

# Indications and Results of the Hartmann Operation in the General Surgery Department of the Hospital National Ignace Deen Chu De Conakry

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**Abstract:** *Introduction:* The aim was to determine the indications and evaluate the results of the Hartmann procedure in the general surgery department of the CHU Ignace Deen. *Material and Methods:* Five-year retrospective descriptive study (January 2018 to December 2022) carried out in the general surgery department of the Ignace Deen National Hospital. All complete records of patients undergoing Hartmann surgery were included in the study. The variables were sociodemographic, clinical, therapeutic and prognostic. Univariate and bivariate analysis was used to determine prognostic factors. *Results:* We collated 32 cases involving a Hartmann procedure out of 3164 hospitalisations, representing (1%) of the department's total activity. The mean age was 48 years, with extremes of 18 and 80 years. Symptoms were dominated by abdominal pain (81%), abdominal distension (75%), abdominal guarding (68%) and fever (21%). Pelvic colonic volvulus was the main indication (50%), followed by colorectal tumours (19%). The average length of hospitalisation was 16.5 days. The outcome was favourable in 90% of cases. We recorded 3 deaths. Prior abdominal surgery and the existence of bridges were morbidity and mortality factors in our study. *Conclusion:* Pelvic colon volvulus with necrosis was the main indication for this procedure. The Hartmann procedure represents an alternative operation in an emergency situation, with satisfactory results.

**Keywords:** Conakry, Conakry University Hospital, Hartmann, Indication, Result

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## 1. Introduction

The Hartmann procedure is a simplified surgical procedure performed mainly in emergency situations, with the aim of reducing the morbidity and mortality associated with surgical management [1]. It was initially proposed for the management of cancers occluding the recto-sigmoid junction, with the idea of only performing colorectal anastomosis in a second stage of surgery under better local and general conditions [2, 3]. It is now a well-established procedure,

indicated in patients with stenosing or pre-occlusive colon and rectum cancer without any sign of complication in a palliative situation, and limited to patients with significant comorbidities or pre-existing problems with anal continence. The alternative in this indication is endoscopic prosthesis [4]. It is often performed as an emergency procedure when the terrain or the state of the digestive tissues make the operation difficult and increase the risk of postoperative complications [5]. Nowadays, the use of this technique is tending to decline in favour of one-stage anastomotic resection due to improvements in the technical platform and trends in

colorectal surgery, and in an attempt to reduce the amount of surgical trauma that accompanies the open approach, thereby reducing perioperative morbidity and mortality [1]. The laparoscopic approach has been proposed with obvious advantages, reducing the length of hospital stay and reducing overall complication [6]. Delayed diagnosis in the African context means that this technique still has an important role to play, especially in emergencies. The aim of this study was to determine the indications and evaluate the results of the Hartmann procedure in the General Surgery Department of the Ignace Deen National Hospital, Conakry University Hospital.

## 2. Material and Methods

This was a retrospective descriptive and analytical study, lasting five (5) years from January 2018 to December 2022, conducted in the general surgery department of the Ignace Deen National Hospital, CHU of Conakry. All complete patient records (medical observation, operative report and follow-up) of any age, sex and origin having undergone a Hartmann procedure were included in the study. Incomplete records were not included. Socio-demographic, clinical, therapeutic and outcome variables were used. The Chi-square test and Fisher's exact test were used to determine the factors influencing morbidity and mortality. The test was significant when the P-value  $p < 0.05$ .

