Hysterectomy for Gynecological Indication in six Medical Facilities in Lubumbashi/DRC Frequency, Indications, Early Operative Complications

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Abstract:-

Introduction: The objective of the present study was to determine the frequency of hysterectomies for gynecological indications, to highlight the socio-demographic aspect of the patients, to specify the indications, to determine the early operative complications and to identify the factors associated with these hysterectomies.

Material and methods: This is a cross-sectional, retrospective descriptive study with an analytical aim; from January 2013 to December 2017, i.e. a period of 5 years. We collected a total of 266 hysterectomies operated for gynecological pathologies. The analyzes were carried out with the JPM pro version 2018 software.

Results: Thus taking into account all major gynecological surgical interventions, the frequency was 22.52% and 4.00% considering all gynecological and obstetrical surgical activities. The indications were dominated by myomas (41.40%), followed by cervical cancer (24.80%). The most frequently encountered intraoperative incident was haemorrhage (19.2%) and the predominant postoperative complication was parietal infection (12.41%). In 93.60% of cases, gynecological hysterectomies were performed through the abdominal route. Compared to the associations: Age between 31 and 40 years multiplied by 3 the risk of undergoing a hysterectomy for myoma, OR: 2.6 (1.3-7.7) and age between 41 and 50 years multiplied this risk by 5, OR : 4.5 (2.5-8.0). Nulliparity increased the risk of undergoing hysterectomy for myoma 142-fold, OR: 141.8 (28.3-708.5); primiparity multiplied this risk by 81 OR: 80.5 (18.16-303) and pauciparity by 21, OR: 21.0 (7.8-56.2).

Conclusion: Gynecological hysterectomy remains a fairly frequent act in our environment, burdened with significant morbidity. It is necessary to improve the technical platform and the training of operators.

Keywords:- gynecological hysterectomies, frequency, indications, complications, Lubumbashi.

I. INTRODUCTION

Hysterectomy is an operation that involves the removal of the uterus. It can remove the entire uterus (total hysterectomy) or leave the cervix in place (subtotal hysterectomy). It can sometimes be associated with the removal of the adnexa (hysterectomy with adnexectomy), the collar of the vagina (colpohysterctomy) including the lymphadenectomy , it is the enlarged hysterectomy. When it is carried out by high way one speaks of the operation of Wertheim and of the operation of Shauta when it is carried out by low way [1].

After a long period of practice through the abdominal route, this gynecological surgery has benefited from two major revolutions:

- The re-exploitation of the vaginal route by Daniel Dargent during the 1970s [2].
- The development of the laparoscopic route by Harry Reich in 1989 [3].

Formerly reserved for the most extreme pathologies involving the vital prognosis of patients, hysterectomies have seen their indications widen over time to indications of "comfort" or even excessively and this in parallel with the spectacular decrease in their rates of mortality and morbidity [4]. ,

In the West, hysterectomy for benign pathology represents 70 to 90% of hysterectomy performed. In France, it is the most common abdomino-pelvic surgery after caesarean section with around 72,000 women operated each year [5]. In England, 100,000 hysterectomies are performed each year [5].

In the United States, 602,500 hysterectomies were performed in 2003, ie 5.38/1,000 women years [6].

In Africa, the few studies conducted on the subject have addressed different aspects.

In Congo Brazzaville, Buambo-Bamanga et al. in 2009 found a frequency of 6.6% for hysterectomies for gynecological indication [7]. Pither et al. 2011 conducted their study on the approach at the Ali Bongo Ondimba military training hospital in Libreville on 78 cases. The frequency of abdominal hysterectomy in this study was 39%, that of vaginal hysterectomy was 61% [8]. Baldes et al. conducted a mixed, retro-prospective survey on hysterectomies at the University Hospitals of Conakry in order to calculate their frequency, describe the socio-demographic characteristics of the patients, identify the main indications and operative techniques used and establish the prognosis of hysterectomies. It follows from this study that hysterectomy was the second most performed intervention in the obstetrics gynecology departments of the University Hospital of Conakry, after caesarean section, with a frequency of 4.4% [9]. In our country the Democratic Republic of Congo, it is also reported that hysterectomy is the most frequent major intervention in gynecology. A study conducted at the University clinics of Kinshasa in 1982 by Mukelenge noted that hysterectomy was performed in 68.2% of cases for uterine myoma and in 10.18% of cases for obstetric indication. The approach was abdominal in 96.9% of cases [6]. Another literature review conducted by Nzau et al. in 2012, relating to cases of hysterectomy performed from January 1 , 2002 to December 31, 2010, had recorded 469 hysterectomies of which the vaginal route represented 4.05% of cases [6].

