

Abdominoperineal Resection in Rectal Cancer in General Surgery Department at Gabriel Toure University Hospital

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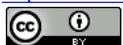
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Abstract

The objectives: Were to determine the hospital frequency of abdominoperineal resection (APR); to determine mortality and morbidity rates and to assess oncologic outcomes. **Method and patients:** We performed a retrospective study between 2008 and 2013 in general surgery department at Gabriel Toure University Hospital (UH) which included all patients admitted for rectal cancer confirmed by pathological examination, and having undergone an APR. **Results:** We have collected 17 cases which accounted for 65.38% of curative resections of rectal cancer. The sex-ratio was 0.89 and the average age was 49.53 years. The average tumor distance from the anal verge was 4.59 ± 1.7 cm. All patients had adenocarcinoma of the rectum. The histopathologic grade was well in 7 cases, moderate and poor in 5 cases each. According to the pathologic TNM classification, 13 patients were classified T4, 14 patients N+. APR was associated with hysterectomy and partial colectomy in 4 cases. The average duration of interventions was 202.06 ± 25.68 minutes. The average duration of hospitalization was 18.24 ± 04.89 days. The postoperative mortality and morbidity rates were 5.88% and 29.42%, respectively. Local recurrence was observed in 6 patients and liver metastasis in 2 patients. The overall survival rate was 37.5% at 2 years and 18.75% at 5 years. **Conclusion:** APR still occupies an important place in our practice. Our results could be improved by the recent introduction of neoadjuvant radio chemotherapy in Mali.

Keywords

Abdominoperineal, Cancer, Mali, Rectum, Resection, Surgery

1. Introduction

Abdominoperineal resection (APR) of the rectum consists, by a double abdominal and perineal approach, to remove the rectum, the sphincteric apparatus, the anal canal and the mesorectum in one piece; it ends with a definitive colostomy [1].

It is indicated for cancers of the rectum for which a curative resection does not preserve the sphincter apparatus and for some anal cancers [1] [2] [3].

Colorectal cancer is the fourth most common cancer in the world [4].

In France, 42,152 new cases of colorectal cancer were estimated in 2012 (23,226 men and 1826 women) with 1772 deaths [5]. In the USA 143,460 new cases of colorectal cancer with 51,690 deaths were estimated in 2012 [6].

Colorectal cancer is rare in Africa. In Mali, in 2012, Coulibaly reported 81 cases of rectal cancer in 26 years in the Surgery B department of the Point G university hospital [7].

APR is a mutilating surgery that is confronted with several challenges namely: the success of an oncologic resection, the reduction of local recurrence, the preservation of urinary and sexual functions and the acceptance by the patient of a definitive colostomy.

Today, indications of APR have been reduced by the development of sphincter preserving surgeries such as low anterior resection (LRA), intersphincteric resection and coding of neoadjuvant treatments [3] [8].

The results of the APR have been improved through the introduction of total mesorectum excision (TME) and the combination of neoadjuvant chemoradiation therapy (CRT) [3] [7] [9].

In China, in 11 years, APR was performed in 172 patients at Sun Yat-sen University hospital (UH) with a mortality rate of 0% [4]. In the USA, Zaheer *et al.* reported 169 cases in 7 years with a mortality rate of 1.8% [10]. In the United States, Dixon *et al.* reported 85 cases in 10 years with a 2% mortality rate [11].

APR is poorly practiced in Africa and has received little research.

In Tunisia, Ben Temime performed 45 APR in 45 years [12]. At the UH of Treichville in Côte d'Ivoire, Casanelli reported 8 cases of APR in 28 years [13]. In Mali, the surgery B Department of the UH of Point G performed 28 APR in 26 years [7].

The objectives of this study were to determine the hospital frequency of the APR, to determine mortality and morbidity rates and to assess oncologic outcomes.

2. Methodology

We performed a retrospective study in the General Surgery Department of the Gabriel Toure UH between January 1, 2008 and December 31, 2013. We included all patients admitted for rectal cancer confirmed by pathological examination and having undergone an APR. We also confirm that we have obtained the approval of the hospital's ethics committee for the study.

The indication of the APR at the locoregional level was made prior to surgery

after digital rectal examination and the proctoscopy which made it possible to evaluate the distance of the tumor from anal verge, and the local extension. However, the final decision was made after the intraoperative exploration.

