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Radical Hysterectomy in Cervical Cancer: Patients' Epidemiological and Clinical Profiles and Perioperative Outcome in Two Referral Hospitals in Cameroon

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Abstract

Background: Cervical cancer (CC) is one of the most frequent cancers and the leading cause of death from gynecological cancer in Low and middle income countries, Cameroon inclusive. Surgery is the primary treatment modality when the disease is diagnosed at early stage. Radical hysterectomy in cervical cancer has not been evaluated in recent years in Cameroon. The purpose of this study is thus to evaluate the epidemiological and clinical features and short term outcomes of patients who underwent surgery. **Patients and methods:** This retrospective study was conducted at the Douala Gynaeco-obstetric and Pediatric Hospital and the Douala General Hospital. Cervical cancer patients who underwent Radical hysterectomy between January 2015 and December 2020 were included. A pre-established data collection tool was used to record socio-demographic, clinical and outcomes information from patients' files; additional outcome information was obtained from phone calls. Descriptive analysis was done using the SPSS version 26. Bivariate analysis was used to determine associations between disease and patients characteristics and occurrence of adverse postoperative outcome. P value of 0.05 was

considered. **Results:** Sixty one patients were enrolled. Their ages ranged from 33 to 74 years with a mean age of 51.95 ± 10.29 years. Over 85% of women were married, 65.57% were unemployed and 86.88% were multiparous. Only 28% had never done cervical cancer screening. Most patients had stage IB1 to IB2 stage disease (57.1%). Less than 9% underwent radical hysterectomy and 8 of those (13.11%) suffered intraoperative complications. Twenty-five patients (40.98%) presented immediate and short term complications. There was no significant association between the disease or patients' characteristics and adverse outcomes. **Conclusion:** Cervical cancer patients are relatively young in our settings and only 9% of them reach the hospital at early stage. Postoperative adverse outcomes rate is higher than that reported in the literature. Sensitization on screening and awareness of early symptoms can reverse the situation.

Keywords

Cervical Cancer, Radical Hysterectomy, Epidemiological and Clinical Profiles, Outcomes, Cameroon

1. Introduction

Cervical cancer (CC) is one of the most frequent cancers and the leading cause of death from gynecological cancer in the world, especially in Low and middle income countries (LMIC) [1] [2]. Severe morbidity and mortality related to the disease have declined in the western world owing to efforts put on screening programs, early diagnosis and new therapeutic modalities developed. However, the incidence remains disproportionately high in low and middle income countries with constraint financial and human resources [3]. Data from global Cancer estimates in 2018 in more than 185 countries show great variation in countries with incidence ranging from less than 2 to 75/100,000 women and 85% of cervical cancer related deaths found in LMICs [4] [5].

The treatment of cervical cancer is based on several therapeutic modalities including surgery, radiation, chemotherapy and more recently immunotherapy. The choice of a therapeutic modality depends on factors like the type of cancer, the patient's age and general condition, the presence of comordities like HIV and the stage of disease [6] [7] [8]. Many authors or international guidelines recommend surgical treatment when the cancer is diagnosed at early stage but radiation therapy or concurrent chemoradiation are reported to result in good outcomes also. The survival or 5 years cancer-free interval vary from 91% in early stages of disease to less than 60% when the cancer has spread to distant organs [8] [9] [10] [11].

Criteria of selection of patients who can undergo surgery are well codified and include patients with stage IA1 to IIB [6] [9] [10]. When the disease is diagnosed early, the type of surgery depends on the patient's desire to preserve fertility or not. Patients who desire to preserve their fertility potential may benefit from conisation, trachelectomy with lymph nodes dissection or not whereas Wertheim or

modified Wertheim radical hysterectomy with pelvic lymphadenectomy is the technique of choice when the family size has been reached [6] [12]. Efficacy and safety of radical hysterectomy with minimal digestive or urologic complications, post-operative lymphedema or pains have been proven [13] [14].

In Cameroon like other LMICs, patients arrived the hospitals at late stages when the surgical interventions are not indicated and are thus eligible for either radiotherapy or concurrent chemoradiation therapy [3] [5] [8] [15]. Furthermore, the equipment and infrastructure for radiotherapy are limited to very few centers, worsening the prognosis of this disease in our country. Very few studies have been done on the surgical management of cervical cancer in the recent years. This study thus aims at evaluating the epidemiological profile, the clinical features and early treatment complications of cervical cancer patients who underwent surgery with the idea of collecting data which can help to design recommendations to reduce mortality and improve the quality of life of survivors of cervical cancers.