Hysterectomy is a surgical procedure with significant mortality and morbidity. We quote in per operative; hemorrhages, urinary tract wounds, intestinal and post-operative wounds, parietal suppuration, anemia, urinary tract infections, fistulas and sepsis .

In developed countries, the practice of hysterectomy is clearly decreasing due to improved screening and early treatment of precancerous lesions in the cervix, but this procedure remains frequent in developing countries [7].

Although several studies have been carried out in Europe and America on hysterectomies, this is not the case in Africa and in our country in particular where there are very few publications on the subject. In Lubumbashi, our workplace, to our knowledge no study on hysterectomies has been published; what motivates our research.

In our settings, for pathologies requiring a hysterectomy, most ofpatients still turn to traditional practitioners who offer them traditional solutions instead of modern medicine which is expensive and often borne by the patient alone, this resulting in late consultations at the hospital at an advanced stage of the disease, sometimes inoperable and death can occur following complications [7].

A. Objectives
- Determine the frequency of hysterectomies for gynecological indication in the health structures concerned by our study;
- Identify factors associated with each type of hysterectomy indication and factors associated with major complications

II. MATERIAL AND METHODS

A. Study frames
This study was carried out in the 4 major hospitals of the city of Lubumbashi, we quote the University Clinics of Lubumbashi, the HPR Send we , SNCC hospital, GCM-Sud, in 2 private clinics organizing the service of gynecology and obstetrics whose Flora-Clinique clinic and the Medicare clinic, also in 5 reference hospitals, namely: Kenya, Ruashi , Katuba , Kamalondo and Kampemba. That is a total of 11 hospitals.

B. Type and period of study
This is a retrospective descriptive cross-sectional study with an analytical aim carried out over 5 years from January 2013 to December 2017.

C. Study population and sample
Comprised of all women operated on for gynecological pathologies during the study period.

a) Sampling technique
Recruitment of subjects was exhaustive but we still calculated the sample size.

Our sample size was determined by the formula below, applicable to cross-sectional studies.

$$N = \frac{t^2 \times p(1-p)}{e^2}$$

With :
- N=sample size
- t=confidence coefficient for a degree of confidence of 95% (&=0.05). This coefficient is equal to 1.96
- p = Proportion of the target population with a given characteristic. We used in this study the frequency of hysterectomy found in a study conducted in Brazzaville of 6.6%, which gives a proportion of 0.66 [7] .
- e=desired degree of precision = 0.05

$$N = \frac{(1,96)^2 \times 0,66(1-0,66)}{(0,05)^2} = 95$$

During our data collection, we found 266 cases which formed the sample size of our study.

b) Inclusion criteria
We included in this study all patients who underwent a hysterectomy indicated for major gynecological pathology:
- Myomas or fibromyomas (complicated myomas)
- Prolapse;
- High grade dysplasia;
- Uterine cancer (cervical cancer, endometrial cancer);
- Ovarian cancer;
- Ovarian dystrophy;
- Pelvic or tubo -ovarian abscess;
- Dysfunctional bleeding;
- Adenomyosis

c) Exclusion criteria

We did not include in this study, all patients who underwent a hysterectomy indicated for obstetric pathology:

- Uterine rupture;
- Hemorrhage of deliverance;
- Complications of abortions;
- Ectopic pregnancy ;
- Trophoblastic diseases.

D. Data management and collection

We used registers, operating protocols and patient files. We also used a pre-established questionnaire which served as a data collection tool. The latter was used by trained interviewers.

E. Selected variables and operational definitions

a) Frequency of Hysterectomies

It was calculated in relation to major gynecological and gyneco-obstetrical interventions.

b) Patient's age (years)

The age declared by the patient written on the card. To group the age variable into classes, we referred to authors who had to approach the theme in the same way as us. So we had the following classes: 31-40, 41-50, 50 and more [7] .

c) Commune of origin

For practical reasons, the information on the residence of our patients was made according to the municipalities of origin of the city of Lubumbashi. Those outside the city are those who came from elsewhere or from other cities. The following provenances were selected: Annex, Out of town, Kamalondo ;Kampemba, Katuba , Kenya, Lubumbashi, Ruashi .

d) Parity:

This is the number of previous deliveries [10,11] .

