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Colostomy and Ilestomy: Therapeutic Strategy?

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ABSTRACT

Introduction: Colostomy and/or ileostomy is an opening in the abdomen by means of a surgical intervention, with the function of evacuating fecal matter or gastrointestinal waste. Objective: To describe the experience in public hospitals when performing colostomy and ileostomy surgeries on patients. Method: A multicenter study with a retrospective, longitudinal, observational and descriptive design of the Surgery and Coloproctology Service, a study of five second and third level health care hospitals in Mexico City and the State of Mexico. Results: Of 1,693 cases, a total of 91 patients with intestinal stomas exclusively were documented, with complete records/files of a distribution by sex of 47 men representing 51.64% and 44 women representing 48.35%. With an average age of 44 years and range from 21 to 95 years. The most frequent etiologic diagnosis for creating a stoma is complicated acute appendicitis. In specific pathologies, where other surgeons perform a stoma, the authors of this study perform the medical colostomy strategy. Discussion: When is an ileostomy performed? This decision must be considered in true medical situations. Preventive ileostomy has unique excretion characteristics: aqueous, highly alkaline deposition with proteolytic enzymes. The initial daily stool volume in the new ostomy is approximately 1200 ml, and after a period of bowel adaptation, it remains between 500- and 800-ml. Short-term complications may include stoma retraction, necrosis, high-output stoma, and obstruction of the stoma orifice; long-term complications include stoma prolapse, strictures, skin irritation, and peristomal hernia. Conclusions: Ileostomy and/or colostomy are therapeutic arsenals that, if well indicated or justified, are a timeless benefit or asynchronism when created, impacting the life of the patient in an emergency or programmed by the underlying disease. The controversy of the current surgical conduct of performing a stoma of the small intestine or colon is condemnatory by the surgical community, however, it is still a saving, timely or excellent strategy, depending on the context of each patient.

Keywords: Colostomy, Ileostomy, Stoma, Medical colostomy, Surgery, Coloproctology, peristomal hernia, Prolapse.

INTRODUCTION

A colostomy and/or ileostomy is an opening in the abdomen by means of a surgical intervention, with the function of evacuating fecal matter or gastrointestinal waste. Stomata are exposed ends that can be both small intestine and large intestine. **[1]** The origin of the word colostomy comes from the Latin and Greek roots: *colum meaning* part of the large intestine, as well as *stomata's meaning "mouth or orifice".* Therefore, it is defined as the outward indulging of the small/large intestine performed surgically with the intention of partially or totally diverting intestinal transit. **[1, 2]**

The history of the surgical technique of colostomy has been done in multiple ways, and it was perhaps one of the first surgeries performed on the bowel. The first report found in the history of mankind was in 350 BC Praxágoras of Kos who performed the first colostomy with a percutaneous puncture through a hot iron.**[2]** Subsequently, there are no records until the sixteenth century, where Paracelsus describes the benefit of "artificial years". In 1793 Duret performed the first left inguinal colostomy. **[3]** In 1797 Fine performed the first transverse colostomy. **[4]** However, without specific standards, Callisen published in 1839 the technique of opening the sigmoid colon in the left lumbar region, and Amussat later continued this legacy

in more than 250 patients, giving this technique its name. **[5]** It was until the beginning of the twentieth century in 1908 that Ernest Miles, Witzel, Madel, among others, performed colostomy through the abdominal wall, which are done to this day. **[6, 7]**

Colostomies are performed for therapeutic purposes, it is the most used surgical procedure in digestive surgery and it is not given the importance it really requires, since it demands a refined technique in its performance, emergency or elective. Its indication is reserved when there is no other therapeutic option. **[8]** They can be transient or definitive: the definitive colostomy is performed when the lesion distal to it cannot be removed or there is no possibility of restoring transit, and the transient colostomy is obvious in its definition; its objective is to decompress and deform the colonic and/or rectal segment, distal from intestinal transit. **[9]**

The most frequent sites of colostomies are in the left lower quadrant and in the epigastrium-mesogastrium called Wangensteen's transversestomy**; [1]** Its main indication is acute obstruction of the left colon and secondarily the protection of anastomosis in anterior resections and sutures performed in trauma in distal portions, as well as less frequently for the prevention of infections, sphincter repairs, complicated fistulas, inflammatory or infectious processes of the perineum; however, the last five less frequent indications are not considered necessary according to the authors, if the management of the so-called medical colostomy is well known or there is a normal degree of continence of the patient. **[10]** It can be a temporary or permanent stoma, depending on the patient's condition and treatment strategies. **[11]** While patients may benefit from a longer life expectancy after enterostomy, they also face unimaginable physical and psychological distress, such as gas or noise discomfort, constipation, changes in sexual activity, cosmetic disturbances, changes in clothing, and feelings of social isolation or depression, all of which can severely affect their quality of life. **[12]**

