with a worldwide occurrence rate of 1.8% and a death rate of 0.22%.[1] The incidence of testicular tumour has been rising since 70 years ago with in Western Europe as the most increasing occurrence and the lowest in Central Africa.[2]

There has been a noticeable increase trends of testicular tumours with a 1.2% yearly increase observed in the past decade in the United States. In 2021, the number of new testicular tumour cases was 9.910, with estimating 460 deaths. In comparison, in 2016, the US had 8720 cases and 380 deaths.[3] A prediction made in 2019 for the period of 2010-2035 shows that 15 out of 24 European countries will experience an increase in testicular tumour cases of up to 3% per year.[4]

The 2017 study conducted at Dr. Moh. Hoesin General Hospital in Palembang shows that the age group with the highest incidence of testicular tumours is 25-36 years old, accounting for 34% of the 51 cases. The most common histopathological finding is seminoma, accounting for 31.4% of the cases.[5] Meanwhile, a study in 2018 on the prevalence of testicular tumours in Soetomo General Hospital, Surabaya from 2008-2013. The study shows that the average age of testicular tumour patients is 15-35 years old, with seminoma being the most common type, accounting for 80% of 46 patients.[6] Unfortunately, a definitive prevalence rate for testicular tumours in Indonesia has yet to be established.

OBJECTIVE

The objective of this study is to examine and analyse the clinical characteristics and histopathology of testicular tumours that were diagnosed at DR. Hasan Sadikin General Hospital between the years of 2017 to 2021.

MATERIAL & METHODS

The present study was a descriptive research employing a cross-sectional methodology with the aim of comprehending the clinical and histopathological profiles of testicular tumours at Dr. Hasan Sadikin as referral hospital during the period of January 2017 to December 2021. Secondary data extracted from medical records at the Department of Urology, Anatomic Pathology, Hospital Information System (SIRS), and the Department of Medical Records served as the data source.

The gathered information encompasses age, ethnicity, site, clinical symptoms, stage, annual prevalence rate, and age distribution stratified by histopathological type. The collected data was analysed utilizing Microsoft Excel statistical software to produce a comprehensive overview of the clinical and histopathological profiles of testicular tumours at Dr. Hasan Sadikin Bandung General Hospital.

RESULTS

Out of 56 patients obtained, 14 of them experienced tumours of paratesticular structure or mesenchymal tumour of testicular adnexa. The occurrence of primary testicular tumours among the 42 patients in RSHS depicted a comparison of testicular tumour prevalence at 1:832 (0.12%) compared to the overall prevalence of tumours from 2017-2021, which was 34,951 patients.

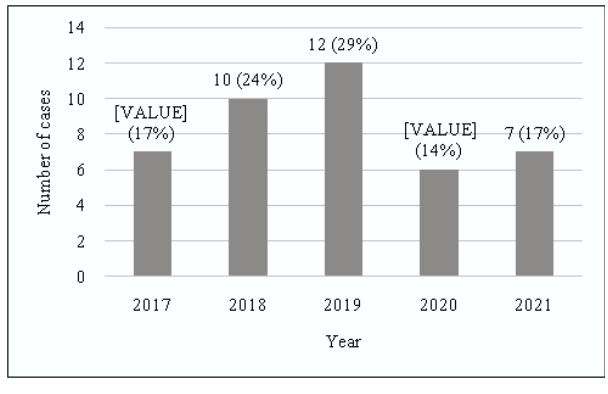

Chart 1. Annual prevalence rate of testicular tumour.

The highest prevalence of testicular tumours occurred in 2019 with 12(29%) patients, while the lowest prevalence occurred in 2020 with 6(14%) patients (Chart 1).

Most testicular tumour patients were over 35 years old, making up 45% of the total number of patients. This was then followed by patients aged 15-35, representing 31% of the patients. The age group least affected by testicular tumours was those under 15 years old. It was also noted that Sundanese patients dominated the occurrence of these testicular tumours, with 29(69%) patients (Table 1).

Table 1. Characteristic based on age, ethnicity.

Characteristic	Total (n=42)
Age (years)[6-7]	
<15	10(24)
15-35	13(31)
>35	19(45)
Ethnicity	
Sundanese	29(69)
Non-Sundanese	13(31)

Based on the medical histories collected, it was found that most testicular tumour patients experienced testicular enlargement, with or without accompanying symptoms. However, most patients only had one complaint when they arrived at the hospital. The least commonly found symptoms were back pain and dull ache pain in the suprapubic area, with only 1(2%) patient each (Table 2).

Table 2. Characteristic based on main symptoms.

Characteristic	Total (n=42)
Enlargement of Testis *	27(64)
Enlargement of Scrotum	9(21)
Pain in the Testis	4(10)
Dull Ache Pain in Suprapubic	1(2)
Back Pain	1(2)

* With ad d itionalsymptomps

The tumour had an equal distribution of prevalence in both the left and right testis. Meanwhile, bilateral testes involvement was only found in 8(19%) patients.

According to the main symptom characteristics, most testicular tumour patients were only at stage 0 or stage IB with the same prevalence of 18(43%) patients each, and 3(7%) of them had already metastasized (Table 3).

The most commonly found histopathological type of testicular tumour was seminoma, with 18(43%) patients, followed by yolk sac tumour in the prepubertal-type, with 9(21%) patients. The least commonly occurring types were mixed germ cell tumour, embryonal carcinoma, teratoma in the postpubertal-type, and yolk sac tumour in the postpubertal-type, each with 2(5%) patients (Table 4).

Both staging and histopathological characteristics in this study were analyzed based on the description of observations under a microscope by Department of Anatomic Pathology. Both were classified based on the characteristics and pTNM after surgery was performed.

