

Indications and Techniques of Digestive Anastomoses at the Hospital in Koutiala District, Mali

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Abstract

Purpose: Describe the indications and techniques of digestive anastomoses at the Koutiala District Hospital. **Patients and Methods:** This was a prospective and descriptive study conducted in the general surgery department of the Koutiala District Hospital. Patients who benefited from digestive anastomosis between the hollow organs of the digestive tract during the period from August 1, 2017 to September 30, 2020 were included. The anastomoses with solid organs were not selected in this study. **Results:** One hundred and thirty-two patients were registered. Digestive anastomosis accounted for 11.5% of all surgical procedures. The average age was 38.6 years. Men were in the majority with 70.5%. The Karnofsky index was estimated to be less than 50% in 12 patients. Digestive anastomoses were indicated after resection of ileal necrosis in 43 patients (32.6%) followed by tumor resection in 32 patients (24.2%) and typhic perforations in 20 patients (15.1%). There were also 12 cases of digestive stoma (9.1%), 15 cases of volvulus of the sigmoid colon (11.4%), 7 cases of rectal prolapse (5.3%) and 3 cases of Hirschsprung's disease (2.3). Digestive anastomosis was performed in 89 patients in an emergency and was manual in all patients. Post-operative morbidity was 18.9%. These recorded complications, classified grade I (10 cases), grade II (3 cases), grade IIIa (2), grade IIIb (6 cases) and grade IV (4 cases) according to Clavien-Dindo, consisted of 8 cases of postoperative peritonitis (6.1%), 3 cases of external digestive fistula (2.3%), 2 cases of evisceration (1.5%), 12 cases of parietal suppuration (9.1%) and 4 cases of death (3.0%). **Conclusion:** Young male subjects are the most affected. Anastomoses are performed more often after the removal of the island necroses. Morbi-mortality is high. Success depends on several factors, including the general condition of the patient and

the mastery of the anastomosis technique.

Keywords

Digestive Anastomosis, Surgery, Indications, Technical

1. Introduction

Digestive anastomoses are common gestures of achievement. They represent an important area in digestive surgery. In France, 1421 cases of digestive anastomosis were reported in 2015. Digestive anastomoses can be manual or mechanical [1]. According to indications of digestive anastomosis, colorectal lesions are the most common [2]. The morbidity associated with digestive anastomoses remains elevated. In the USA, Kati brings 73 cases out of 925 patients [3] [4]. Among these complications, anastomotic leakage is the most common and its rate varies from 3.4% to 40% according to the literature [1] [4] [5]. These interventions can also be associated with high mortality especially in precarious perioperative conditions, which can reach 7% [5]. Due to the lack of data on digestive anastomoses in the circle, we initiated this work whose aim was to describe the indications, techniques and results of digestive anastomoses at the Hospital of Koutiala District.

2. Patients and Methods

This is a prospective and descriptive study in the general surgery department of the Koutiala District Hospital. Patients with digestive anastomosis between the hollow organs of the digestive tract during the period from August 1, 2017 to September 30, 2020 were included. Were not selected in this study, the anastomoses with solid organs. The completion of this work required a detailed database that was validated by our scientific committee. We used the medical file of patients, the consultation register and the notebooks of the operational report. The general condition of the patients was assessed by the Karnofsky index. The techniques of anastomoses were used: gastro-jejunal, ileo-ileal, ileo-colic and colo-colic. The comparison test used in the Khi2 test and the significance of the difference was determined by a $p < 0.05$ probability. The parameters studied were frequency, age, sex, Karnofsky index, indications, type and nature of anastomoses and outcome. The Clavien-Dindo classification was used to assess complications.

3. Result

We collected records of 132 patients who had digestive anastomosis. 76.5% of our patients consulted urgently (No. 101). Digestive anastomosis accounted for 29.2% of emergency surgical procedures (n-452) and 11.5% of all surgical procedures (n-1147). The average age was 38.6 years \pm 24.6 (1 - 94). There were 93

men and 39 women. The sex ratio was 2.4. Twelve patients (10%) had a poor general condition with a Karnofsky index estimated at less than 50%; and five patients had anemia with hemoglobin levels < 10 g/dL. Indications of digestive anastomosis are present in **Table 1**. These digestive anastomoses were made in emergency in 89 patients (67.4%) and scheduled surgery in 43 patients (32.6%). The type of anesthesia was general anesthesia in 89.4% of cases (n-118) and rachi anesthesia in 10.6% of cases (n-14). Anastomoses were manual in all patients. They were immediate after resection in 90.9% (n-120) and made after a temporary stoma in 9.1% of cases (no. 12). **Table 2** provides information on the type of anastomosis. The anastomoses were termino-terminal in 78.0% (n-103), lateral (9.1%; n-12) and termino-lateral (12.9%; n-17). 118 of our patients were drained or 89.3% of cases. The average response time was 109 minutes \pm 11.7 minutes with extremes of 60 minutes and 180 minutes. In post-operative, transit resumed on the second day in 46 patients (34.8%) 86 patients (65.2%). Feeding was permitted on the third day in 112 patients (84.8%) and on the fourth day in 20 patients (15.2%). Post-operative morbidity was 18.9% (n-25). These recorded complications, classified grade I (10 cases), grade II (3 cases), grade IIIa (2), grade IIIb (6 cases) and grade IV (4 cases) according to Clavien-Dindo, consisted of 8 cases of postoperative peritonitis (6.1%), 3 cases of external digestive fistula (2.3%),

