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Ovarian Neoplasm Histopathology in The City of Kinshasa

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1. Highlights

Ovarian neoplasms are tumors with insidious growth and silent symptomatology over a long period. There are three varieties, the one described as “malignant” being characterized by a late discovery of the disease in the metastatic stage. The borderline variety has its weight in gold by its expectation armed in its management because of its evolution or not towards a malignant variety neoplasm. Knowledge of the frequencies of these different histological varieties and types plays a crucial role in patient management. Therefore it is important to know which of these neoplasms is most diagnosed, in order to have a particular eye when this type of pathology occurs. Hence the importance of knowledge of the histopathological profile of ovarian neoplasia in the city of Kinshasa is necessary. This will allow us to highlight the common features of studies already carried out in the world; and thus improve and adapt to our level the diagnosis and consequently the management according to scientific advances.

2. Summary

Ovarian neoplasms are one of the most common neoplasia found in the female genital tract. Data on ovarian pathology as a whole are scarce in Sub-Saharan Africa, especially in the Democratic Republic of Congo. The objective of the present study was to describe the histopathological profile of primary ovarian neoplasms diagnosed in the laboratories of the city of Kinshasa, Democratic Republic of Congo. This was a retrospective descriptive study conducted from slides of samples of primary ovarian neoplasms that were collected over a period of 35 years (1980-2015) in the Pathology laboratories in Kinshasa. The slides were re-examined and the diagnosis reclassified according to the 2014 WHO classification. The parameters of interest were the relative frequency, variety, age and histological types. Primary ovarian neoplasms accounted for 6.7% (390/5840) of all female genital tract neoplasms. On the basis of the selection criteria, 233 primary ovarian neoplasms were included in the present study. The age of onset varied between 21 and 50 years. Benign neoplasms represented the majority of ovarian neoplasms at 56.2% (131/233 cases), of which teratoma was the predominant germinal histological type at 43.5% (57/131 cases). Malignant neoplasms constituted 34% (79/233 cases), represented mainly by serous carcinoma at 27% (21/79 cases). The remaining 10% of cases (23/233) were made of borderline neoplasms, largely of epithelial type with 87% (19/23). Malignant primary ovarian neoplasms were distributed almost in all age groups, decreasing towards age groups above 50 years, whereas the borderline neoplasms were predominantly found between 31 and 50 years. The histopathological profile of primary ovarian neoplasms from the city of Kinshasa is in line with that described in the literature. The presence of borderline type of ovarian neoplasms in relatively young patients should incite the pathologists to adopt an attitude based on a close follow up to limit risks posed by the uncertain nature of malignant potential of these tumors.

3. Introduction

Ovarian neoplasms are the 3rd most common neoplasia of the female genital tract and are considered the 8th neoplasia diagnosed in the world in 2020. In 2022, ovarian tumors showed an incidence of 324,398 new cases and a mortality of 206,839 deaths [1-3]. They can occur at any age [4,5], with a peak observed before men-

opause [6], 40% are detected after 65 years [7]. Symptomatology of ovarian neoplasms may remain silent for a long time due to the deep location of the ovary in the small pelvis, often leading to a diagnosis in the later stages of the disease [8–10]. Ovarian neoplasm benign constitute the majority of ovarian neoplasms (80-85%) [7] and are generally of good prognosis. Most studies concentrate on the malignant variety because it is a major public health problem and has a high incidence and mortality rate. Thus, 4.2% of deaths from malignant neoplasia in women and 18.8% of neoplasms in the gynecological sphere in developing countries are caused by malignant ovarian neoplasms [4,11,12]. There are global impacts based on several parameters: societal development (Human Development Index), geography, … Of the latter, incidence rates are high in North America, Central and Eastern Europe and South Asia, with 26630, 28530 and 59730 new cases respectively in 2020. But these are weak in West Asia, Sub-Saharan Africa or even South Africa being respectively 8507, 2279 and 1575 new cases of the same year [13].