2. Patients and Methods

2.1. Study Design and Site

This cross sectional study was conducted in two referral hospitals, the Douala General Hospital and the Douala Gynaeco-Obstetric and Pediatric hospital. The 2 hospitals were chosen because of their patients' turnout and their paramount role in the health care services in Cameroon. Both hospitals offer cancer care with the presence of gynecological unit, imagery unit, theater, and medical oncology; however, Radiotherapy is only available in the Douala General Hospital which is the only Centre in Public sector in the country. The workforce of the two hospitals is constituted among others of gynecologists with oncologic surgery skills, medical oncologists and radiation therapy specialists in General hospital.

Cervical cancer is managed following in-service guidelines which include:

- Histologic diagnosis of the disease
- Clinical and imagery staging of the disease using the FIGO classification
- Study of disease extension using ultrasound or Magnetic Resonance Imagery (MRI) when possible

Only stages I to IIA are eligible for surgery in DGOPH whereas stage IIB is included in DGH. The decision to operate is made after a multidisciplinary meeting involving the gynecologists, the oncologist, and the anesthetists.

Ethical approval and administrative authorization were sought and obtained from the institutional Research Boards and the management board of the 2 hospitals.

2.2. Inclusion and Exclusion Criteria

We included the files of all patients who underwent radical hysterectomy for cervical cancer during the study period. Files where important information like the histologic diagnosis, the stage of the disease and the immediate treatment outcome where excluded from analysis.

2.3. Data Collection

A pre-established data collection tool was used to fill information retrieved from patients' file and/or theater registries. Socio-demographic, clinical and immediate outcome information were abstracted from these sources and patients or their next of kin were called through phones to obtain late outcome information. For this study, short term outcomes were the immediate post-operative complications occurring period of hospital stays, and were extended to events which occur within 30 days following surgery including persistent bleeding, post-operative severe pain, and manifestation of visceral injury.

2.4. Data Analysis

Data were analyzed using SPSS version 26 with calculation of means, frequency and percentage for categorical data. Bivariate then multivariate logistic regression analysis were used to determine association between factors and the occurrence of adverse surgical outcome.

3. Results

Nine hundred and thirty-one patients were managed for cervical cancer in the 2 hospitals of which 83 underwent radical hysterectomy. Nineteen files had missing data and 3 patients refused to give information through phone calls; finally, we enrolled 61 patients in the study.

The surgical management rate was 83/931 (8.92%).

According to Table 1, the mean age of patients at diagnosis was 51.95 ± 10.29 years. The most represented age group at diagnosis was (40 - 50) years (29.50%) and over 54% of patients were above 50 years. Over 85% of women were married, 65.57% were unemployed and 86.88% were multiparous. Nearly 28% had never done cervical cancer screening.

Table 2 summarizes the main symptoms presented by the patients who underwent surgery as well as the staging of disease on admission and the histologic type of cancer.

Over 82% of patients presented with vaginal bleeding. Pelvic pain was present in 36.07% of cases. Squamous cell carcinoma was the most frequent histological tumour (88.53%). Patients presented most of time with IB disease.

Eight patients out of 61 (13.11%) had intraoperative complications with hemorrhage representing the most frequent (8.19%); All these complications were successfully managed. In immediate and short term postoperative period, over 63% of patients had a complete recovery, 15 of them (24.59%) suffered severe post-operative pains and 2 (3.27%) had surgical site infection (SSI). After a follow-up of 30 days, 22 (36.06%) patients presented with mild to moderate postoperative complications (see Table 3).

Table 4 below describes associations between some factors and the occurrence of peroperative or postoperative complications. There was no significant associations between socio-demographic characteristics and any complications.

Table 1. Patients characteristics (n = 61).

Variable	Frequency	Percentage (%)
Age groups (Years)		
30 - 40	10	16.40
41 - 50	18	29.51
51 - 60	16	26.22
>60	17	27.87
Employment status		
Employed	21	34.42
Not employed	40	65.58
Parity		
Multiparous	53	86.89
Primiparous	6	9.84
Nulliparous	2	3.27
Cervical cancer screening		
Regular screening	24	39.34
No screening ever	17	27.87
Irregular	20	32.79

Table 2. Clinical and paraclinical features of patients (n = 61).