Surgical procedures

We realized the APR according to the following principles:

- A double approach: abdominal laparotomy and perineal;
- Upper ligation of the lower mesenteric vessels;
- The rectum and the mesorectum were resected in monobloc and extra-fascial. In some patients, resection of the uterus and vagina were combined:
- The definitive colostomy was located in left iliac fossa;
- The peritoneum was closed;
- The pelvic area was drained by two tubular drains exiting at the right and left side of perineal incision;
- The primary closure of the perineal wound was performed.

We used the UICC classification (TNM 7th edition of 2009).

The variables used were: socio-demographic data; clinical and paraclinical features about the general condition of the patient, the histological findings; therapeutics data; postoperative morbidity and mortality; the occurrence of a local recurrence and distant metastasis; survival at 2 and 5 years. These data were collected from patient records, consultation records, operating records, and records of histological findings.

The entry was made on Microsoft Office Word version 2007. The data analysis was carried out on SPSS software PASW Statistics 18. The statistical tests used were the Student t-test and Fisher exact test with a significance p-value less than 0.05.

3. Results

We collected 17 APR cases in 6 years. These cases accounted for 23% of rectal cancer treatments (17/74), 29.82% of surgical treatments of rectal cancer (17/57) and 65.38% of curative surgical procedures (17/26) (**Table 1**).

The average age of the patients was 49.53 years old. The extreme ages were 24 and 80 years. The median age was 50 years. The sex-ratio was 0.89; there were 8 males and 9 females.

The Karnofski index was between 80% - 100% for 15 patients and between

Table 1. Surgical treatment of rectal cancer in the department.

Type of surgery	Effectives	Pourcentage
APR	17	29.82
Anteriorresection of rectum	9	15.79
Lateral colostomy	5	08.77
Hartmann colostomy	26	45.62
Total	57	100

50% - 70% for 2 patients. The Body Mass Index (BMI) was normal in 13 cases and between 16.5 - 18.5 in 4 cases. The ASA classification was II and III in 11 and 6 cases, respectively. Comorbidity was found in 4 cases including 1 case of heart failure, 2 cases of acute arterial hypertension and 1 case of chronic pneumonitis.

The average distance of the tumor from the anal verge was 4.59 ± 1.7 cm. The extreme distances were 1 and 8 cm.

All our patients had adenocarcinoma of the rectum. The histopathologic grade was well in 7 cases, moderate and poor in 5 cases each.

According to the pathologic TNM classification: 13 patients were classified T4, 14 patients N+, 14 patients of stage 3 (**Table 2**).

The indication of APR was the invasion of the external sphincter in 7 cases, a distal resection margin less than 2 cm in 3 cases and a locally advanced tumor in 7 cases.

APR was combined with hysterectomy and partial colectomy in 4 cases.

The average duration of interventions was 202.06 ± 25.68 minutes. The minimum and maximum durations were 150 and 240 minutes.

The average duration of hospitalization was 18.24 ± 04.89 days with extremes of 11 and 28 days.

The morbidity at 30 days of surgery was 29.41% and mortality was 5.88% (**Table 3**). The 4 cases of infections were managed by drainage after suture ablations followed by dry dressing changes. The case of urinary retention required to keep the bladder catheter several days. At six months outcomes were simple in 13 patients (76.47%) (**Table 4**); sexual and urinary dysfunction were the main complications (3 cases).

Table 2. Distribution of patients according to TNM classification.

		Effectives	Percentage
T	T2	1	05.9
	T3	3	17.6
	T4	13	76.5
	Total	17	100.0
N	N0	3	17.7
	N1	10	58.8
	N2	4	23.5
	Total	17	100
M	M0	17	100
	M1	00	00
	Total	17	100
Stage TNM	Stage 2	3	17.6
	Stage 3	14	82.4
	Total	17	100

Table 3. Distribution of patients according to postoperative complications at 30 days.

	Effectives	Pourcentage
Simple outcomes	11	64.70
laparotomy wound infection	2	11.77
Perineal wound infection	2	11.77
Urinary retention	1	05.88
Deceased	1	05.88

Table 4. Distribution of patients according to operative follow-up at 6 months.

