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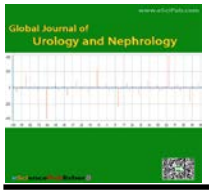

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Epidemiological Profile and Histopathological Aspects of Malignant Tumors of Testicle in Yaounde and Douala (Cameroon)

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ABSTRACT

Objective: Determine the epidemiological profile and histopathological aspects of testicular cancer in the two major cities of Cameroon, Yaoundé and Douala.

Patients and methods: It was a retrospective cross-sectional descriptive study conducted in the reference structures approved for anatomopathological examination in Yaoundé and Douala. The study was conducted over a 17-year period (2001-2017). We included all cases of histologically confirmed testicular tumors. Variables included frequency, year of diagnosis, sociodemographic data, clinical aspects, types of sampling, gross macroscopy, and histological types.

Results: We collected 81 cases of testicular tumors (49 benign tumors and 32 malignant tumors), with a mean age of diagnosis of 36.27 ± 18.9 years. For malignant tumors, the mean age was 40.25 ± 25.02 years, the predominant age group was 20-29 years (25%), the predominant type of specimen was the orchidectomy %, the predominant histological types were germ cell tumors with 30% seminomas.

Conclusion: Testicular tumoral pathology affects more young man and is dominated by seminoma-type germ tumors.

Keywords: Malignant testicular tumors; Epidemiology; Histology; Cameroon

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INTRODUCTION

Testicular tumors are rare with an age-standardized incidence rate of 1 to 2 per 100 mil person-years [1,2]. However, they are the most common among young men, between the ages of 20-34 [1]. Some countries, such as Denmark, the United States of America, Australia and New Zealand, show a high incidence of breast cancer, cancer of the testicle is 4 to 6/100 thousand men, while Africa, especially North and West Africa, and Asia have an incidence of less than 2/100 thousand men [3, 4, 5]. Testicular cancers are histologically 95% represented by germ cell tumors, the leader of which consists of seminomas followed by non-seminomatous tumors, and 5% of non-germinal tumors. The benign tumors of the testicle, according to various literary sources, seem very rare, that's why the diagnosis of cancer is immediately mentioned, from the clinical examination, which shows a hard and irregular mass, insensitive or less painful of a testicle [6]. In Cameroon, the literature reports some cases of testicular cancer. Several studies of urogenital cancers from 2004 to 2016 place testicular cancer fourth behind the prostate, kidney and bladder [7]. However, the study of benign and malignant testicular tumors remains patchy and incompletely documented in Cameroon. This is why we set ourselves the objective of studying the epidemiological profile and the histopathological aspects of this disease in our country, that is, highlighting the epidemiological data of cases of testicular tumor diagnosed as well as their histopathological forms.

PATIENTS AND METHODS

The institutional ethics committee approved this prospective study.

This is a retrospective descriptive and analytical study of histologically proven malignant testicle tumors, diagnosed between January 2001 and December 2017. The study took place in the main public and private pathological anatomy laboratories in Yaounde and in Douala. We needed the reports of histopathological examinations of the various laboratories solicited, all the necessary documentation relating to our subject (books, journals, specific publications ...), and a well defined office equipment. The samples generally come from previous unresolved surgery, cancerology or urology departments. The samples examined were mainly composed of biopsies and surgical specimens fixed in 10% formalin and processed according to the usual techniques of paraffin embedding, microtome cutting and staining with hematoxylineosin. Only patients for whom the diagnosis was confirmed by histology were included in the study. The information obtained included frequency, age, sex, histological type of the tumor. Data entry was done using computer based statistical Package for Social Sciences (SPSS) version 20. The elements of descriptive statistics were used to calculate the frequencies and proportions.

RESULTS

Frequency

Place of testicular tumors among male urogenital tumors:

During our study, we collected 1523 cases of malignant and benign urogenital tumors in Yaounde and Douala. In general, the organ most represented is the prostate-1244 case (81.68%), followed by the kidney-109 case (7.15%) and in the third position the testicle-81 case (5.31%).