In sub-Saharan Africa, nearly 18,000 new cases and 13,000 deaths due to ovarian cancer were estimated in 2020, or 2.2% of all cancers (sexes combined), ranking this cancer as the fourth most frequent female neoplasm [3]. From this, it is found that the incidence of ovarian cancer is increasing and that deaths from ovarian cancer would increase from 207,252 in 2020 to 313,617 by 2040, a double increase of 51% [14]. The variety "borderline", first described in 1929, includes ovarian tumors whose histopathological characteristics are intermediate between benign and malignant varieties and early onset. They have been included in the classification of female reproductive organ tumors according to the WHO, and are undergoing temporal changes [1,5,15-17]. A particular look is made on this variety because it contributed to the decrease of the rates of malignant ovarian neoplasia by its prognostic particuliarities. They represent 10-15% of all ovarian neoplasms [8,18,19]; and some are classified as low-malignant (low-grade) tumors [1,17]. A WHO classification on ovarian tumors has been newly published, which is not very different from the previous one, or virtually unchanged. It is essentially marked by histo-typological improvement thanks to molecular advances [1]. The majority (60%) of ovarian neoplasms are of epithelial histological type, whose serous subtype is predominant with 50% of case (20,21). Data on ovarian pathology as a whole are scarce and sectoral in sub-Saharan Africa, particularly in the Democratic Republic of Congo (DRC). The information gathered in this study on primary ovarian tumors would be very useful in the development of policies to combat ovarian tumors, particularly in their lethal malignant form.

4. Materiel Et Methodes

This was a retrospective descriptive study of ovarian neoplasms diagnosed between January 1, 1980 and December 31, 2015 in 4 pathology laboratories (Cliniques Universitaires de Kinshasa (CUK), Institut National de Recherche Bio-LEBOMA and NGANDA Hospital Center in Kinshasa, Democratic Republic of Congo (DRC). The inclusion criteria were any ovarian biopsy whose slides and/or paraffin blocks were found in the archives.

The samples were processed using standard histopathology techniques: all re-evaluated specimens were set to 10% formalin or Bouin liquid. They were then dehydrated, embedded in paraffin; and the paraffin blocks obtained were cut to between 3 and 5 µm using a microtome, then spread onto slides using albumin. The slides were stained with hematoxylin and eosin, then mounted with Canada balsam. Microtomy at slide assembly was performed for ovarian biopsies that had paraffin blocks with slides not found. A total of 390 ovarian neoplasms were identified from either ovarian biopsies or a total hysterectomy. Of these, 233 ovarian neoplasms met the inclusion criteria and was retained after review by at least two pathologists. The slides were read using an Olympus BX41 binocular optical and co-observation microscope with 4x, 10x and 40x objectives and a CX31 binocular optical microscope with 4x, 10x and 40x objectives, with a camera on a plasma screen. The following parameters of interest were selected for the study: variety, relative frequencies, age, histological type and histological subtype according to the WHO Classification of tumors of female reproductive organs [1].

5. Statistical Analysis

The data collected were captured on a mask designed with the software Epi Data 3.1 and then analyzed with the software SPSS 21 for the following analyses: The categorical variables were summarized by frequency measurements. For numerical variables, central trend and dispersion measurements were reported.

For the central trend measurement, data will be summarized by either the mean or median depending on whether the distribution is symmetrical or asymmetrical respectively. The chi-square test was used to search for or identify possible associations. The threshold of 0.05 or 5% was used as the cut-off for a statistically significant value.

6. Ethical Considerations

As the study was primarily concerned with archival material, not people, informed consent was not required. In all cases, the rules of anonymity, confidentiality and data protection were respected.