- Nulliparous (parity=0)
- Primipara (parity=1)
- Pauciparous (parity of 2 to 3)
- Multiparous (parity of 4 to 5)
- Grand multiparous (parity ≥6)

e) Gesture :

This is the total number of previous and current pregnancies [10,11] .

- Nulligest (pregnancy=0)
- Primigest (pregnancy=1)
- Paucigest (pregnancy 2 to 3)
- Multigestures (pregnancy 4 to 5)
- Grand multigravida (pregnancy ≥6)

f) Directions

The indications for hysterectomy were selected based on the clinical and paraclinical diagnosis. The indications for hysterectomy encountered were complicated myomas, cervical cancer, cervical dysplasia, endometrial cancer, prolapse, dysfunctional hemorrhage and adenomyosis.

g) Surgical approach

It is the route used by the surgeon to access an organ or a given anatomical region [12] . In our study, only the abdominal and vaginal routes were encountered.

h) Type of hysterectomy

The different types of hysterectomy according to the resected parts:

- **Total hysterectomy with preservation of the annexes** ; it is the removal of the entire uterus (uterine body and cervix); the fallopian tubes and ovaries (i.e. uterine appendages) are preserved.
- **Total hysterectomy with adnexectomy** ; it is: the removal of the entire uterus (uterine body and cervix); the removal of the fallopian tubes and ovaries (i.e. non-conservative).
- **Subtotal hysterectomy with preservation of the adnexa** ; it is: the ablation of the uterine body with the conservation of the uterine cervix ; the fallopian tubes and the ovaries are preserved [13] .

i) Type of anesthesia
- General
- Locoregional (Spinal anesthesia)

j) Operator qualification
- General practitioner: holder of a medical degree
- Senior in Gynecology-Obstetrics: certificate of special aptitude in obstetrics gynecology
- Specialist: holder of a specialist diploma in Gynecology – Obstetrics

k) Post-operative complications

It is the unfavorable evolution of a disease , a state of health or a medical or surgical treatment.

F. Statistical analysis

The various data were coded and then entered into the computer using its Excel 2013 language. The statistical analyzes were carried out using JMP Pro software version 14 CA USA 2018. We calculated the frequencies for the qualitative variables. The means and their standard deviations, median, as well as the extremes were calculated for the quantitative variables.

Regarding the search for associated factors, the indications for gynecological hysterectomy (myomas, cervical cancer, endometrial cancer, cervical dysplasia and prolapse) were used one by one as the dependent variable. The variables age and parity were taken as independent variables for each indication. However, the dysfunctional hemorrhage and the adenomyosis were not exploited for this purpose because it only represented a number of less than 10 cases. In addition, major complications such as intraoperative bleeding and parietal infections were also considered as dependent variables for which the independent variables were the qualification of the operator and the type of hysterectomy performed.

To determine the possible associations between the qualitative variables, the chi-square test according to the degree of freedom (ddl), and the Fisher's Exact test were used to compare the proportions. The Wilcoxon test was used to search for the association between quantitative variables because the Kolmogorov -Smirvov test did not detect any normal distribution. The Odd Ratio (OR) was calculated at a 95% confidence interval with a significance level set at $p < 0.05$.

G. Limit of the study

Since our study is retrospective, it could only use the data recorded in the research structures. Some information, however important, has not been the subject of our research if not reported.

H. Ethical considerations

We obtained the authorizations of the heads of the hospital establishments concerned by our research.

- The information collected during our data collection will remain anonymous and confidentiality will be respected.
- The protocol was submitted to the UNILU ethics committee which gave its approval under number 138/2019/CEM/UNILU

III. RESULTS

A. Frequency of hysterectomy

Structure	HST N (%)	OGO N (%)	Frequency Global
Gécamines	127(47.74)	1197(18.02)	10.60
SNCC	15(5,64)	274(4,12)	5.47
CUL	27(10,15)	871(13,11)	3.09
Flora	35(13,16)	341(5,13)	10.26
Medicare	11(4,14)	269(4.05)	4.08
Sendwe	36(13.53)	2114(31.82)	1.70
Kenya	3(1,13)	673(10.13)	0.44
Kamalondo	1(0.38)	97(1.46)	1.03
Kampemba	2(0.75)	223(3.36)	0.89
Ruashi	3(1.13)	144(2.17)	2.08
Katuba	6(2.26)	440(6.62)	1.36
Total	266(100)	6643(100)	4.00

Table 1: Breakdown of hysterectomies compared to gyneco-obstetric interventions

%: percentage, N: numbers, OGO: Gyneco-obstetrical operations, HST: hysterectomy

In this table, it appears that the frequency of hysterectomies compared to all surgical activities in the gyneco-obstetrics department was 4.00%.