## 3. Results

During the course of the study, out of 3164 surgical procedures performed, we noted 32 Hartmann procedures, representing (1%) of all the activities of the department. The mean age was  $48 \pm 17.4$  years, with extremes of 18 and 80 years. The 49 to 59 age group was the most represented (37.5%). Twenty-one cases (65.5%) were predominantly male, with a sex ratio (M/F) of 1.9. More than half the patients lived in urban areas 20 cases (62.5%). Workers were of greatest interest in 14 cases (44%), and 26 cases (81.25%) were married. The other socio-professional strata and age groups are listed in Table 1. The patients were seen as emergencies in 26 cases (81%), while 6 patients (19%) were seen on a regular basis. Abdominal pain was the main reason for consultation (81%), and other reasons for consultation are given in Table 2. The average consultation time was  $8.5 \pm 11.3$  days, with extremes of 2 and 45 days. No patient consulted before the first 24 hours, twenty-eight patients consulted within 48 hours (87.5%) and four patients between the 24th and 48th hour (12.5%). In the history, we noted constipation in 25 patients (78%), an acute intestinal obstruction in 3 patients and an appendectomy in one patient (3%). We noted obesity in 5 patients (15%), arterial hypertension in 4 patients (12%) and diabetes in 2 patients. Patients with an ASA 1 score were the most numerous, with 25 cases (78%), compared with seven with an ASA 2 score (22%). They had a WHO 1 performance index in 23 cases (72%)

and WHO 2 in 9 cases (28%). The indications for the Hartmann procedure were dominated by pelvic colon volvulus (50%), with the other indications noted in Table 3. Average recovery time:  $74.3 \pm 40$  days, with extremes of 32 and 180 days. Recovery was between the 30th and 60th day in 13 patients (45%), between the 60th and 90th day in 8 patients (27.5%) and after the 90th day in 8 patients (27.5%). Sweatings were simple in 29 patients (90%). We noted a surgical site infection in 2 patients (7%), one case of evisceration (3%), three cases of skin lesions and one case of retraction of the stomal orifice. We recorded three (3) deaths (10%). The average hospital stay was  $16.5 \pm 5.6$  days, with extremes of 2 and 27 days. More than half the patients were hospitalised for more than 14 days in 21 cases (66%), eight patients were hospitalised for between seven and 14 days (25%) and only three patients were hospitalised for less than seven days (9%). Table 4 summarises the prognostic factors.

**Table 1.** Distribution of patients by socio-demographic characteristics.

Socio-demographic characteristics	Number (N=32)	Percentage
Age groups (years)		
< 20	2	6.25
20-39	8	25
40-59	12	37.5
$\geq 60$	10	31.25
Mean age: $48 \pm 17.4$ years Extremes: 18 and 80 years Profession:		
Worker	14	44
Driver	6	18.75
Housekeeper	6	18.75
Teacher	3	9.25
Pupil/student	3	9.25
Marital status		
Married	26	81.25
Single	4	12.5
Widow	1	3.125
Divorced	1	3.125

**Table 2.** Frequency of signs.

Reasons for consultation	Number (N=32)	Percentage
Abdominal pain	26	81
Material and gas shut-off	24	75
Vomiting	15	46
Constipation/diarrhea	7	21
Anal pain	6	18
Rectorrhagia	6	18
Fever	5	15
Abdominal mass	1	3
General signs		
Fever	7	21
Pallor	5	15
Dehydration	3	9
Weight loss	2	6
Physical signs		
Abdominal distension	24	75
Abdominal defense	22	68
Tympany	20	62
Abdominal meteorism	10	31
Rectal mass	6	18
Sloping mattness of flanks	4	12
Cover	4	12
Abdominal contracture	3	9
Surgical scar	2	6

**Table 3.** Distribution of patients according to Hartmann indications.

Indications	Workforce	Percentage
Pelvic colon volvulus + necrosis	16	50
Rectal tumor	6	19
PAG	5	16
OIA/Brides	4	12
Tumor of the sigmoid	1	3
Total	32	100