7. Results

I. Relative frequency of ovarian neoplasms in relation to all neoplasms in the female genital tract of a total of 5,840 cases of the female genital tract neoplasms identified during the study period (35 years), 390 cases were ovarian neoplasms, corresponding to a frequency of 6.7% and are ranked 3rd position after neoplasms of cervix (52,3%) and myometrium (31,2%). of these 390 cases, 233 met the inclusion criteria. Among benign neoplasms of the female reproductive tract, ovarian neoplasms were the third most

frequent, after the myometer and cervical neoplasms. They came in the 2nd position of malignant neoplasms after the cervix. II. Relative frequencies of ovarian neoplasms by variety Benign ovarian neoplasms were the most common variety in our series with 56% [CI 50.2 – 62.2] (131/233 cases), followed by 34% malignant varieties [CI 28.3- 39.5] (79/233 cases). The borderline variety accounted for 10% [CI 6.4 – 13.7] (23/233 cases) (Figure 1). 33.1 - 45.9] (92/233 cases) and 30.9% [CI 24.9 - 37.3] (72/233 cases) respectively, followed by stromal type and sex cords at 20.2% [CI 15.5 - 25.8] (47/233 cases) (Figure 2). The remaining ovarian neoplasms were made of mixed histological, lymphoid and connective tissue types.

Among neoplasms of benign variety, the germinal histological type was the most represented at 43.7% (57/131 cases), with teratoma or dermoid cyst the predominant histological subtype. Ovarian neoplasms of epithelial type came in second position at 33% (43/131cases) and were mainly represented by serous cystadenoma followed by mucinous cystadenoma. Ovarian neoplasms of the Stroma/Sex Cord type of the benign variety were represented in their entirety with the stroma component at 16% (21/131 cases) in which the predominant subtype was fibrothecoma (8.4%) (Table I). V. Distribution of borderline ovarian neoplasms by histological type and subtype

The borderline variety mainly contained the epithelial type at 82.6% (19/23 cases) in which the serous subtype accounted for 70% (16/23 cases) (Figure 1A and 1B). This subtype had either papillary (Figure 2) or micro-papillary (5 cases) aspects (Figure 3). The mucinous subtype was represented in 3/23 cases. LGSC=Low-grade Serous Carcinoma, HGSC= High grade serous carcinoma, SCS= Sex-cords and stromal. Malignant granulosa cell tumor accounted for 19% of malignant ovarian neoplasms (15/79 cases) and the most represented of the type histological stroma and sex cord neoplasms. It was followed by the subtypes of the yolk vesicle tumor at 10.13% (8/79 cases), dysgerminoma and choriocarcinoma, which each accounted for 3.7% (3/79 cases). Other neoplasms, representing 15.1% (12/79 cases) of malignant ovarian neoplasms, consisted of mixed tumors, lymphoid tumors and connective tissue tumors (Table II). VII. Age and variety distribution of ovarian neoplasms The benign and malignant variety was of an equivalent proportion in the under-21 age group. The benign variety constituted the majority of ovarian neoplasms in the age group 21 - 30 years and this until the age of 50 years (36 ± 14 years).

The borderline variety was also distributed in the 31-40 and 41-50 age groups (38 ± 17 years). The majority of malignant neoplasms were between the ages of 21 and 60 (42 ± 13 years), whose peak were seen in the range of 51 to 60 years.