Permanent colostomy is a surgical procedure that is mainly used to treat colorectal cancer, its increase in the prevalence of colorectal cancer has led to more permanent colostomies. In China, an estimated 100,000 new colostomies have been performed annually since 2005. This has resulted in a growing population exceeding 1.5 million in 2023, with a trend in younger patients. **[13]** In Mexico, the scenario is no different, and it is more shocking due to an insufficiency of resources/management policies/competencies that evoke very advanced clinical scenarios in this disease and with a focus more on palliative than on prevention or early diagnosis and an opportunity for cure. **[14]** The stoma becomes a disorder or a true condemnation where patients with colostomies must adopt lifestyle changes after surgery that favor self-care, including weight control, smoking cessation, dietary adjustments, ostomy bag replacement, regular physical activity, and effective stress management to maintain good health. **[15]** It is evident that there is a decrease in the overall quality of life of these patients, which impacts on their daily activities, such as eating habits, clothing choices, sexuality, social interactions, employment, leisure, travel, sports, and intimate relationships. These patients may also experience complications, such as peristomal irritant dermatitis, stoma bleeding and stoma stenosis, umbilication, herniated stoma, necrosis, etc. They can also present with depression, social stigma, anxiety, low self-esteem, and other psychosocial problems. **[16, 17]**

OBJECTIVE

To describe the experience presented in the public hospitals of the Ministry of Health and the Mexican Institute of Social Security of Mexico City and the Ministry of Health of the State of

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Mexico, regarding the performance of surgical interventions of colostomies and ileostomies in patients with a pathological etiology that causes it.

METHOD

This is a multicenter study with a retrospective, longitudinal, observational and descriptive design of the Surgery and Coloproctology Service, in an investigation of five second and third level health care hospitals, in Mexico City and the State of Mexico:

1. General Hospital "Dr. Rubén Leñero" of the Ministry of Health. Mexico City. Country: Mexico. 2nd level.
2. "Las Américas" General Hospital. Institute of Health of the State of Mexico. Municipality of Ecatepec de Morelos, State of Mexico. Country: Mexico. 2nd level.
3. "Dr. Belisario Domínguez" Specialty Hospital of Mexico City of the Ministry of Health. Mexico City. Country: Mexico. 3rd level.
4. High Specialty Medical Unit "La Raza" Hospital National Medical Center. Infectious Diseases Hospital. "Dr. Daniel Méndez Hernández" of the Mexican Institute of Social Security. Mexico City. Country: Mexico. 3rd level.
5. "Dr. Gaudencio González Garza" High Specialty Medical Unit, General Hospital of the "La Raza" National Medical Center, Mexican Institute of Social Security. 3rd level.

This work is carried out in a study period that spanned from January 2017 to January 2025, with indications in patients for emergency surgical interventions, scheduled surgeries, reinterventions and priority surgeries. For each patient, the age, sex, chronic-degenerative diseases, etiology of the surgical pathology, surgical time, quantification of hemorrhage during surgery, days of hospital stay, morbidity and mortality were obtained. With follow-up of patients at one week and one month. The study of the results was carried out using descriptive statistical procedures.

RESULTS

From a review of 1,693 cases, a total of 91 patients with intestinal stomas exclusively were documented, with complete records/files of a sex distribution of 47 men representing 51.64% and 44 women representing 48.35%. With an average age of 44 years and range from 21 to 95 years. Regarding chronic-degenerative diseases, Diabetes mellitus is frequently detected in 1st place, systemic arterial hypertension is second, and acute chronic renal failure is determined in third place. Other information detailed in Table 1. It should be clarified that a single patient can suffer from more than one disease, so the indicated values are relative, and therefore their interpretation must be considered with a certain criterion.

Table 1: Chronic-Degenerative Diseases Expressed In Number and Percentage in Patients with Gastrointestinal Stomas.

Chronic-Degenerative Disease	Number / %
Bronchial Asthma	3 / 03.29
Acute/Chronic Renal Failure	8 / 08.79
Thyroid Disease	2 / 02.19
Diabetes Mellitus	22 / 24.17
Systemic Arterial Hypertension	16 / 17.58
Chronic Obstructive Pulmonary Disease	5 / 05.49
Dyslipidemias	2 / 02.19

Cardiopathy	2 / 02.19
Total	35 / 38.46

In fourth place, chronic obstructive pulmonary disease; Together, all chronic-degenerative diseases represent up to 35% of the patients under study, but the total number of cases is only in 22 with an adjusted percentage of 24%.