More specifically, 1013 cases of malignancy whose most represented organ is prostate-809 cases (79.86%), followed by kidney-97 cases (9.58%), bladder-46 cases (4.54%).) and in 4th position the testis-32 cases (3.16%); 510 mild cases: prostate-435 cases (85.29%), kidney-12 cases (2.35%) and thirdly the testis-49 cases (9.61%) (See Table 1).

Age of diagnosis

In the particular case of the testis, the overall average age is 36.27 ± 18.9 years.

Years of diagnosis of testicular tumors and evolution

We notice a progressively increasing evolution of all tumors with a first peak in the year 2010, then 2014 and finally a bigger peak in 2017. In terms of malignant tumors, the year 2011-7 case

is the most prolific, and in terms of benign tumors 2017-12 case is the most prolific (see Figure 1).

Age

The average age here is 40.25 ± 25.02 years, with extremes of 8 to 77 years. In this series, the most represented age group is [20-29] years-8 cases (25%) (See Figure 2).

Table 1: Number of tumors according to organs affected.

Organ	Malignant tumors		Benign tumors		Total	
	Effectif	Percentage (%)	Effectif	Percentage (%)	Effectif	Percentage (%)
Prostate	809	79.86	435	85.29	1244	81.68
Kidney	97	9.58	12	2.35	109	7.15
Bladder	46	4.54	1	0.20	47	3.08
Testicle	32	3.16	49	9.61	81	5.31
Urèthrq	11	1.09	-	0.00	11	0.72
Penis	7	0.69	8	1.57	15	0.98
Scrotum	7	0.69	5	0.98	12	0.78
Ureter	4	0.39	-	-	4	0.26
Total	**1013**	**100.00**	**510**	**100.00**	**1523**	**100.00**