Table 3. Characteristic based on site and stage grouping

Characteristic	Total (n=42)
Site	
Testis Unilateral	34(80)
Testis Bilateral	8(19)
Stage Grouping	
Stage 0	18(43)
Stage IB	18(43)
Stage II	1(2)
Stage IIA	1(2)
Stage IIB	1(2)
StageIII	1(2)
Stage IIIB	1(2)
Stage IIIC	1(2)

Table 4. Characteristics based on histopathological type.

Characteristic	Total (n=42)
Seminoma	18(43)
Yolk Sac Tumour Prepubertal -type	9(21)
Tumours in the Fibroma - thecoma Group	4(10)
Mix Teratoma and Yolk Sac Tumour, Prepubertal -type	3(7)
Mixed Grem Cell Tumours	2(5)
Embryonal Carcinoma	2(5)
Teratoma, Postpubertal-type	2(5)
Yolk Sac Tumour, Postpubertal-type	2(5)

It was observed that most seminoma tumours occurred in patients over the age of 35, with 12(29%) patients, followed by patients with ages ranging from 15-35, with 6(14%) patients. The yolk sac tumour in the prepubertal-type, was more commonly found in children and adolescents under the age of 15, with 9(21%) patients. On the other hand, the fibroma-thecoma group was more frequently found in patients over the age of 35 (Table 5).

Table 5. Prevalence of histopathological type based on age [6-7]

	Total (n=42)		
	<15	**15-35**	**>35**
Seminoma		6(14)	12(29)
Yolk Sac Tumour Prepubertal-type	9(21)		
Tumours in the Fibroma-thecoma Group			4(10)
Other Tumours	1(2)	7(17)	3(7)

DISCUSSION

In the past 40 years, urogenital tract tumours, including testicular tumours, have seen a two-fold increase in prevalence based on trends.[8] According to data obtained, the prevalence from 2017 to 2019 indeed increase from 7 to 12 patients.

In recent years, the COVID-19 pandemic has had a major impact not only on human health, but also on the global healthcare system.[9] During the years 2020 to 2021, the number of cases of testicular tumours decreased compared to previous years. This is likely due to the increased focus on fighting the spread of COVID-19, as well as the general disruption of the healthcare system. Many patients were hesitant to seek medical care due to the risk of exposure to the virus, leading to a decrease in the number of patients diagnosed with testicular tumours. Moreover, with limited resources and hospital capacity being redirected towards handling the pandemic, there has been a decrease in the number of examination performed for testicular tumours.[10]

Some studies in Indonesia have stated that the highest rate of testicular tumour occurrence is in the age range of 15-35.[6-7] However, recent studies have shown that there is an increase in the number of tumours worldwide in elder age. In general, increasing age leads to an increase in genomic instability (GI) and mutations.[11] In this scenario, the GI and mutations on chromosome 12 can result in an overexpression of the chromosome, causing the growth of testicular germ cell tumours.[12] Additionally, research conducted over 43 years showed a growing trend of testicular tumours cases among individuals aged 50-64, while the incidence remained constant for those over 65 years old.[13]This study revealed that patients over 35years old had the highest rate of testicular tumour occurrences, accounting for 45% of cases, followed by patients aged 15-35 with 31%, and the least common cases were in patients under 15 with 24%.

In this study, it was found that the average age of patients diagnosed with testicular tumours was 35.2 years old, which aligns with the findings of Yamashita et al., who reported an average age of 34.[14] On the other hand, a study conducted at University of Brawijaya found an average age of 34.5.[15]

Patients with testicular tumours at RSHS mainly presented with enlargement of the testis and scrotum. Only 10% of patients had pain in the testis. Most patients only have one symptom, but some have 2-3 symptoms. One patient had more than three symptoms. To further clarify, the data provided an overview of the common symptoms that were presented by patients with enlargement testicular and scrotum.[16]

The data showed early detection of testicular tumours due to high patient awareness, with most diagnosed at stage IB or even 0. This was due to patients only presenting with one symptom, testicular enlargement, allowing for comparison to the other testis. More symptoms occurred as the tumours stage increases.It's worth mentioning that the death rate caused by testicular tumours is very low. The 5-year survival rate has significantly improved, rising from 63% to over 90% in the past 30 years.[17] Early detection through increased patient awareness is a key factor in achieving these high survival rates, and supports the importance of continued education and awareness efforts to improve patient outcomes.

The data of this study provide insights into the histopathological distribution of testicular tumours among patients diagnosed over a period of five years at RSHS, in accordance with the WHO guideline on this particularly case.[18] The study found that43% of patients had seminoma, followed by 21% having prepubertal-type yolk sac tumour. The least common types were embryonal carcinoma, teratoma in the postpubertal-type, mixed germ cell tumour, and yolk sac tumour in the postpubertal-type, accounting for 5% each. The data obtained shows in accordance with various studies carried out at DR. Moh. Hoesin and Soetomo General Hospital that have already been done.[5-6]

This study found seminomas andfibroma-thecoma group tumourwere common in patients over 35, meanwhile yolk sac tumours in prepubertal-

type were in those under 15. Testicular tumour varies with age.

There were limitations present in this study. One of the limitations was the inability to identify risk factors for the development of testicular tumours. Despite this, it is crucial to understand the risk factors for the disease as it can aid in early detection and treatment. Further studies should be conducted to gain a more comprehensive understanding of the risk factors and to enhance the handling of testicular tumours.

CONCLUSION

There were 42 patients who have primary testicular tumourbetween 2017-2021 in RSHS. Seminoma was the most common type. These tumours were most commonly found in older individuals over 35 years old andwere unilateral, diagnosed in stage 0/IB, and were mostly presented with enlargement of testis.

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