Regarding the surgical or clinical pathology that evoked the use of the surgical technique, considering it as the therapeutic of the gastrointestinal stoma.

Table 2: Etiological Diagnosis in Patients Causes the Creation of Gastrointestinal Stomas Expressed in Number and Percentage.

Diagnosis Etiological	No. of Cases	%	Type of Surgery
Acute Appendicitis	29	31.86	Urgency
Divericular Disease	10	10.98	Urgency
Colorectal Cancer	21	23.07	Urgency / Elective
Volvulus of Colon	3	03.29	Urgency
Perforation of the Colon/Rectum by a Firearm Projectile	7	07.69	Urgency
Intestinal Obstruction	12	13.18	Urgency / Elective
Colon/Rectum Stab Perforation	5	05.49	Urgency / Elective
Other	4	04.39	Urgency / Elective

The most frequent etiological diagnosis to create a stoma is that of acute appendicitis, which of course is classified as complicated, phase IV with lack of integrity of the cecum, which requires a right hemicolectomy, with leakage of fecal matter with fecal and purulent peritonitis, with generalized sepsis, which evokes terminal ileostomy in emergency surgical procedures. With an incidence in this study of 32%. The second diagnosis is locoregionally advanced, metastatic and/or carcinomatosis colorectal cancer, where the clinical picture of intestinal obstruction due to the mass effect, secondary perforation, unrespectability or radical surgery is the cause of stoma. In each case, the types or modalities of the creation of the stoma are different, for obvious reasons or not described in the texts, but with logical reasoning that consequently supports the decision making in which way to do it:

1. Locally advanced colorectal cancer. – In a palliative scenario where the temporary loop colostomy avoids post-shunt colitis and bacterial translocation, as well as symptoms of intestinal obstruction with early feeding, avoiding acute malnutrition and hydro electrolyte imbalance. **[18]**
2. Locally advanced colorectal cancer. – At the same time, this stoma can be designed for neoadjuvant chemotherapy and radiotherapy to reduce the size of the tumor and plan radical surgery. **[19]**
3. Colorectal cancer after radical surgery. - Such as surgery as complex as complete pelvic exenteration or abdominoperineal resection, a scenario where the terminal colon stoma plays a fundamental role because it is permanent and grants survival to the patient, even if it reduces their quality of life. **[20]**
4. Colorectal cancer with radical surgical treatment. - In a low or ultra-low anterior resection technique, in this case the surgery is resolute, and the intestinal anastomosis or its replacement is high risk. Most authors perform a "protective" stoma, such as a loop

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ileostomy or even a temporary terminal ileostomy, with the aim of allowing the colon to heal with the anus and preserve the functionality corresponding to evacuation. Wrigth a posterior clausure restare intestinal transite **[21]**

5. Metastatic colorectal cancer/carcinomatosis. – In this type of patient, a colostomy in a permanent loop of the colon is recommended or, failing that, a loop ileum< stoma as a last option. Avoiding post-bypass colitis, intestinal obstruction, acute malnutrition, gastrointestinal bleeding, bacterial translocation, and early feeding. **[22]**

Its incidence is documented in 23% in this study, with most of them being urgent, because they present as intestinal obstruction, undiagnosed or in their absence very advanced to metastatic or with carcinomatosis. Only in 5 patients' surgery was elective, representing 24%. In Mexico, there is no health policy for early diagnosis of polyposis disease or colorectal cancer. **[14]**

The third origin of the manufacture of a stoma is intestinal obstruction, a secondary clinical situation another real genesis that ranges from a complicated hernia strangled as inguinal, incisional, umbilical or even adhesions, flanges, non-gastrointestinal tumors, hypertensive abdomen, biliary ileus, etc. When there is perforation due to intestinal ischemia or even necrosis, with fecal, purulent peritonitis and systemic sepsis, it is taken to the therapeutic situation of a temporary stoma of the small intestine or colon. In this study, only 13.18% were detected, since in most individuals' anastomosis is performed avoiding the stoma as much as possible **[23] See Figure 1.**

Figure 1: Figure of a catastrophic abdomen: 32-year-old male, with 6 surgeries for blunt trauma of the abdomen, dehiscence of intestinal anastomosis, secondary abdominal sepsis (management of open abdomen) and residual abscess, with subsequent surgical lavages, with secondary closure (giant hernia) with two fistulas: he presents intestinal perforation (enteroatmospheric fistula) managed with "enteroclisis", entire cutaneous fistula two, high-output stoma of the small intestine (high-output ileostomy), with 37 days of hospital stay.