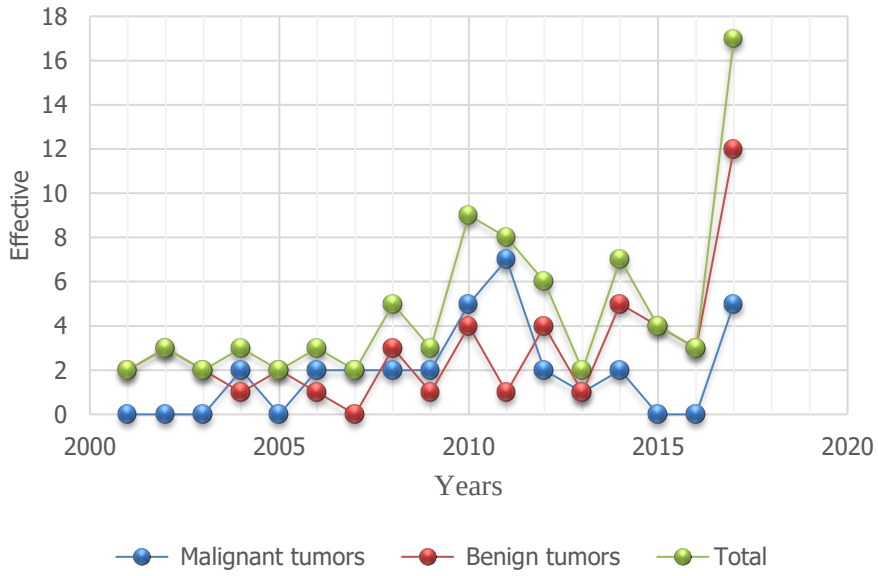

Figure 1: Tumor evolution curve over the last 17 years

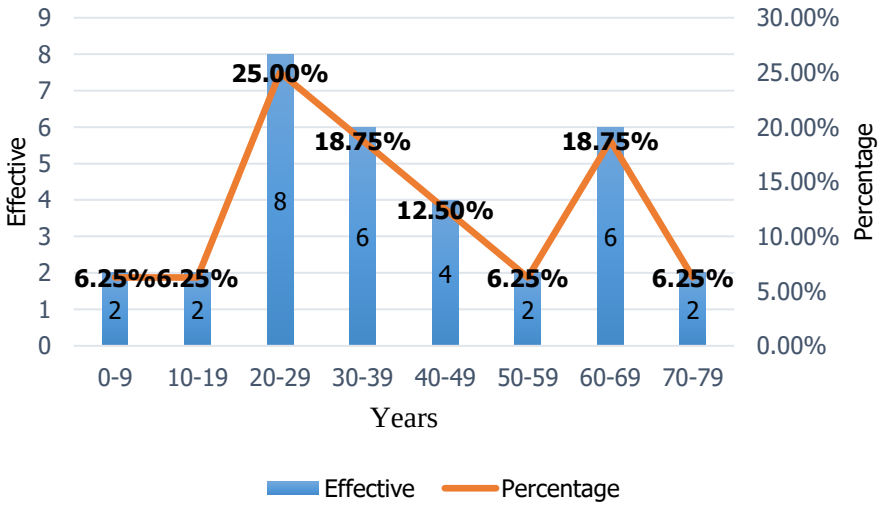

Figure 2: Number of malignant tumors of the testis by age group.

Clinical Information

Physical and / or functional signs

8 cases were identified with testicular swelling, and pain in none. It should be noted that 24 cases had no clinical precision.

The side reached

The testis most affected by these malignant tumors appears to be the right testis with 14 cases (51.85%) (see Figure 3).

Pathology

Sampling types

The types of sampling were noted in 30 cases, and the orchiectomy piece was the most represented with 28 cases (93.33%). The remaining samples were essentially biopsies.

Macroscopy

Heterogeneous tumors encapsulated with necrohemorrhagic foci are the most represented -7 cases (21.88%), and share the first place with homogeneous encapsulated tumors well circumscribed and non-encapsulated well circumscribed by the number of cases (See Table 3).

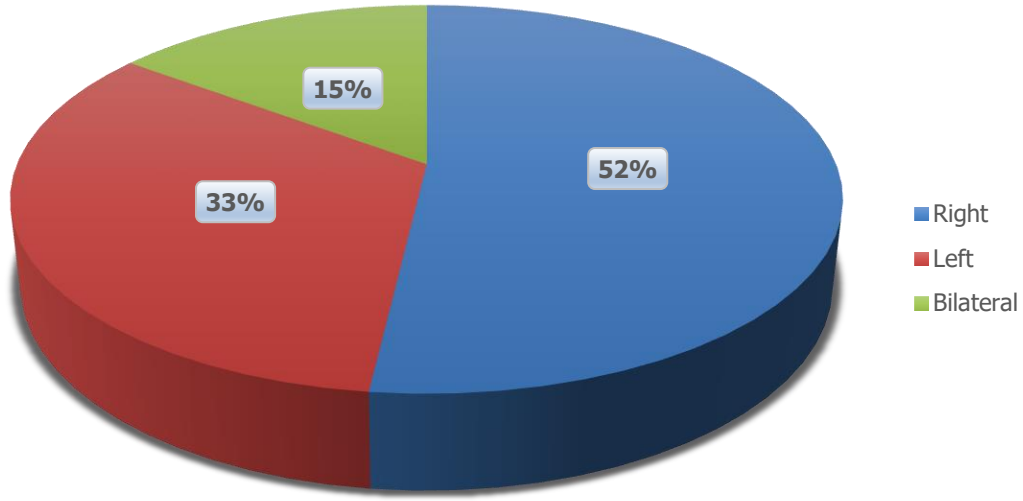

Figure 3: Proportion of malignant testicular malignancies by side.