Variables	Frequency	Percentage (%)
Presenting symptoms		
Spontaneous metrorrhagia	26	42.62
Post coital bleeding	25	40.98
Pelvic pains	22	36.07
Pelvic heaviness	07	11.48
Hydrorrhea	10	16.67
FIGO staging of patients		
IA1-IA2	12	19.67
IB1-IB2	35	57.37
IIA1-IIA2	11	18.03
IIB	03	4.91
Histological type		
Squamous cell carcinoma	54	88.52
Adenocarcinoma	07	11.48

Note: A patient could present with several symptoms combined.

Table 3. Treatment outcome.

Variables	Frequency	Percentage (%)
Intraoperative complications		
Hemorrhage	5	8.19
Bladder injury	2	3.27
Ureteral injury	1	1.64
Immediate and short term post-operative outcomes		
Complete recovery with no complications	39	63.93
Severe pelvic pains	15	24.59
Surgical site infection	2	3.27
Recto-vaginal fistulae	2	3.27
Recto-vaginal fistula	2	3.27
Urinary incontinence	1	1.64

Table 4. Bivariate analysis of factors associated to post-operative complications.

Factors		Postoperative complications		OR (CI 95%)	P value
		Yes	No		
Comorbidities	HIV	4	7	0.229 (0.02 - 1.77)	0.158
	Diabetes	5	2		
	smoking	0	0	NA	NA
Cancer FIGO stage	IA1-IA2	3	9	Ref	
	IB1-IB2	14	21	2 (0.45 - 8.71)	0.356
	IIA1-IIA2	5	6	2.5 (0.42 - 14.60)	0.39
	IIB1-IIB2	3	0	NA	
Histological type	Squamous cell	23	31	1.237 (0.26 - 5.70)	0.786
	adenocarcinoma	2	5	Ref	Ref

4. Discussion

Cervical cancer is the second most common gynecological cancer in Cameroon and represents 13.8% of all cancers in women [16] [17] and the age standardized mortality is estimated to about 19/100,000 women per year [17].

The mean age of cervical cancer patients who underwent radical hysterectomy was 51.95 ± 10.296 years with extremes at 33 and 74 years. The majority of these patients were of the 41-to-50-year-old age group (29.5%) which is consistent with other studies done in Cameroon by P. Engbang *et al*. and R. Tchounzou *et al*. [16] [17]. As compared to developed countries where the mean age is lower,

30 to 34 years in the United Kingdom (UK) between 2016 and 2018 [18], the mean age of our patients was high and this could be explained both by the lack of national synchronized screening programs, poor awareness of cervical cancer symptoms and the attitudes of many patients who rely first on alternative treatments [15] [19] [20] [21]. In fact, in this study, nearly 28% of women had never done a cervical screening test and only 40% of them reported doing regular screening; this tendency has been described by PM Tebeu *et al.* in a semi-urban area in 2008 where only 8.3% of women had ever done a screening test and later by LayuDonatus *et al.* who found that over 43 % of women in the Nord west region of Cameroon have done at least a screening test and over 30% of them were not aware of cervical cancer symptoms [20] [21].

Majority of patients in this study (89.7%) were multiparous which is consistent with what is known about the disease [16] [21] [22].

Like in other LMICs, over 91% of patients were diagnosed at late stage, thus not eligible for surgical management [19] [23] [24]; however studies in some regions of India by Preeti *et al.* [13] [25] have reported diseases diagnosed at early stages in over 33% of cases.

Majority of patients had squamous cell carcinoma (88.56%); similar figures are reported in literature both in developed and LMICs [25].

Management of cervical cancer in the study sites is based on the FIGO 2009 recommendations following which surgical treatment is the optimal treatment for early stages from IA1 to IIA [6] [25]. Three patients in this series were classified stage IIB but no explanation was recorded to justify their eligibility to surgery; few authors have extended the indications of radical hysterectomy and lymph nodes dissection to this category(stage IIB) of patients with reported favorable outcome but this is usually associated to adverse outcomes [9] [10]. Most of the patients in this study were between Stages IB1 and IB2 (57.4%) and 4.9% of cases have stage IIB disease. These findings were similar with those of Iyengar and al. in India in 2019 and Michalas and coll. in South America [13] [23].