Structure	HST N(%)	OGO N(%)	Frequency Global
Gecamines	127(47.74)	317(26.84)	40.06
SNCC	15(5.64)	75(6.35)	20.00
CUL	27(10.15)	214(18.12)	12.61
Flora	35(13.16)	134(11.35)	26.11
Medicare	11(4,14)	73(6,18)	15.06
Sendwe	36(13.53)	211(17.87)	17.06
Kenya	3(1,13)	39(3,30)	7.69
Kamalondo	1(0.38)	54(4.57)	1.85
Camping	2(0.75)	27(2,29)	7.40
Ruashi	3(1,13)	9(0.76)	33.33
Katuba	6(2,26)	28(2,37)	21.42
Total	266(100)	1181(100)	**22.52**

Table 2: Frequency of hysterectomies compared to major gynecological interventions

%: percentage, N: numbers, GMO: Major gynecological operations, HST: hysterectomy

It appears from this table that the frequency of gynecological HST compared to major gynecological surgical interventions was 22.52%. On the other hand, the proportion of hysterectomies at the GCM Sud hospital was 47.74%.

B. Characteristics of the study population
　a) Age

Maternal age (years)	N(%)
31-40	28(10.5)
41-50	122(45.90)
50 and over	112(42.10)
Not precise	4(1.50)
Total	266 (100.00)
Mean+SD	50 ± 8 (32-78)

Table 3: Distribution of patients according to age

%: percentage, SD: standard deviation and extremes, N: Numbers

This table shows that 45.90% of the patients were between 41 and 50 years old. The average age being 50 ± 8 years with extremes of 32 and 87 years.

　b) Parity

Parity	N(%)
Nulliparous	29(10.90)
Primiparous	26(9.80)
Pauciparous	39(14.70)
Multipara	58(21.80)
Grand multiparous	92(34.60)
Not precise	22(8.30)
Total	266(100.0)
Mean ± SD	5 ± 3 (0-8)

Table 4: Distribution of patients according to parity

N: Numbers, %: percentage, SD: standard and extreme deviation

It emerges from this table that 34.60% of the patients were grand multiparous. The average being 5 ± 3 and the extremes between 0 and 8 pares.

　c) Gesture

gestal	N (%)
Nulligest	25(9.40)
primigest	28(10.53)
Paucigeste	40(15.04)
Multigesture	59(22.18)
Great multi-gesture	93(34.96)
Not accurate	21(7.89)
Total	266(100.00)
Mean ± SD	6 ± 4 (0-12)

Table 5: Distribution of patients according to gestal

N: Numbers, %: percentage, SD: standard and extreme deviation.

In view of this table, 93 patients or 34.96% were of great multigesture. The average 6 ± 4 and the extremes between 0 and 12.

C. Operating parameters
　a) Indication

indication	N(%)
Myoma	104(41.4)
Cervical cancer	66(24.80)
Cervical dysplasia	38(14.30)
endometrial cancer	23(8.60)
Prolapse	17(6.40)
Dysfunctional bleeding	2(0.80)
Adenomyosis	1(0.40)
Total	266(100.0)

Table 6: Distribution of patients according to hysterectomy indication

%: percentage, N: numbers.

It emerges from this table that 41.4% of hysterectomies were indicated for uterine myomas.

　b) Intraoperative incidents

Intraoperative incidents	N1=266(%)	N2=55(%)
Intestinal perforation	2(0.8)	2(3.63)
Hemorrhage	51(19.2)	51(92.72)
Urinary tract injury	2(0.80)	2(3.63)

Table 7: Distribution of patients according to intraoperative incidents

%: percentage, N1: number of hysterectomies N2: number of incidents.

In view of this table, 19.2% of patients presented intraoperative bleeding.