Table 3: Distribution of macroscopic forms

Tissue aspect	Effective	Percentage (%)
Homogeneous encapsulated tumor well circumscribed	7	21.88
Well-circumscribed non-encapsulated homogeneous tumor	7	21.88
Encapsulated heterogeneous tumor with necrohemorrhagic foci	7	21.88
Heterogeneous tumor with non-encapsulated necrohemorrhagic foci	5	15.63
Tumor without deformation of the testicle	3	9.38
Heterogeneous Encrypted Tumor Encapsulated	2	6.25
Non-encapsulated enzymatic heterogeneous tumor	1	3.13
Total	**32**	**100.00**

Histological types

Classical seminoma dominates the numbers with 6 cases represented, ie 18.75%. It should be noted that the subgroup of seminomas is represented here at a total percentage of 37.5%, which makes it the most represented subgroup of germinal tumors (see Table 4).

Table 4: Distribution of histological types

Histological type	Effective	Percentage(%)
Classical seminoma or gonioma	6	18.75
Non-Hodgkin's malignant lymphoma	5	15.63
Spermatocyte or glandular seminoma	4	12.50
Embryonic carcinoma	4	12.50
Anaplastic seminoma	2	6.25
Rhabdomyosarcoma	2	6.25
Adenocarcinoma of the testis	2	6.25
Mixed tumor	2	6.25
Dermatofibrosarcoma	1	3.13
Angiosarcoma	1	3.13
Adenocarcinoma of the epididymis	1	3.13
Choriocarcinoma	1	3.13
Mature teratoma	1	3.13
Total	**32**	**100.00**

According to WHO groups, germ-tumors-20 cases are the most represented. And of these, the seminoma type-12 cases (60%) is the most met (see Table 5).

Table 5: Distribution of germ tumors

Germ cell tumors	Effective	Percentage(%)
Classical seminoma or gonioma	6	30
Spermatocyte or glandular seminoma	4	20
Embryonic carcinoma	4	20
Anaplastic seminoma	2	10
Mixed tumor	2	10
Choriocarcinoma	1	5
Mature teratoma	1	5
Total	**20**	**100**

Table 6: Distribution of non-germinal tumors

Non-germinal Tumors	Effective	Percentage(%)
Non-Hodgkin's malignant lymphoma	5	41.67
Rhabdomyosarcoma	2	16.67
Adenocarcinoma of the testis	2	16.67
Dermatofibrosarcoma	1	8.33
Angiosarcoma	1	8.33
Adenocarcinoma of the epididymis	1	8.33
Total	**12**	**100.00**

Among the non-germ-cell tumors, non-Hodgkin's lymphoma-5 cases (41.67%) is the most represented (see Table 6).

DISCUSSION

In this study, among the 1523 cases of urogenital tumors (malignant and benign) identified, we collected 81 cases (5.31%) of testicular tumors which generally ranked 3rd behind the kidney in 2nd position with 109 cases. (7.15%) and the prostate in 1st position with 1244 cases (81.68%).

This result is similar to that found by Mamadou SOW et al [8] in an 18-year study, which ranked the prostate in first position with 1586 cases (520 ADK prostate and 1066 HBP) and the testicle in 4th position with 41 cases . This disparity can be explained firstly by the fact that our study was conducted in 02 Cities of Cameroon contrary to theirs, conducted in the Urology Department of the central hospital of Yaounde, and secondarily by the loss of several archives. years prior to the year 2004.

More precisely, we identified 32 cases (3.16%) of malignant tumors (cancers) testicular among the 1013 cases of urogenital cancers found, which ranks them here at the 4th position behind the prostate-809 cases (79, 86%), kidney-97 cases (9.58%) and bladder-46 cases (4.54%). This result is closer to that of Engbang et al, who classified testicular cancer in 4th position with a percentage of 2.33% behind the prostate (81.42%), the kidney (8.55%) and the bladder (6.30%), in a study of 110 cases of kidney cancer over 10 years in 5 regions of Cameroon [9]. From this point of view we can evoke an increase in the frequency of testicular cancer which is consistent with the literature which states that the incidence of testicular cancer tends to increase slowly but steadily and has been multiplied 3 to 4 times recent years [10].