Extracted from: Ricardo, L. G. B., Adolfo, G. S. M., Atzimba, Z. C. C., Astrid, O. V., Montserrat, H. M. J., de Jesús, U. C. J., Rogelio, O. R. M., Gema, M. B., Mariana, G. V., Itzel, L. G. E., & Antonio, M. R. D.

(2024). Open Abdomen Is the Equal of Catastrophic or Hostile? British Journal of Healthcare and Medical Research, Vol - 11(2). 182-200. [24]

The fourth diagnosis is complicated diverticular disease, where the most frequent anatomical site is in the sigmoid colon that presents colon perforation, frank fecal peritonitis and secondary generalized sepsis. Most of these cases call for emergency surgery with a high range of mortality and surgical complexity, due to the intense infectious and inflammatory process that leads to numerous complications or high morbidity. The most successful strategy is the resection of the affected segment and the creation of a temporary terminal colostomy-type stoma with distal closure and/or Hartmann surgery, with an incidence of 10.98%. **[25, 26]** The rest of the diagnoses where the stoma is applied vary with respect to its form, due to the hemodynamic instability of the case and it is only in order to preserve life as happens in damage control surgery, **[27]** mitigating sepsis, malnutrition, anemia so that the restitution of intestinal transit is carried out electively in optimal conditions, most cases in emergency surgical interventions and the type of stoma according to each particular case. **See Figure 2.**

Figure 2: Volvulus of the sigmoid colon with irreversible intestinal necrosis, perforation and systemic sepsis that conditions the performance of a stoma. Extracted from: Martínez, B. Z. A., Jarquin, J. L., Piña, O. E., Ocampo, C. I. C., Sánchez, U. S. C., Guerrero, L. G., Ángeles, B. P. R., & Sánchez, M. A. G. (2025). Colon Volvulus: Disease or Consequence? British Journal of Healthcare and Medical Research, Vol - 12(1). 83-92. [28]

In addition to the surgical pathology suffered by patients, where other surgeons perform a stoma, the authors of this study carry out the strategy of ***medical colostomy.*** **[29]** Avoiding making this option. The separate surgical time when performing a stoma is variable, which will depend on each patient specifically in tissue elasticity, anesthetic relaxation, degree of obesity or not, abdominal wall conditions, type of approach such as laparoscopic/conventional, hemodynamic stability, degree of sepsis, sex, age, etiological diagnosis, type of emergency/priority surgery/scheduled, etc.

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The average was 40 minutes with a range of 9 to 100 minutes. Hemorrhage alone from stoma surgery is invariable, ranging from 10 to 150 milliliters in range and an average of 50 milliliters. Morbidity is determined specifically due to the stoma with loco-regional alterations as indicated in **Table 3**.

Table 3: Specific Morbidity of the Creation of Expressed Gastrointestinal Stomas in Number and Percentage.

Comorbidity	Number	Percentage
Dermatitis Periestomal	17	18.68 %
Umbililication Of The Stoma	6	06.59 %
Stoma Retraction	2	02.19 %
Bleeding From The Stoma	1	01.4 %
Necrosis Of The Stoma	1	01.09 %
Stomal Prolapse	0	00.0 %
Ischemia of the Stoma	5	05.49 %
Total	33	36.26 %

The complications of too many stomas are varied and complex. With the various fixation techniques, the variants of stomas and the anatomical level in the digestive tract, their shape, the type of expenditure, the anatomical changes of the patient both in the intestinal segment to be externalized and in the abdominal wall, the level or quality of the muscle. Fat or obesity or even the surgeon's own expertise in the creation of the stomata, the site or specific topography in an emergency surgery not predetermined before the surgery site of the evaluation of the incision and the patient's folds, make it very difficult to create the ideal or perfect stoma, without neglecting the underlying etiological diagnosis. Not to mention, the hemodynamic stability of the patient. With morbidity as a whole and exclusive to the creation of the stoma of 36.26%, where it is clarified that the same patient presents one or more eventualities, the real adjustment was in 18 patients representing 19.78%. With a majority in the first term with skin involvement with contact dermatitis, evolving to impetigo and even with burns of 1 to 2 degrees. Poor control of the stoma causes obvious leakage and, of course, infection of the surgical wound. The second most frequent morbidity is that which occurs in the umbilication of the stoma and ischemia, which with the remission of the inflammatory and/or septic process, there is some improvement with a process called in the vulgar as sloughing. They present with an incidence of 6.59 and 5.49 %, respectively. The interesting thing about these two morbidities is that neither merits any specific surgical treatment, only good control of the stoma with supportive therapy with special attachments or the use of local vasodilators, etc. In the case of the patient with stoma necrosis, it was at the time of wound closure that allowed a new creation in that same surgical procedure, before the surgery was completed. **See Figure 3**.