Eight patients out of 61 (13.11%) had intraoperative complications with hemorrhage representing the most frequent (8.19%) followed by bladder injury 2 (3.27%) and ureteral injury (1.64%); All these complications were successfully managed. Wertheim radical hysterectomy is a heavy surgical procedure often associated to complications like hemorrhage, urologic complications, and bowel injuries. In a series in China, Liu *et al.* found an incidence of 1.54% of urologic complications which is lower than the 5% recorded in our study. This high incidence of urologic complications could be attributed to the inclusion of stage IIB diseases among those eligible for surgery. Twenty-five patients (40.98%) presented immediate (11.47%) or late postoperative complications distributed as severe pelvic pains (24.59%), urinary incontinence (3.28%), vesico-vaginal fistulae (3.28%) and lymphedema (4.91%). Shah C. *et al.* [26] reported lower postoperative adverse outcomes when the treatment was done through robotic surgery as compared to laparotomy like was the case with all our patients but the overall survival rate or cancer free interval were not different [26].

After bivariate analysis, the Odds of having peroperative complications and short term postoperative complications were 3 times more with stage IIB disease than other stages. However, there were no significant associations between any disease, procedure or patients' characteristics and the occurrence of adverse surgical outcomes. These findings contrast with what is reported in literature by many authors who describe factors like FIGO stage IB, parametrial invasion, advance age of the patient, tumor size like predictors of complications [27]. Some studies suggest that when minimal invasive surgery is used, there is reduced hospital stay, hemorrhagic complications and pelvic pains but both the short term and long term complications are comparable for the 2 approaches [28]. The absence of clear associations between independent factors and the occurrence of complications in this study may account to the small sample size which could permit reliable inferential statistical analysis.

5. Study Limitations

This was a retrospective study and some key information were missed in some files; furthermore, patients were asked to report about outcomes of the surgery several months or years after when some of them have had some treatment adjunct like Chemotherapy or Radiotherapy. This could lead to recall bias or difficulties to know whether the adverse event was due to surgery or to other treatment modality. We minimize this by confronting the statement with the hospital records.

6. Conclusions

The practice of radical hysterectomy in cervical cancer is low (8.91%) in Douala despite the presence of skilled gynecologists.

The epidemiological and clinical profiles of patients who undergo surgery compared with that of other low and middle income countries.

The majority of patients operated belong to the stage IB and the rate of perioperative complications is high.

There is a necessity to continue both the promotion of screening and the awareness of early disease symptoms by the population.

Ethics Approval and Consent to Participate

Ethical approval was obtained from Douala General Hospital and from Douala Gynaeco-Obstetric and Paediatric Hospital Institutional Research Boards.

Availability of Data and Materials

The base (medical file of the patients) is available in Douala General Hospital upon reasonable request

Authors' Contributions

All authors participated the design and editing of the manuscript. All authors approved the final version of the manuscript.

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Conflicts of Interest

All the authors declare no competing interests.

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Appendix: Data Collection Tool

Patient's code N°: ….

Name of Hospital: 1 = Douala General Hospital (DGH) 2 = Douala Gynaeco-Obstetric and Paediatric Hospital (DGOPH)

Date: …/…../…….

Section 1: Socio-demographic data

	I-Socio-demographic data	RESPONSE
Q1	Ageinyears	/_____/
Q2	Profession: 1 = Employed; 2 = Unemployed; 3 = Student; 4 = Housewife	/_____/
Q3	Maritalstatus: 1 = Married; 2 = Single	/_____/
Q4	Level of education:1 = Primary; 2 = Secondary; 3 = Higher; 4 = Not Educated	/_____/
Q5	Residence: 1 = Around vicinity; 2 = farfromhospital3 = out of Douala+++	/_____/
Q6	Region of Origin:1 = Littoral; 2 = Centre; 3 = West; 4 = South west; 5 = North west; 6 = Farnorth; 7 = South; 8 = Adamawa; 9 = North; 10 = East	/_____/
Q7	Religion: 1 = Christian; 2 = Muslem 3 = Pegan; 4 = Jehovah Witness	/_____/
Q8	Origin of patient: 1 = Referral 2 = Not referred	