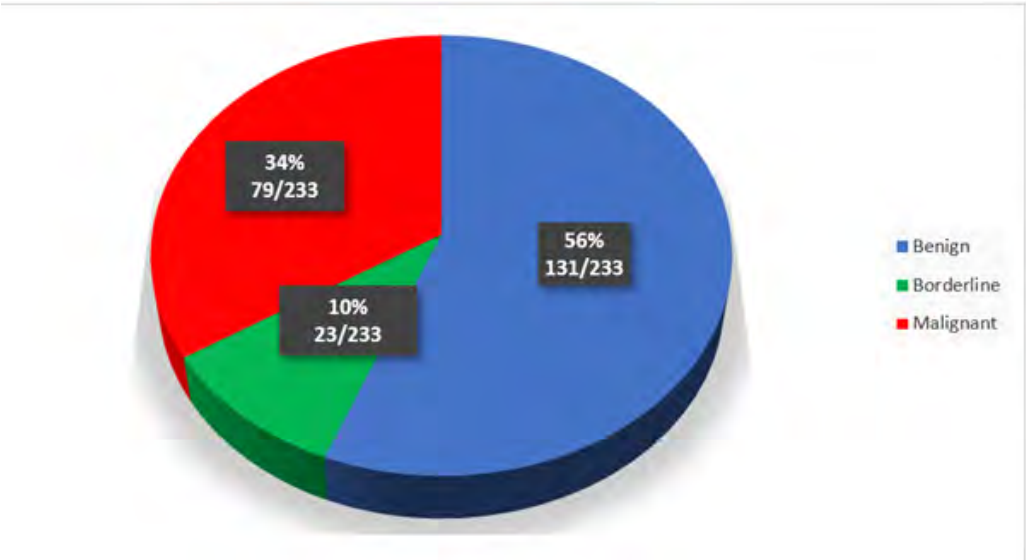

Figure 1: Distribution of ovarian neoplasms by variety.

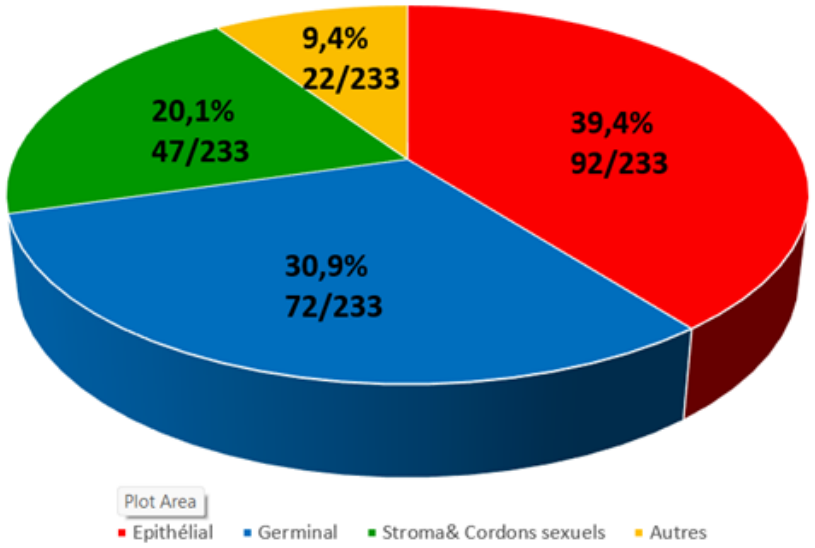

Figure 2: Distribution of ovarian neoplasms by histological type.

Table I: Distribution of benign ovarian neoplasm histological type and subtype.

	Histological type				
Variety benign/ Sub type histological	**Epithelial**	**Sex cord-Stromal**	**Germinals Cells**	**Others**	**Total**
	Surface	**n,%**	**n,%**	**n,%**	**n,%**
	n,%				
Benign					
Serous Cystadenoma	20 (15,26)	-	-	-	20 (15,26)
Serous Cystadenofibroma	5 (3,81)	-	-	-	5 (3,81)
Mucinous Cystadénoma	13 (9,92)	-	-	-	13 (9,92)
Cystadenofibrome mucineux	1 (0,76)	-	-	-	1 (0,76)
Serous-mucinous Cystadénoma	2 (1,52)	-	-	-	2 (1,52)
Brenner tumour	2 (1,52)	-	-	-	2 (1,52)
Fibroma	-	9 (6,87)	-	-	9 (6,87)
Fibrothecoma	-	11 (8,4)	-	-	11 (8,4)
Thecoma	-	1 (0,76)	-	-	1 (0,76)
Teratoma (epidermoid cyst, ...)	-	-	57 (43,5)	-	57 (43,5)
Others	-	-	-	10 (7,63)	10 (7,63)
Total N	**43 (33)**	**21 (16)**	**57 (43,5)**	**10 (7,63)**	**131 (100)**

Table II: Distribution of malignant ovarian neoplasms by histological type and subtype.