**Table 4.** Factors influencing morbidity and mortality.

Factors		N	Post-operative care		p-value
			Favorable	Unfavorable	
Age	≤ 40 years	11	11	0	0,389
	> 40 years	21	18	3	
Gender	Male	21	19	2	0,515
	Female	11	10	1	
Recruitment methods	Emergency	26	24	2	0,531
	Planned	6	5	1	
Evolution	≤ 72h	16	16	0	0,178
	> 72h	16	13	3	
History	Chronic constipation	25	24	1	0,000
	Anterior abdominal surgery	4	2	2	
	PCV + necrosis	16	16	0	
	Rectal tumor	6	5	1	
Selected diagnosis	PAG	5	5	0	0,619
	OIA/Brides	4	2	2	
	Tumor of the sigmoid	1	1	0	

## 4. Discussion

The retrospective nature of our study has been found in most series published in the literature [7-9]. The frequency of the Hartmann procedure varies between 50-63.9% in the literature; these data are much higher than the frequency reported in our sample, which was 1% [7, 10]. This low frequency in our study could be explained by the refusal of certain patients to undergo this procedure because of socio-cultural prejudices. The male predominance found in our series has been reported by several authors in Africa and elsewhere [7, 8, 11], whereas Slobodan et al [12] noted a female predominance. In the African series, the average age varies between 40 and 50 years [7, 8]. In Europe and the Middle East, the average age varies between 60 and 70 years [9, 12, 13]. In our study, as elsewhere in Africa, Hartmann surgery was indicated in the majority of cases of Pelvic Colon Volvulus (PCV) [12]. In the West, colorectal tumours and perforated diverticulitis were the most common pathologies indicating Hartmann surgery [14, 15]. All the series agree that the Hartmann operation was more frequently performed as an emergency procedure [7-9]. The longer mean time to admission in the African series in the case of PCV responsible for necrosis was against ideal colectomy for fear of postoperative morbidity and motivated the Hartmann procedure [7, 8]. This longer average recovery time in our context could be explained by the use of traditional medicine and self-medication. The mean recovery time recorded in our sample is similar to that of Dadier LJ et al [8] who reported a mean recovery time of 73.7 days, higher than that of

Ouchemi C et al [7] who reported a mean recovery time of 56 days, but lower than that of Horesh N et al [9] who reported a mean recovery time of 182.7 days. The decision to re-establish digestive continuity after Hartmann must remain cautious because morbidity and mortality are still high [16]. The choice of time is an important dilemma. Longer delays allow the tissues to heal after the initial operation and the underlying inflammation to subside, but they also lead to atrophy of the rectal stump, making it more difficult to locate during the second stage and thus increasing the risk of injury to the pelvis [11]. On the other hand, too short a delay means operating in an inflammatory atmosphere, increasing the risk of visceral wounds due to tissue fragility, adhesion phenomena, increased blood loss and the risk of transfusion [17]. The morbidity rate recorded in our series was 10%, which is lower than that reported by Ouchemi C et al [7] who reported a morbidity of 13.6% and by Horesh N et al [9] who noted 22.1% surgical site infection and 4.9% anastomotic disunion.

The mortality rate recorded in our series is higher than that of Ouchemi C et al [7] who reported a mortality of 4.5% and lower than that of Dumont F et al [18] who reported a mortality of 14%. In the literature, the average length of hospital stay varies between 10 and 20 days [15, 18, 19]. This average length of stay may be increased in the event of morbidity and associated defects, as in the study by Dadier LJ et al [8], who reported an average length of hospital stay of 58.4 plus or minus 16 days. In factor analysis, acute intestinal obstruction by flange and prior abdominal surgery were statistically significantly associated with post-operative outcome ( $p = 0.000$ ). Kartal et al [11] in Italy in 2019

reported in their study that morbidity and mortality rates were significantly higher in patients with higher BMI ( $p = 0.031$ ) and higher ASA scores ( $p = 0.028$ ).

## 5. Conclusion

The Hartmann procedure is still used today, especially in emergencies in the African context. These indications are dominated by pelvic colonic volvulus. It is an emergency alternative, with satisfactory results when the condition of the patient or the bowel does not lend itself to immediate anastomosis.

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