Section 2: Gynecological and obstetrical history

	II-Gynecology and obstetrical history	RESPONSE
Q1	Gravidity and parity	/GP/
Q2	Age of first intercourse:	/_____/
Q3	Age of first menses:	/_____/
Q4	Number of cumulated sexual partners:	/_____/
Q5	History of STIs: 1 = Yes; 2 = No	/_____/
Q6	Use of Contraceptives: 1 = Yes; 2 = No	/_____/
Q7	Which form : 1= Oral; 2 = Injectable: 3 = IUD; 4 = Implants	/_____/

Section 3: Pastmedical history

	III-Past medical histoy	RESPONSE
Q1	HIV status: 1 = Positive; 2 = Negative	/_____/
Q2	ARV Treatment: 1 = Yes; 2 = No	/_____/
Q3	Diabetes: 1 = Yes; 2 = No	/_____/
Q4	Diabetic Treatment: 1 = Yes; 2 = No	/_____/
Q5	Smoking: 1 = Yes; 2 = No	/_____/
Q6	Smoking Duration;	/_____/

Section 4: Family history

	IV-Family History	RESPONSE
Q1	Family history of cervical cancer: 1 = Yes ; 2 = No; 3 = Unknown	/_____/
Q2	Family member affected: 1 = Mother; 2 = Sister; 3 = Aunty; 4 = Cousin; 5 = Grandmother	/_____/
Q3	Family history of hysterectomy: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q4	Family member operated: 1 = Mother; 2 = Sister; 3 = Aunty; 4 = Cousin; 5 = Grandmother	/_____/

Section 5: Screening

	V-Screening done before diagnosis	RESPONSE
Q1	Colposcopy: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q2	Precancerous lesions: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q3	Papsmear: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q4	Precancerous lesions: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q5	Other Screening methods:	/_____/

Section 6: Symptoms upon diagnosis

	VI-Symptoms upon diagnosis	RESPONSE
Q1	Metrorragia: 1 = Yes ; 2 = No	/_____/
Q2	Post-coital metrorragia: 1 = Yes; 2 = No	/_____/
Q3	Pelvic pain: 1 = Yes; 2 = Yes	/_____/
Q4	Pelvic mass : 1 = Yes; 2 = Yes	/_____/
Q5	Heaviness: 1 = Yes; 2 = Yes	/_____/
Q6	Abdominal distension: 1 = Yes; 2 = Yes	/_____/
Q7	Others:	/_____/

Section 7: Diagnostic investigation

	VII-Diagnostic investigation	RESPONSE
Q1	Year of Diagnosis	/_____/
Q2	Age of diagnosis	/_____/
Q3	Biopsy: 1 = Yes; 2 = No	/_____/
Q4	FIGOClassification:	/_____/
Q5	Tumor type: 1 = Squamous cellcarcinoma; 2 = Adenocarninomas; 3 = Both; 4 = Others	/_____/
Q6	Abdomino-pelvic CT scan: 1 = Yes; 2 = No	/_____/
Q7	Others:	/_____/

Section 8: Treatment received before radical hysterectomy

	VIII-Treatment received before radical hysterectomy	RESPONSE
Q1	Radiotherapy: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q2	Chemotherapy: 1 = Yes; 2 = No ; 3 = Unknown	/_____/
Q3	Radio-chemotherapy: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q4	Conisation: 1 = Yes; 2 = No; 3 = Unknown	/_____/
Q5	Others:	/_____/
Q6	No tratment: 1 = Yes; 2 = No	/_____/

Section 9: Radical hysterectomy

	IX-Radical hysterectomy	RESPONSE
Q1	Indication of hysterectomy:	/_____/
Q2	Surgical approach: 1 = Laparotomy; 2 = Laparoscopy	/_____/
Q3	Per operative and immediate post-operative complications; 1 = Yes; 2 = No	/_____/
Q4	If yes: 1 = Bleeding; 2 = Severe pain; 3 = Organ lesion; 4 = Death; 5 = Others	/_____/
Q5	Service transfer after surgery:1 = Gynecology; 2 = Reanimation; 3 = General surgery	/_____/
Q6	If Reanimation, Why? State reasons	/_____/
Q7	If General surgery, Why? State reasons	/_____/
Q8	Long term complications: 1 = Yes; 2 = No	/_____/
Q9	If yes:1 = Urinary incontinence; 2 = Constipation; 3 = Reduced sexual fonction; 4 = Pelvic organ prolapse;5 = Organ prolapse; 6 = Death; 7 = Others	/_____/