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Original Research Article

Rectal Surgery in an Urban African Setting: Indications, Operative Procedures and Outcomes in Douala (Cameroon)

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Abstract: ***Background***: Rectal surgery is technically demanding and associated with significant morbidity. In sub-Saharan Africa, delayed presentation frequently leads to advanced disease and emergency surgery. ***Objective***: To describe indications, operative procedures and postoperative outcomes of rectal surgery in three referral hospitals of Douala, Cameroon. ***Methods***: Retrospective descriptive multicenter study conducted from January 2018 to December 2023, including patients aged ≥15 years who underwent rectal surgery. Sociodemographic data, operative indications, surgical procedures, postoperative morbidity and in-hospital mortality were analyzed. ***Results***: Ninety-one patients were included. Mean age was 54.6 ± 13.4 years with a male predominance (sex ratio 1.2). Rectal cancer was the main indication (68.1%). Abdominoperineal resection was the most frequent procedure (46.2%). Overall morbidity was 9.6% and mortality 6.5%. ***Conclusion***: Rectal surgery in Douala is dominated by advanced malignant disease with a high rate of radical procedures.

Keywords: Rectal Surgery, Rectal Cancer, Abdominoperineal Resection, Complications, Cameroon.

INTRODUCTION

Rectal surgery remains one of the most technically demanding fields of colorectal surgery because of the confined pelvic anatomy, oncological requirements for clear margins and total mesorectal excision, and major functional consequences on continence and quality of life [1–3]. Rectal cancer represents a major global public health problem and accounts for a substantial proportion of colorectal cancer morbidity and mortality worldwide [4, 5]. In high-income countries, advances in imaging-based staging, standardized total mesorectal excision, perioperative care, and the integration of neoadjuvant chemoradiotherapy have significantly improved oncological outcomes and increased sphincter preservation rates [6–8]. Minimally invasive approaches, particularly laparoscopic surgery, have demonstrated oncological safety and improved short-term outcomes in selected patients when performed in experienced centers [9–11].

In contrast, sub-Saharan Africa faces persistent challenges related to delayed diagnosis, limited access to lower gastrointestinal endoscopy, cross-sectional imaging, radiotherapy and multidisciplinary oncologic care. Consequently, patients often present with advanced or complicated disease requiring urgent or radical surgical management [12–14]. Several African series have reported high rates of abdominoperineal resection and postoperative morbidity, reflecting advanced tumor stage and limited access to neoadjuvant therapy [12-15].

In Cameroon, available data suggest an increasing burden of colorectal cancer, frequently diagnosed at advanced stages, with limited multicenter evidence specifically focusing on rectal surgery outcomes [16, 17]. A better understanding of local indications, operative strategies and short-term outcomes is essential to guide resource allocation and improve surgical care. This study aimed to describe the indications, operative procedures and postoperative outcomes of rectal surgery in three referral hospitals of Douala, Cameroon.

METHODS

Study Design and Setting: Retrospective descriptive multicenter study conducted in three referral hospitals of Douala from January 2018 to December 2023.

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Participants: Patients aged ≥15 years who underwent a surgical procedure involving the rectum were included.

Exclusion Criteria: Patients managed non-operatively, patients referred but not operated, and records with missing key variables (indication, procedure or outcome).

Variables: Age, sex, indication for surgery, operative procedure, postoperative morbidity and in-hospital mortality.

Ethics: Ethical approval was obtained from the institutional ethics committee of the Faculty of Medicine and Pharmaceutical Sciences, University of Douala. Given the retrospective design and anonymization of data, informed consent was waived.

RESULTS

A total of 91 patients underwent rectal surgery during the study period. The sociodemographic characteristics are summarized in Table 1. The population was relatively young with a slight male predominance.

Table 1: Sociodemographic characteristics

Variable	Value
Mean age (years)	54.6 ± 13.4
Male sex	51 (56.0%)
Female sex	40 (44.0%)
Sex ratio (M/F)	1.2

Operative indications are presented in Table 2 and Figure 1. Rectal cancer constituted the principal indication, while benign conditions accounted for nearly one-third of cases.

Table 2: Indications for rectal surgery

Indication	n (%)
Rectal cancer	62 (68.1)
Hemorrhoidal disease	11 (12.1)
Rectal prolapse	8 (8.8)
Rectal polyps	6 (6.6)
Other benign conditions	4 (4.4)

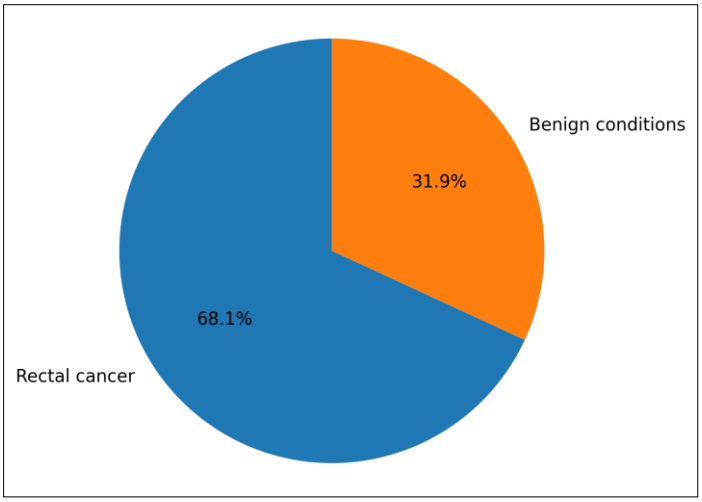

Figure 1: Distribution of indications for rectal surgery

The operative procedures performed are detailed in Table 3. Abdominoperineal resection was the most frequently performed procedure, followed by anterior rectal resection.