Variety malignant/					
Histological Sub-types	Histological Types				
	Epithelial Surface n,%	Sex-cords and Stromal n,%	Germinal cells n,%	Others n,%	Total n,%
HGSC	3 (3,79)	-	-	-	3 (3,79)
BGSC	18 (22,7)	-	-	-	18 (22,7)
Mucinous Carcinoma	5 (6,32)	-	-	-	5 (6,32)
Endometrioid Carcinoma	1 (1,26)	-	-	-	1 (1,26)
Brenner tumors	3 (3,79)	-	-	-	3 (3,79)
Granulosa tumors	-	15 (19)	-	-	15 (19)
Fibrosarcoma	-	3 (3,79)	-	-	3 (3,79)
Mixed tumor SCS	-	4 (5,06)	-	-	4 (5,06)
Dysgerminoma	-	-	3 (3,79)	-	3 (3,79)
Yolk sac Tumor	-	-	8 (10,13)	-	8 (10,13)
Choriocarcinoma	-	-	3 (3,79)	-	3 (3,79)
Embryonal Carcinoma	-	-	1 (1,26)	-	1 (1,26)
Others	-	-	-	12 (15,18)	12 (15,1)
Total	30 (37,97)	22 (27,84)	15 (18,9)	12 (15,18)	79 (100)

LGSC=Low-grade Serous Carcinoma, HGSC= High grade serous carcinoma, SCS= Sex-cords and stromal.

Table 3: below shows the distribution of ovarian neoplasms by age and histological type.

Histological type	Epithelial surface	Germinal cells	SCS	MixedTumors	Lymphoid	Conjonctive
N/ Age range (years)	92	72	47	9	8	5
≤ à 20	‘4	17	10	0	2	0
21-30	12	**30**	8	2	3	3
31-40	19	8	9	3	2	1
41-50	**32**	9	8	2	1	1
51-60	12	7	10	1	0	0
>à 60	13	1	2	1	0	0

SCS= Sex-cords and stromal p=0,000<0,05: SIGNIFICATIF

Epithelial type was predominant in the age group, except in those under 30 years of age; followed by germ type in those under 31 years of age.

The same frequency was observed in the different age groups for ovarian neoplasms of stroma and sexual cords except those above 60 (rare).

Histological type of ovarian neoplasms was age-related, patients between 31 and 50 years of age were more likely to develop epithelial-type neoplasms; and those between the ages of 21 and 30 have more germinal-type neoplasms.

8. Discussion

The objective of this study, conducted in the various laboratories of the city of Kinshasa, was to describe the histopathological profile of ovarian neoplasms by highlighting the different histological types and subtypes.

Overall relative frequency of ovarian neoplasms in neoplasms of the female genital sphere. In the present study, ovarian neoplasms had a low frequency of 6.7% of all neoplasms in the genital sphere and are ranked in 3rd position after the neoplasms of cervix (52,3%) and myometrium (31,2%). The litterature focuses more on malignant variety neoplasms with a poor prognosis than on ovarian neoplasms as a whole or benign variety ovarian neoplasms. This series found 6% of malignant ovarian neoplasms compared to all malignant neoplasms in the female genital tract. This result is close to that of Traore et al in Bamako in Mali [22] who found 7.8% of malignant ovarian neoplasms compared to all malignant neoplasms of the female genital tract they worked over a long study period (10 years) as this study (35 years). But it is higher than that of Tanko et al in Botswana [23] and Ndahindwa et al [24] in Rwanda who respectively found 3.4% and 4.4%; this could be explained by the short study periods of 3 and 4 years respectively, and these series included all neoplasms in women including the breast. This result is also lower than that of Chirimwami et al (14.5%) (25) of Mbala et al (10%) [26], and Sangwa et al (8.3%) (27) at the CUK in the DRC, as well as that of Sando et al in Cameroon (10.75%) [28]. The high frequency of the first three authors, having worked in the DRC, was explained by the fact that they worked during a period when the majority of patients with gynaecological neoplasms consulted at CUK and most of the biopsies came from almost the entire country to the university clinics in Kinshasa.