	Effectives	Pourcentage
Simple outcomes	13	76.47
Sexual impotence	2	11.77
Urinary incontinence	1	11.77
Stomy prolapse	1	05.88
Eventration	1	05.88
Deceased	2	11.77

Adjuvant chemotherapy was performed in 11 patients (64.7%). Radiation therapy has not been performed.

Overall survival rate at 01 year was 75%. At 02 years, overall survival rate was estimated at 37.5% (n = 6/16). 01 patient was lost to follow-up. The overall survival rate at 05 years was 18.75% (n = 03/16). 6 patients had local recurrence (37.5%) and 2 patients had liver metastasis.

4. Discussion

The limit of our study is essentially the lack of information on certain data due to the retrospective nature of the study and the context of resource-limited country indeed; we have excluded discussing variables such as quality of resection, nervous and vascular involvement in histological results.

APR is a mutilating surgery that has seen its frequency decrease in recent years in favor of sphincteric preservation techniques. In European, American and Asian studies, APR is less frequently performed than sphincteric preservation techniques (anterior resection and intersphincteric resection) with a frequency that varies between 16 and 41% [4] [14] [15] [16] [17]. On the other hand, APR is more frequent in our study as in the Ivorian study (61.54% and 65.38%) [13]. This could be the consequence of the late diagnosis of cancer in Mali and in sub-Saharan Africa [13], and also the non-achievement, in our study, of neoadjuvant radiochemotherapy normally indicated for locally advanced rectal cancers (T3, T4 and/or N+) [8]. This neoadjuvant treatment conserves the anal sphincter in some patients by inducing downstaging [18] [19].

The sex ratio varies between 1.3 and 2.02 in the literature with male predo-

minance [4] [10] [12] [15] [20]. However, in our series, females were more common with a sex ratio of 0.89. This could be due to a sampling bias.

The average age in our study (49.53 years) is close to that reported by Casanelli in an Ivorian study (42.3 years) [13]. Our patients were significantly younger than those in the European, American and Asian series (55 to 67 years) [4] [10] [15] [20] [21].

The stage of evolution of rectal cancer is an independent variable that has an impact on the results of curative treatment. Indeed, advanced stage is a factor of poor prognosis for local recurrence and survival [4] [15] [22]. In our study, 14 out of 17 patients (82.4%) had TNM III stage cancer. This rate is significantly higher than those observed in western series (10% to 39%) [22] [23]. This could be explained by the delay of consultation in our series.

The morbidity of APR in our study (29.4%) is comparable to that of the literature (16.6% to 41%) [12] [21] [24] [25]. This was in our study, in 4 out of 6 cases, infectious complications.

The mortality associated with this surgical technique varies in the literature between 0% and 5.5% [4] [10] [11] [12] [20] [21] [24]. In our study it was 5.88%.

The local recurrence rate is significantly higher in our study than in most other studies (37.5% vs 8% to 14.7%) [4] [11] [20] [22]. This difference could be explained by the advanced stage of cancer and the non-realization of neoadjuvant chemoradiotherapy in our study. Indeed, Bonadeo in Argentina [16] and Fick in the Netherlands [26] who did not perform neoadjuvant chemoradiotherapy in their studies, find results statistically identical to ours (27.6% and 15%, $p = 0.07$ and 0.26). The occurrence of local recurrence after resection of a cancer of the lower or middle rectum depends on the local stage of the tumor, the realization of a neoadjuvant radiochemotherapy for tumors in stages II and III, the quality of the resection of the mesorectum [1] [8] [22].

The overall 5-year survival rate for rectal cancer after APR ranges from 55 to 80% [4] [8] [10] [20]. It was low in our study (18.75%). The variables influencing survival after APR for rectal cancer are: invasion of the resection margin, T and TNM stages, histological grade and radiochemotherapy [4] [8] [10]. Most of our patients had advanced cancer and no patients received neoadjuvant radiotherapy.

5. Conclusion

APR remains the standard treatment for locally advanced low rectal cancers. It still occupies an important place in our practice. The morbidity and mortality rates in our study are not significantly different from those in the literature. However, we had a high local recurrence rate and a low survival rate. APR must be integrated into a multidisciplinary management of rectal cancer planned during multidisciplinary consultations to improve the local control and to obtain a better prognosis.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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