Table 3: Operative procedures performed

Procedure	n (%)
Abdominoperineal resection	42 (46.2)
Anterior rectal resection	27 (29.7)
Other procedures	22 (24.1)

Postoperative outcomes are summarized in Table 4. Overall morbidity was 9.6%, mainly due to bowel obstruction and infectious complications. In-hospital mortality was 6.5%.

Table 4: Postoperative morbidity and mortality

Outcome	n (%)
Overall morbidity	9 (9.6)
Postoperative obstruction	4 (4.4)
Infectious complications	3 (3.3)
Mortality	6 (6.5)

DISCUSSION

This multicenter study provides robust insight into the practice and outcomes of rectal surgery in an urban Central African setting. The findings highlight a disease profile dominated by malignant pathology, a relatively young patient population, and a persistent reliance on radical open procedures, reflecting both epidemiological trends and health-system constraints [12-16].

The mean age observed in this cohort is markedly lower than that reported in most Western series, where rectal cancer typically affects patients in their sixth to seventh decade of life [4, 5]. This age discrepancy has been consistently reported in Cameroonian and broader African studies and is likely multifactorial, related to population demographics, diagnostic delays, differences in exposure to environmental and dietary risk factors, and the absence of organized screening programs [12-16]. Late presentation remains a critical issue, with many patients seeking care only once symptoms become severe or complications occur.

Rectal cancer accounted for more than two-thirds of surgical indications, underscoring the growing burden of colorectal malignancies in sub-Saharan Africa [4-12]. While benign conditions such as hemorrhoidal disease and rectal prolapse remain relevant, their proportion is considerably lower than that reported in elective colorectal surgery series from high-income countries, where early presentation and access to specialist care are more common [9,10]. This contrast likely reflects disparities in healthcare access and referral pathways in low- and middle-income countries.

The high rate of abdominoperineal resection observed in this study deserves particular attention. In contemporary Western practice, advances in pelvic imaging, standardized total mesorectal excision, and widespread use of neoadjuvant chemoradiotherapy have enabled sphincter preservation in a majority of patients with low rectal cancer [6–11]. In contrast, the frequent use of abdominoperineal resection in our setting suggests advanced tumor stage at diagnosis, distal tumor location, and limited availability of radiotherapy and multidisciplinary tumor boards, as widely reported in African series [12-15]. These factors significantly constrain the feasibility of sphincter-sparing strategies.

The exclusive use of open surgical approaches in this series reflects prevailing realities in many low- and middle-income countries. Limited access to laparoscopic equipment, shortages of trained personnel, anesthesia constraints, and the high proportion of urgent or semi-urgent cases all restrict the implementation of minimally invasive surgery [13, 14]. Nevertheless, evidence from randomized trials supports the oncological safety of laparoscopic rectal cancer surgery in appropriately selected patients [11]. Gradual, selective introduction of minimally invasive techniques for elective cases—supported by structured training and institutional investment—could improve postoperative recovery and reduce wound-related morbidity.

Postoperative morbidity and mortality rates observed in this study are comparable to those reported in other African series but remain higher than benchmarks from high-income settings [12–15]. Emergency presentation, advanced disease, malnutrition, anemia, and limited critical care capacity are likely contributors [13, 14]. Targeted improvements in perioperative optimization, standardized antibiotic prophylaxis, enhanced recovery pathways, and early recognition of postoperative complications may substantially improve short-term outcomes.

From a health-system perspective, these findings highlight several priorities. Strengthening access to diagnostic endoscopy and cross-sectional imaging, establishing functional multidisciplinary tumor boards, expanding radiotherapy capacity, and implementing context-adapted screening strategies could shift diagnosis toward earlier stages, as demonstrated in high-income settings [6–8]. Such changes would not only improve oncological outcomes but also reduce the need for radical procedures and permanent stomas.

Despite its strengths, this study has limitations inherent to its retrospective design, including potential information bias and the absence of long-term oncological and functional outcomes. Nonetheless, its multicenter nature enhances external validity and provides valuable baseline data for future prospective studies and policy-oriented interventions aimed at improving colorectal cancer care in Cameroon and similar settings [12-16].

CONCLUSION

Rectal surgery in Douala is predominantly performed for advanced rectal cancer and is associated with significant morbidity and mortality. Improving access to early diagnosis, oncologic care and perioperative support is crucial to improve surgical outcomes.

DECLARATIONS

Authors' Contributions

Jean Paul Engbang conceived the study, coordinated data collection, performed data analysis, and drafted the manuscript. Ambroise Ntama contributed to study design, surgical management, and critical revision of the manuscript. Valery Onana Mvondo participated in data collection, patient management, and manuscript review. Fred Dikongue contributed to data acquisition and surgical management. Justin Ndzana participated in data collection and manuscript revision. Marcelin Ngowe Ngowe supervised the study, contributed to surgical management, and critically reviewed the manuscript. All authors read and approved the final manuscript.

Ethics Approval and Consent to Participate

Ethical approval was obtained from the institutional ethics committee of the Faculty of Medicine and Pharmaceutical Sciences, University of Douala. Given the retrospective nature of the study and anonymization of patient data, the requirement for informed consent was waived.

Consent for Publication: Not applicable. No individual patient data are presented in this manuscript.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request, subject to institutional policies.

Competing Interests: The authors declare that they have no competing interests.

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