Despite these differences, the 2nd place occupied by malignant neoplasms of the female genital tract in this study was identical to those of the United Kingdom [UK] [29], Chirimwami et al. [25], Mbala et al. [26] in the DRC and Sando et al in Cameroon (28), if malignant breast neoplasms are discounted for the last two authors.

9. Histological Types

This series showed, for ovarian neoplasms as a whole, a predominance for the epithelial histological type at 39.4% [CI 33.1-45.9] or 92/233 cases (Table 1), followed by germinal histological type at 30,9% [CI 24.9-37.3] and in 3rd position the histological type of stroma and sex cords at 20.2 % [CI 15.5-25.8]. The distribution of histological types in this study is consistent with that of different studies (18,20,30–37). This predominance of the epithelial histological type is related to the very functioning of the ovary, cyclic function of ovulation over many years with hormonal influence. However, some studies, often African, seem to indicate a predominance for the germinal type in black women (23,28,38,39) with high frequencies compare to this study: 47.8% in South Africa (40); to 52.7% and 67% in various studies in Nigeria (41,42). These frequency differences from this study, which is African, is probably due to the exclusion of a large number of ovarian neoplasms of benign variety and germinal histological type from our study and also to the insufficient demand for examinations in the pathology laboratory.

10. Relative Frequency of Ovarian Neoplasms by Benign Variety

Benign ovarian neoplasms remain the most common (56%) in our study [CI 50.2-62.2]. This frequency is similar to that found by Kané G et al (38) (51.6%); those who worked at a single center. This is a low number compared to the extensive data in the literature that suggest between 75 and 80% of benign tumors [18]. In the present study, this difference would probably be due to the exclusion of a large number of benign tumors that do not meet the criterion and some specimens that still do not arrive at the pathology laboratory. The predominant histological type was the germinal type at 57/131, or 43.7%, followed in second position by the epithelial histological type with 43/131 cases or 32.8%. (Table III). Ezenwa U et al [42], in a series on benign ovarian neoplasms in Nigeria, found the predominance of the same histological type as this study at 67.2%. The predominant histological subtype of our series was the teratoma (germinal type), followed by serous cystadenomas and then mucinous (epithelial type). Our results are also consistent with those of the literature [43-45] which describes a preponderance for this histological subtype of the teratoma. Most studies conducted in India, Asia [31,32,35,37,46], found a predominance for the epithelial type followed by the germinal type respectively. In the histological stroma and sexual cords type, the fibrothecoma subtype, with 11/131 cases (8.39%), was slightly predominant compared to fibroma 9/131 cases (7%) (Table I). This was also the observation of Nucci R. et al. [47] and Scully R. [48]. Our results differ from those of Nepal [34] and other Indian studies [32,46,49]. Which described a high frequency for the Fibroma subtype. These differences are explained These differences are explained by the fact that it is difficult to differentiate satisfactorily between a fibroma and a fibrous thecoma, the latter are immediately taken for fibroma [43]. On the other hand, by the pathologist's tendency to classify any benign fibroblastic proliferation of the ovary into fibroma and also by the fact that we used the new WHO classification 2014 [17] which recommends that pathologists classify fibromas and thecoma on the basis of the predominant mixed aspects in fibrothecoma.