Table 1. Distribution of patients who received digestive anastomosis in Koutiala between 1 August 2017 and 30 September 2020 according to indications.

| Indications | Number of cases | % |
|--------------------------------------|-----------------|-------|
| Stomach | 24 | 18.2 |
| Stenosant pyloric antro tumour | 20 | |
| Perforated gastric tumour | 4 | |
| Hail | 76 | 57.6 |
| Typhic ileal perforation | 20 | |
| Tumor ileal perforation | 5 | |
| Ileal necrosis by strangled hernia | 16 | |
| Ileal necrosis by Brides | 14 | |
| Ileal necrosis by Volvulus | 4 | |
| Ileal necrosis by IIA | 9 | |
| Temporary Ileostomy | 8 | |
| Colon | 32 | 24.2 |
| Volvulus of sigmoid without necrosis | 15 | |
| Sigmoid stenosis tumour | 3 | |
| Hirschprung's disease | 3 | |
| Colostomy according to Hartmann | 4 | |
| Rectal prolapse | 7 | |
| Total | 132 | 100.0 |

Table 2. Distribution of patients who received digestive anastomosis in Koutiala between August 1, 2017 and September 30, 2020 depending on the type of digestive anastomosis.

| Type of digestive anastomosis | Number of cases | % |
|--|-----------------|-------|
| Gastrointestinal | 24 | 18.2 |
| After partial gastrectomy | 10 | |
| Anastomosis gastroenterosis | 14 | |
| Ileo-ileal | 76 | 57.6 |
| After immediate ileal resection | 60 | |
| After temporary ileostomy | 8 | |
| Ileo-colic after immediate ileal resection | 8 | |
| Colo-colic | 32 | 24.2 |
| After immediate colic resection | 26 | |
| After temporary colostomy | 6 | |
| Total | 132 | 100.0 |

2 cases of evisceration (1.5%), 12 cases of parietal suppuration (9.1%) and 4 cases of death (3.0%). For cases of postoperative peritonitis, six patients were reoperated and the peroperative diagnosis was anastomotic disunions for which a digestive stoma was performed. For cases of anastomotic fistula, one was reoperated to close the fistula and two had medical treatment that allowed for spontaneous closure after a 15-day period of monitoring. There were 4 deaths or 3.0%, two of which occurred after reintegration for digestive stoma in a hypovolemic shock chart and the other two before re-intervention in a septic shock chart. The average length of hospitalization was 6.5 days \pm 3.6 with extremes of 3 and 26 days.

4. Discussions

Digestive anastomoses are common practices in digestive surgery services. Depending on the surgical gestures, they represented 11.5% in our study. This frequency of digestive anastomoses would be linked to a high rate of digestive tumor in our circle but also to the diagnostic delay before digestive pathologies of ulcerative and infectious origin whose evolution results in perforations most often. This study objectified a predominance of young subject with an average age of 38.6 years \pm 24.6 which is primarily male at 70.5%. Malika in France reported an upper average age of 61.4 years [6]. This may be related to the ageing of the population in Europe and that most studies on digestive anastomoses are carried out in elderly subjects. The rate of emergency anastomosis was 67.4% of cases. This rate is similar to those brought by Alpha to Senegal (76.4%; p-0.6) [7] and Manmadha in India (46.6%; p-0.6) [8]. Digestive anastomoses were indicated after resection of ileal necrosis in most of our patients followed by resection of tumors and typhic perforations. 12 of our patients had a digestive stoma that was performed during the initial intervention for generalized peritonitis. This initial gesture is justified by the fundamentals of the anastomoses, which demand to

renounce any digestive suture in the face of unfavourable local and general conditions and in front of generalized sepsis [1]. The most common type of anastomosis was ileo-ileal with 57.6% of cases. This is because this part of the intestine is the most mobile part of the digestive tract but also the most common seat of necrosis and perforations of infectious origin. This result is different from that of Wei in the USA [2] in which ileo-colic and colo-colic anastomosis occupies the first place. These anastomoses were usually performed after ablations of colorectal cancers whose number is high in his study. Manual or mechanical anastomoses give the same result provided they are carried out meticulously while respecting the rules of making namely: no traction between the two segments, good fabric viability, good hemostasis of the slices and technical quality of anastomosis [1] [9]. In our series, anastomosis was manual in all patients because we do not have an arsenal of mechanical anastomosis in the circle. Postoperative morbidity of digestive anastomoses remains elevated according to the authors. Kati [3] brought 7.8%, Alpha [7] 10% and our series 18.9%. This high complication rate was related to two factors: emergency anastomoses with a rate of 67.4% and the general condition of patients assessed by the Karnofsky Index, which was estimated to be less than 50% in 12 patients. These complications were severe because 12 of our patients had a grade greater than or equal to 3 according to the Clavien-Dindo classification. The average length of hospitalization was 6.5 days \pm 3.6. While some patients were hospitalized for 26 days due to their critical post-operative conditions and with the aim of better management; while the minimum length of hospitalization was 4 days and these are the patients who tolerated the procedure well. The limitations of this study were the lack of technical plateau, lack of qualified staff and lack of financial means of patients.

5. Conclusion

Digestive anastomosis is a common surgical procedure in our practice. Young male subjects are the most affected. Anastomoses are performed more often after the removal of the island necroses. Morbi-mortality is high. Success depends on several factors, including the general condition of the patient and the mastery of the anastomosis technique.

Author Contributions

All authors have read and approved the final version of the manuscript.

Original Article

Article submitted original work that is not considered or revised by another publication, and has not been published elsewhere.

Conflicts of Interest

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

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