D. Postoperative complications

Complications	N1=266(%)	N2=61(%)
Anemia	8 (3.21)	8 (4.93)
Anuria (IR)	2 (0.75)	2 (1.43)
Evisceration	4 (1.50)	4 (2.47)
Fistula	4 (1.50)	4 (2.47)
Parietal infection	33 (12.41)	33 (20.34)
Obstruction (ileus)	2 (0.75)	2 (1.23)
Pelviperitonitis	8 (3.01)	8 (4.93)

Table 8: Distribution of patients according to postoperative complications

%: percentage, N1: number of hysterectomies, N2: number of complications,

This table shows that 12.41% of patients developed parietal infection as a postoperative complication.

E. Approach

Look first	N(%)
Abdominal	249(93.60)
vaginal	12(4.50)
Not accurate	5(1,900)
Total	266(100.00)

Table I: Distribution of patients according to approach

%: percentage, N: numbers

In view of this table, 93.60% of patients were operated on through the abdominal route.

F. Types of hysterectomy

hysterectomy type	N(%)
Subtotal hysterectomy with preservation of adnexa	15(5.60)
Total hysterectomy with preservation of the adnexa	128(48.10)
Total hysterectomy with adnexectomy	119(44.70)
Not accurate	4(1.50)
Total	266

Table 10: Distribution of patients according to type of hysterectomy

%: percentage, N: numbers

This table shows that interadnexal hysterectomy was performed in 44.70% of cases.

G. Type of anesthesia

Type of anesthesia	N(%)
General	170(63.90)
Spinal anesthesia	87(32.70)
Not accurate	9(3.40)
Total	266(100.00)

Table 11: Distribution of patients according to type of anesthesia

%: percentage, N: numbers

It emerges from this table that 63.90% of the patients benefited from general anesthesia.

J. Transfusion concept
- Hysterectomy for myomas and age-parity parameters

H. Operator qualification

Operator qualification	N(%)
Generalist	86(32.30)
Senior	14(5.30)
Specialist	162(60.90)
Not precise	4(1.50)
Total	266(100.00)

Table 12: Distribution of patients according to operator qualification

%: percentage, N: numbers

This table shows that 60.90% of patients were operated on by specialists.

It appears from this table that 49.25% of hysterectomies lasted between 2 hours precisely and 2 hours 59 minutes. The average duration, being 2 hours ±33.7min

I. Transfusion concept

Transfusion	N(%)
Yes	40(15.00)
No	82(30.0)
Not accurate	144(54.10)
Total	266(100.00)

Table 13: Distribution of patients according to the concept of transfusion

%: percentage, N: numbers

This table shows that 15.00% of the patients had been transfused.

Settings		Myoma			
Age (year)	N	Yes	No	OR[95%CI]	p
31-40	28	14(50.00)	14(50.00)	3.2[1.3-7.7]	0.002
41-50	122	71(58.20)	51(41.80)	4.5[2.5-8.0]	0.0001
>50	112	24(21.43)	88(78.57)	1	
Parity					
Nulliparous	29	27(93.10)	2(6.90)	141.8[28.3-708.5]	0.0001
Primiparous	26	23(88,46)	3(11,54)	80,5[19,5-328,0]	0,0001
Pauciparous	39	26(66,67)	13(33,33)	21,0[7,8-56,2]	0,0001
Multiparous	58	15(25,86)	43(74,14)	3,7[1,4-9,3]	0,0001
Grand multiparous	92	8(8,70)	84(91,30)	1	

Table 14: Hysterectomy for myomas and age-parity parameters

Age between 31 and 40 multiplied by 3 the risk of undergoing a hysterectomy for myoma (OR 95% CI; 3.2 [1.3-7.7]) and age between 41 and 50 multiplied by 5 the risk of undergoing a hysterectomy for myoma (OR 95% CI; 4.5 [2.5-8.0]). The difference being statistically significant.

The nulliparous would multiply by 141 the risk of undergoing a hysterectomy for myomas (OR 95% CI; 141.8 [28.3-708.5]), the primiparity by 81, the pauciparous by 22.

K. Hysterectomy for cervical cancer and age-parity parameters

Settings	Cervical cancer				
Age (year)	N	yes	No	OR[95%CI]	p
31-40	28	9(32.14)	19(67.86)	1	
41-50	122	26(21.31)	92(78.69)	0.6 [0.2-1.4]	0.259
>50	112	30(26.79)	82(73.21)	0.7 [0.3-1.8]	0.571
Parity					
Nulliparous	29	1(3.45)	28(96.55)	1	
Primiparous	26	1(3.85)	25(96,15)	1,1 [0,06-18,9]	0,937
Pauciparous	39	7(17,95)	32(82,05)	6,1 [0,70-52,9]	0,066
Multipara	58	18(31,03)	40(68,97)	12,6 [16-100,0]	0,003
Grand multiparous	92	35(38,04)	57(61,96)	17,1 [2,2-132,0]	0,0001

Table 15: Hysterectomy for cervical cancer and age-parity parameters

With respect to age, there is no statistically significant difference. Regarding parity; grand multiparity increased the risk of undergoing hysterectomy for cervical cancer by 18 (OR 95% CI; 17.1 [2.2-132.0]) . The difference being statistically significant.