11. Relative Frequency of Ovarian Neoplasms According to The Borderline Variety

Borderline ovarian neoplasms in our series accounted for 10% [CI 6.4 -13.7] of ovarian neoplasms. This frequency corresponds to those of various studies of the literature which is 10 to 15%

or even 20% [2, 11,13,23]. Observation of a large predominance (82.6%) of epithelial histological type among the borderline variety tumors in the present study is consistent with the literature [17,50]. These borderline epithelial ovarian neoplasms were largely serous histological subtypes at 16/23 cases (70%). Nevertheless, in this sub-type, the specificity for the serous tumor known as a "micro-papillary" carcinoma is noted, which is considered to be a non-invasive serous carcinoma, the evolution of which slowly over time classifies it as a "borderline" [17]. Non-epithelial tumors were infrequent (17, 3%) and mainly composed of Sertoli cell tumors of the sex cord–stromal histological type. There are very few studies investigating non-epithelial tumors due to their rarity, moreover these tumors have been considered "borderline" only recently in the WHO classification of ovarian tumors [1,17].

12. Relative Frequency of Ovarian Neoplasms by Malignant Variety

Thirty-four percent were malignant ovarian neoplasms. This frequency is close to that of literature which is 25-30% (18); especially in India [30%] (32), and Malaysia [29%] (51). It is higher than those recorded by Swamy et al at Amalapuram in India (25.1%) (52), by Badge. S et al in Maharashtra in India [21%] (49) and by Darré T et al in Togo [19.34%] (53). These low frequencies described in some regions of India and Togo, compared to that of this study, are explained in the first place by the late diagnosis, at the non-operable stage. Second, by the high number of lost sight before histopathological diagnosis, observed especially in developing countries [21]. In contrast, Kané et al in Senegal (38) found a higher frequency of 47% which can be explained by the monocentric character of their study (95 cases). The epithelial histological type was the most prominent and accounted for 38% (Table II). This same histological type was found in much of the studies but with different frequencies; and their frequencies were close to that of the literature which places it at 60% (20). This difference could be explained by the size of the samples not included in this study. But the results of this series differ from those of Darré T et al in Togo (53) who found 22% of malignant lymphoid-type ovarian neoplasms, occupying the 1st place, followed by epithelial-type ovarian neoplasms. This difference was due to the high prevalence of lymphoid tissue neoplasms in this country [42]. Of the malignant variety in our study, serous ovarian neoplasms accounted for 21/30 cases or 70% of the epithelial histological type (Table II). Our results were similar to those of Devouassoux et al. [18] which described 75-80% of malignant serous subtype ovarian neoplasms. In addition, our results showed that 86% or 18/21 cases were high grade (CSHG); and 10% or 3/21 low grade (CSBG) thus approaching the literature which described 85-90% CSHG and 10-15% CSBG [18,54]. For the germinal type, the histological subtype most represented in this series was the yolk sac tumor 8/72 cases followed, fairly, by dysgerminoma and choriocarcinoma or 3/72 cases. Several authors [25,26,48,55]. Reported that dysgerminoma was the most common malignant neoplasm in the germinal histological type. The results of this study were similar to those reported in Nigeria [42], even though several studies have shown cases of dysgerminoma to be rare [40]. These various findings could confirm the rarity of the dysgerminoma subtype in our environments that is due to a geographical variation in the time and space for the factors promoting these neoplasms. The present series revealed that the granulosa cell tumor of the fibrothecal group (stroma) was the leading tumor in the ovarian neoplasms of stroma and sex cords with 15/79 cases (19%). The present results were similar to those of Hashmi et al in Bangladesh [33]. Who found more granulosa cell tumors. This could be explained by the recategorization of benign or even borderline SCS neoplasms from the old WHO classification, into malignant neoplasms because of the progressive nature of these lesions. As a result, an increase in the frequency of ovarian neoplasms of the malignant variety was observed.