The mean age of diagnosis of benign and malignant testicular tumors in our study is 36.22 ± 19.67 years with extremes of 0 to 77 years. These results are different from those of Sow et al [8], all of whose patients were under 40 years of age. This can be explained by the fact that in our study, we had more tumors generally occurring in adults aged 40 to 50 years and older [11].

Specifically for malignant tumors (cancers) of the testis, our study revealed an average age of 40.25 ± 25.02 years with extremes of 8 to 77 years. The most represented age group is 20-29 years old (25%). These results are closer to those of Karki S and Bhatta RR [12] who, in a 5-year study in Nepal of 70 cases, concluded that most malignant cases occurred between 40 and 50 years of age and that testicular tumors usually occur in 3 ages ie childhood, from post adolescence to young adults (20-35 years old) and among those over 50 years old.

Following our study, we find that testicular swelling is the most common physical sign in the gait in malignant tumors-8 cases (100% of the specified cases). This is in agreement with the literature that describes a hard, irregular, deforming, insensitive or poorly painful testicular swelling in patients with suspected testicular tumors, as well as the most registered consultation pattern in tumors. of the testis is scrotal swelling [13].

Concerning the location of the tumor, the right testicle was more affected in malignant tumors-14 cases (51.85%). The left testis was 33.33% (9 cases). We also had bilateral attacks -4 cases (14.81%). These results are similar to those of Salako A. A. et al in a study in western Nigeria showing right testicular involvement in 60% of cases and bilateral involvement at 42.8% [14]. The disparity with our study could be explained by the study population of western Nigeria which is higher than ours. This could be due to hitherto uncontrolled factors of the literature, because very rarely studied.

The most noted type of removal is the 28-case orchiectomy specimen (93.33%), which can be explained by the fact that biopsies and fine needle punctures are formally contraindicated because of the risk of tumor spread according to the literature [15].

Well-circumscribed, well-circumscribed, well-circumscribed, homogeneous non-encapsulated homogeneous tumors encapsulated with necrohemorrhagic foci share the 1st position with 7 cases (21.88%) each. Here we have no specific study to compare our results.

Classical seminoma-6 cases (18.75%) dominates, followed by non-Hodgkin's malignant lymphomas (LMNH) -4 cases (15.63%). These results are similar to those of M. Sow et al which placed the LMNH in first position in the case of germs predominantly seminomatous, this being due to the high prevalence of Epstein-Barr virus infections and malaria, the latter being recognized as factors favoring the appearance of Burkitt lymphoma [16, 17, 18]. This list of malignant tumors also contains the rhabdomyosarcoma-case (6.25%) and angiosarcoma-1 case (3.13%). This is contrary to some authors cited in an article by S. Merhej et al. On a study concerning para-testicular fibrous pseudotumors in 2005 [19], which consider these as mostly benign [20,21] .

By grouping the subtypes of malignant tumors, we find that seminoma-type germ tumors are the most represented at 60% and non-seminomatous tumors at 40% as stipulated by M. Biggs and M. Schwartz [22].

CONCLUSION

Testicular tumors are relatively rare, but are common in young men and are dominated by seminomatous germ tumors. However, we note a gradual increase in cases of testicular tumors in the population over the years, but the lack of specific work on this subject constitutes a considerable obstacle to the availability of epidemiological and histological data, on the extent of the national territory .

The ethical committee approval

Ethical committee approval from University of Douala wasobtained. Consent from the patients were obtained with full agreements to keep their personal data anonymous.

Authors' contributions

Jean Paul Engbang: Data collection and analysis and writing the manuscript (jean_pen@yahoo.ca). Herve Moby: analysis an literature search(demobs@yahoo.com). Gabriel Hervé Omgba Ndi: participated in and analysis(gabrielndi33@gmail.com). Zacharie Sando: final manuscript review and literature search (sandozac@yahoo.fr). Amadou Fewou: Final manuscript review (amadou_fewou@yahoo.fr)

Conflict of interest

No conflict of interest to declare.

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