L. Hysterectomy for cervical dysplasia and age-parity parameters

Settings	Cervical dysplasia				
Age (year)	N	Yes	No	OR[95%CI]	p
31-40	28	3(13.04)	25(89.26)	1	
41-50	122	15(12.30)	107(87.70)	1.1[0.3-4.3]	0.019
>50	112	20(17.86)	92(82.14	1.8 [0.5-6.5]	0.361
Parity					
Nulliparous	29	1(3.45)	28(96.55)	1	
Primiparous	26	2(7.69)	24(92.31)	2.3[0.2-27.3]	0.488
Pauciparous	39	1(2.56)	38(97.44)	0.7 [0.04-12.2]	0.830
Multipara	58	14(24,14)	44(75.86)	9.0 [1.1-71.55]	0.016
Grand multiparous	92	20(21.74)	72 (78.26)	7.7 [0.99-60.7]	0.023

Table 16: Hysterectomy for cervical dysplasia and age-parity parameters

No statistically significant difference was detected between the age and cervical dysplasia variables.

M. Hysterectomy for endometrial cancer and age-parity parameters

Settings	Endometrial cancer				
Age (year)	N	yes	No	OR[95%CI]	p
31-40	28	0(0.00)	28(100)	-	
41-50	117	3(2.46)	119(97.54)	1	
>50	110	20(17.86)	92(82.14)	8.6 [2.4-29.90]	0.0001
Parity					
Nulliparous	29	0(0.00)	29(100.00)	-	
Primiparous	25	0(0.00)	26(100)	-	
Pauciparous	37	1(2.56)	38(97.44)	1	
Multipara	54	5(8.62)	53(91.38)	3.6 [0.4-32]	0.224
Grand multiparous	89	16(17.39)	76(82.61)	8.0 [1.02-62.6]	0.020

Table 17: Hysterectomy for endometrial cancer and age-parity parameters

-: indefinite or not calculable.

The age of 50 and over multiplied by 8 the risk of undergoing a hysterectomy for endometrial cancer (OR 95% CI; 8.6 [2.4-29.90]) .

Grand multiparity multiplied by 8 the risk of undergoing a hysterectomy for endometrial cancer (OR 95% CI; 8.0 [1.02-62.6]

N. Hysterectomy for prolapse and age-parity parameters

Settings	Prolapse				
Age (year)	N	Yes	No	OR[95%CI]	p
31-40	28	0(0.00)	28(100)	-	
41-50	122	3(2.46)	119(97.54)	1	
>50	112	13(11.61)	99(88.39)	5.2[1.4-18.8]	0.0001
Parity					
Nulliparous	29	0(0.00)	29(100)	-	
Primiparous	26	0(0.00)	26(100)	-	
Pauciparous	39	1(2.56)	38(97.44)	1	
Multipara	54	3(5.17)	55(94.83)	2.2 [0.2-22.3]	0.523
Grand multiparous	92	9(9.78)	83(90.22)	4.1 [0.5-33.7]	0.154

Table 18: Hysterectomy for prolapse and age-parity parameters

%: indefinite or not computable.

Age 50 and over multiplied by 5 the risk of undergoing a hysterectomy for endometrial cancer (OR 95% CI; 5.2 [1.4-18.8]

No statistically significant difference was detected between parity and prolapse.

O. Occurrence of hemorrhage and operator qualification parameters - type of hysterectomy

Settings	Hemorrhage				
operator qualification	N	Yes	No	OR[95%CI]	p
Generalist	86	31(36.05)	55(63.95)	7.3 [0.9-58.7]	0.031
senior in gynecology	14	1(7.14)	13(92.86)	1	
Specialist	162	19(11.73)	143(88.27)	1.7 [0.2-13.9]	0.0001
Type of hysterectomy					
Subtotal hysterectomy with preservation of adnexa	15	7(46.67)	8(53.33)	1	
Total hysterectomy with preservation of the adnexa	128	28(21.88)	100(78.13)	0.32[0.16-0.95]	0.034
Total hysterectomy with adnexectomy	119	16(13.45)	103(86.55)	0.17 [0.05-0.5]	0.0013

Table 19: Occurrence of hemorrhage and operator qualification parameters - type of hysterectomy

From this table, it emerges that the qualification of the operator is not significantly associated with a hemorrhagic complication, On the other hand, total hysterectomy with adnexectomysignificantly reduces the risk of bleeding (OR 0.17 [0.05-0.5]).