13. Distribution of Ovarian Neoplasms by Variety, Histological Type, Histological Subtype and Age

13.1: In the Benign Variety

In the present series, the germinal histological type was most represented by its teratoma subtype, followed by the epithelial type with serous cystadenoma as subtype. These two sub-types predominated in the 21-30 years age group. These results were similar to those of the various studies consulted with respect to distributions in the age groups 21-30 or 20-40 [32-34,49,52]. In the histological type of stroma/sex cords, fibroma was the most common in the under-21 age group and fibrothecoma in the 21-30 and 31-40 age groups. The present results are in agreement with those by Kurman RJ, et al. [43]. Who observed an average age of 48 years for fibroids, but noted the presence of these lesions in more than 10% of patients under 30 years in the United States. Ezenwa et al in Nigeria [42] found fibroids predominant in the 11-20 years age group. Nucci RM et al. [47]. State that fibro thecoma occur between the ages of 25 and 50, confirming our findings, with the only difference that they describe fibroids as not common in those under the age of 30.

14. In the Borderline Variety

The age groups concerned were 31-40 and 41-50 (between 31 and 50) with a median age of 42 ± 13 years. Our results are similar to those of Badge et al. [49]. Who observed the peak of these neoplasms in the 31-40 age group. Devouassoux S.M et al. [18]. Described a median age of 45 years. Buda I et al. [56], in Romania and Bonnamy et al in France [57]. Found in their series a median age of 48 years, which is close to our results. The epithelial histological type was the majority in its serous subtype for an average age of 42 ± 13 years, whose age groups were equally distributed between 31 and 50 years. Our results are similar to those of the new WHO classification and various studies (17–19,44,57) despite

the lack of uniformity in age classes for some studies [32, 33, 49]. Kurman RJ et al. (17). Assert that non-epithelial borderline neoplasms are less than 30 years old, which corroborates our findings which found age groups less than 30 years.

15. In the Malignant Variety

Malignant neoplasms were, histological types combined, almost equally distributed from 31 to over 60 years of age with a predominance for the age group 51 to 60 years. The epithelial histological type was the most dominant of our series represented by the high-grade carcinoma in its serous subtype (HGSC). The latter were of interest to the ages between 41 and 60 with a preponderance for the 51-60 age group at 20% (Table V). The 2nd position concerned histological stroma and sex cord ovarian neoplasms whose tumor of granulosa cells was the histological subtype most represented. They were in the same age group as the previous ones. These results are similar to those described in the literature [17, 18, 42, 44]. Which found the same histological types and subtypes, respectively, CSHG followed by granulosa tumor for the same age group. Mink et al in the USA [39], they found that neoplasms of serous epithelial subtype predominated in both black and white women, in age groups greater than or equal to 45 years. Our results differ from those of Udoye et al in Nigeria [42], Jha R et al in Nepal [34], Mink et al in the USA [39] and Mondal et al. in India [32] who found that the 2nd place was occupied by sub-carcinoma mucinous type, but remaining within the same age range described in this study and the various literature studies. In 3rd position, our study found germinal-type neoplasms in younger age groups, under 30 years of age, with the yolk bladder tumor as the leader. It was followed by dysgerminoma and non-gestational choriocarcinoma also distributed in quantity (Table IV); but with different age groups of which the first is located more in the ages below 30 years and the second most in the ages > 51 years. Udoyé et al in Nigeria [42] found the same age groups as in our study. The association between age and histological type showed a statistically significant relationship (p=0.000). The association between age and the different sub-types of each histological type showed a significant relationship only for the sub-types of the germinal histological type (p = 0.03)

16. Conclusion

The purpose of this study was to determine the histopathological profile of primary ovarian neoplasms in Kinshasa over a 35-year period. The histopathological aspects found in this series, have proved to be the same as those of most studies done in the world, regarding their varieties, their types and histological subtypes. This profile differs from some studies in terms of the position of either a histological type or a given histological subtype in a given variety. In the benign variety, the first place may be occupied by the serous cystadenoma, or even mucinous in place of the teratoma; and in the malignant variety of the germinal histological type, the first place is occupied by the vitelline tumor in place of the dysgerminoma. The age distribution of patients with primary ovarian neoplasms is found more or less in all age groups for the malignant variety. The benign variety tends to decrease towards ages above 50 years and the borderline variety is between 31 and 50 years.

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