IV. DISCUSSION

A. Frequency

During our study we collected 266 cases of hysterectomies for gynecological indication in medical training in the city of Lubumbashi. Out of a total of 1181 major gynecological procedures; the frequency was 22.52%. In addition, out of a total of 6643 gyneco-obstetric surgical procedures; the frequency was 4.00%. Our results are similar to those found by Baldès et al. which yielded 4.4% in Conakry in 2014 [9] . But they are lower than those of Buambo et al. at Brazzille in 2009 and Pither et al. in Libreville in 2011 who found respectively 6.6% and 6% [7.8] the frequency of gynecological hysterectomies in our environment is almost superimposable on those of other regions of Africa we think that the African lives the same conditions socio-economic.

B. Age

It appears from our series that 45.90% of patients who underwent hysterectomywere aged between 41 and 50 years with an average age of 50 ± 8 years. these results are similar to those of Martin.X in France who reported an average age of 50 years [14] . Furthermore , Pither et al. in Gabon [8] ,Laasuli . Metal. in Morocco [15]found the mean age to be 46 and 47 respectively. The age group between 41 and 50 years multiplied by 5 the risk of undergoing a hysterectomy for uterine leiomyoma. The age group over 50 multiplied by 8 the risk of undergoing a hysterectomy for endometrial cancer and by 5 the risk of hysterectomy for uterine prolapse. For cervical cancer, the trend for increased risk of undergoing a hysterectomy increased with age. The above result corroborates with several literatures [16–18] . The age interval of 41 to 50 years marks a period of onset of menopause with a significant regression in childbearing.

C. Parity

In our work the average parity was 5 ± 3 deliveries, the extremes between 0 to 8 as well as a predominance of grand multiparas (34.60%). nulliparous represented 10.90%. A Gabonese study conducted by Pither et al in 2011 found an average parity of 5.5±4 deliveries [8] . Another Guinean series in Conakry with Baldé et al. found an average parity of 4.2 deliveries in 2014 [9] . In 2008, Berrada Khadi et al. in Tunisia in Fez had found an average parity of 6 deliveries [19]values close to our series. Abauleth et al in Ivory Coast

report in their studies 9.6% of nulliparous women concerned by hysterectomy [20] . This is close to our results.

We found that nulliparity, primiparity and pauciparity successively increased by 142 by 81 and 21 the risk of undergoing hysterectomy for myoma. This can be explained from the outset by the high frequency of myomas in nulliparous and pauciparous as demonstrated by the literature of Cham et al. In Lubumbashi in 2012 [21] , Amadio et al. in 1991 [22] , Parazzini et al. in 1995 [23] .

In addition, multiparity and grand multiparity successively increased by 13 and 17 the risk of undergoing hysterectomy for cervical cancer and also a tendency to increase the risk of undergoing hysterectomy for cervical dysplasia and uterine prolapse.

D. Origin
Most of the patients came from the commune of Lubumbashi, followed by the commune of Kampemba. We believe that proximity would play an important role for these municipalities to be the most represented.

E. Directions
   a) Fibroids
   In our series, uterine fibroids alone accounted for 41.40% of indications for gynecological hysterectomies, Nzau et al. In 2012 in Kinshasa reported that 42.20% of hysterectomies were indicated for uterine leiomyoma [6] . And Baldé et al. 2014 in Conakry found 39.6% of hysterectomies performed for fibromyoma [9] . These figures are close to our series. The high rate of fibroids could be explained by the predisposition of the black race to myomatosis as demonstrated by Kjerulf et al. in 1996 and Razafindrable et al. in 2002 in their work [24,25] . And also following late consultations.

   b) cervical cancer
   In 24.80% of cases in our study, hysterectomies were indicated for cervical cancer. Our results are lower than those of Mario et al. in 2019 in New York who found 61% of hysterectomy cases indicated for cervical cancer [26] but higher than those of Laasouli et al. who reported 13.99% of cervical cancer cases that were hysterectomized at CHU Fez in 2012 in Morocco [15] .

   The hysterectomy indicated for cervical cancer is poorly performed in our environment due to the fact that the patients consult late, the symptoms being at advanced stages for which surgery is difficult to perform.

   c) Cervical dysplasia
   Cervical dysplasia represented 14% of cases for which hysterectomy was performed in our study. Benamhed et al in 2018 and Khélifa et al in 2017 all in Algeria successively reported 2% and 2.9% of hysterectomies performed for cervical dysplasia [27,28] . The context of our environment reflects the lack of early detection of precancerous pathologies and means of monitoring.

   d) endometrial cancer
   In our series, 8.60% of patients were operated on for endometrial cancer. Our results are superior to those of Khélifa et al in 2017 in Algeria who found 6% of cases of hysterectomy performed for endometrial cancer [28] . But Benamhed et al in 2018 reported results superior to ours, i.e. 10% of hysterectomies indicated for endometrial cancer [[27]].

   e) Uterine prolapse
   Regarding uterine prolapse, 6.40% underwent hysterectomy in our study. This result is comparable to that of Leveque et al in France (5.00%) [29] and low compared to Baldé et al in Guinea Conakry (22.00%) [9] . We have not found any argument to explain this difference.

F. Look first
Regarding the approach, 93.60% of hysterectomies were performed abdominally, 4.50% vaginally and none laparoscopically . These results are similar to those of Abauleth et al. In Côte d'Ivoire (84.26% of hysterectomies via the abdominal route) [20] , and Buambo et al. in Brazzaville (82.50% hysterectomy via the abdominal route) [7] . Hounkpatin et al. found 7.41% vaginal hysterectomy [30] also close to our series.

In developed countries unlike our developing countries, we are witnessing a regression of the abdominal route in favor of the vaginal and laparoscopic routes. [9,31,32] . This low rate of vaginal hysterectomies and the virtual absence of the laparoscopic route could be explained not only by our failing technical platform but also by the small number of gynecological surgeons capable of performing this type of intervention. This is how in our country since the Mukelenge study Ngwen at Kinshasa university clinics in 1982 quoted by Nzau who reported 96.9%hysterectomies performed via the upper route; three decades after Nzau et al. in 2012 also reported 96.95% high hysterectomies[6]. Compared to our results, there has not been enough progress, however some progress has been noted in some African countries such as Gabon with the results of Pither et al; 39% of hysterectomies via the abdominal route and 61% via the vaginal route [8] , Traoré et al. (34% for the vaginal route) [33] , Bambara et al (22.1% for the vaginal route) [34] . And yet the vaginal route offers many advantages including; the aesthetics of the scar, the average duration of the reduced intervention, a short postoperative stay and a brief recovery period [6,9] .

G. Type of hysterectomy
In our series, total hysterectomies with preservation of the adnexa were performed in 48.10% of cases. This result is similar to those of Nzau et al. which yielded 57.4%[6].The fairly extensive practice of total hysterectomy with preservation of the adnexa could be based on the experience of the operator (to be able to approach the lumbo-ovarian pedicle) and on the indications for hysterectomy; for our context, fibromyomas were the major indication for hysterectomies, hence resorting to total hysterectomy with adnexal preservation.

H. Incidents and post-operative complications

According to the literature, bleeding incidents are far more frequent during hysterectomy [36] . In view of our study, intraoperative incidents were also dominated by haemorrhages (19.20% of cases). Thus, our intraoperative bleeding rate is higher than that of Baldè et al. (12.31% of cases) [9] . Postoperative complications were dominated by parietal infection (12.41% of cases). The work of Baldés et al. reported 21.02% postoperative parietal suppuration [9] . These results are superior to those of our series.

This high rate of post-operative infection could be due to our working conditions; in particular insufficient aseptic measures.

V. CONCLUSION

Total hysterectomy with adnexa preservation was the most commonly performed type. In the majority of cases, the operating teams resorted to general anesthesia. The operative time and the postoperative stay remain long, especially for the abdominal route. In addition, intraoperative incidents were marked by haemorrhages with a tendency to reduce the haemorrhagic risk during total hysterectomies with adnexectomy. Postoperative complications were dominated by parietal infection followed by anemia. We recorded 5 deaths out of 266 patients who had undergone hysterectomy indicated for gynecological pathologies.

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