Figure 3: The wafer/flange opening is too large for the size of the stoma, and the barrier is not properly centered around the stoma, and the bag is leaking. Extracted from https://farmoderm.it/es/10-maneras-de-identificar-irritacion-en-la-piel-periestomal-y-como-manejarla/ [30]

In this study, no mortality was reported and that despite the fact that the follow-up was short, at one month, in some cases such as colorectal cancer or in restitution surgeries and the patients who were referred, did not merit extraordinary or special surgical management who needed priority surgical therapy, hernias are not reported, nor prolapses and only long-term ileostomy stenosis, which is actually solved in the surgical act of restorative anastomosis.

DISCUSSION

When is an ileostomy performed? With multiple and varied indications, this decision should be considered in true medical situations. Such is the case of Clostridioides difficile infection severe enough to require surgery, with severe sepsis with multiorgan failure, despite the use of adequate antibiotics against C. difficile, with the options of total colectomy versus shunt with loop ileostomy and colonic lavage. **[31]** Or, failing that, surgery performed on the toxic colon, a previous homologous situation where the *Turnbull-Blowhole* surgical technique can be assessed: the strategic combination of ileostomy with colostomy. **[32, 33, 34]** Performing an ileostomy is a truly inhospitable situation for the patient/health system, due to the special conditioning factors, such as the "preventive ileostomy" it has unique excretion characteristics. Preventive ileostomy has unique excretion characteristics. The deposition is aqueous, highly alkaline, and contains proteolytic enzymes. The initial daily stool volume in the new ostomy is approximately 1200 ml, and after a period of intestinal adaptation, it remains between 500 and 800 ml. **[35]** While it can initially reach a daily stool volume of approximately 1500 to 2000 ml., prolonged exposure of the peristomal skin to ileostomy effluent increases chemical irritation, leading to maceration and compromising epidermal integrity, which can lead to ulceration. **[36]** Ileostomies cause dehydration due to fluid and electrolyte loss. Dehydration may contribute to renal failure, where colectomy with ileostomy, preoperative congestive heart failure, hypertension, chronic obstructive pulmonary disease, smoking, and diabetes were independently associated with a significantly higher likelihood of developing postoperative renal failure. **[37]** Ileal pouch-related fistulas occur in 5% to 12% of patients with ileoanal anastomosis with pouch, complex multibranched fistulas with fecal shunt (ileostomy), and other features of the fistula not associated with scarring. **[38]**

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Creation of a stoma may be associated with complications; short-term complications may include stoma retraction, necrosis, high-output stoma, and obstruction of the stoma opening; long-term complications include stoma prolapse, stenosis, skin irritation, and peristomal hernia**. [39]** Several significant risk factors for outflow tract obstruction have been identified, including increased rectus abdominis muscle thickness, high-output stoma, and loop ileostomy. Loop ileostomies were six times more likely to develop outflow tract obstruction compared with those with end-stage bypass ileostomy. **[40]** Treatment of stoma obstruction is very similar to that of other benign bowel obstructions, beginning with conservative measures while the patient is clinically stable. Stomal decompression offers a clear advantage, as it allows the integrity of the distal anastomosis to be confirmed and complications such as leakage or stenosis to be ruled out. **[41]**

Peristomal hernia is a common complication after colostomy, with a reported incidence of 30-50%. Prophylactic mesh boosting is effective, but it carries long-term risks such as infection and erosion, especially concerning elective procedures. Mesenteric molding suturing is an emerging non-mesh technique that stabilizes the stoma by molding the mesentery using suturing, which could reduce the risk of peristomal hernia. **[42]** The early use of shunt stomas facilitated timely resumption of cancer treatment and allowed for early initiation of chemotherapy or radiation therapy, where the colostomy is performed laparoscopically in patients with advanced cancer. **[43]** Peristomal hernia is the most common long-term complication following stoma creation during rectal resection, impacting quality of life in patients with an estimated 30.9% in this study. **[44]** clinical and radiologic risk factors for the development of peristomal hernia in patients undergoing abdominoperineal resection, the thickness of the rectus abdominis muscle, the percentage of subcutaneous adipose tissue, and the surface area of the colostomy, with a higher incidence at three years; and may require surgical repair due to the development of complications such as strangulation, incarceration, obstruction, or inability to place the ostomy bag. **[45]**

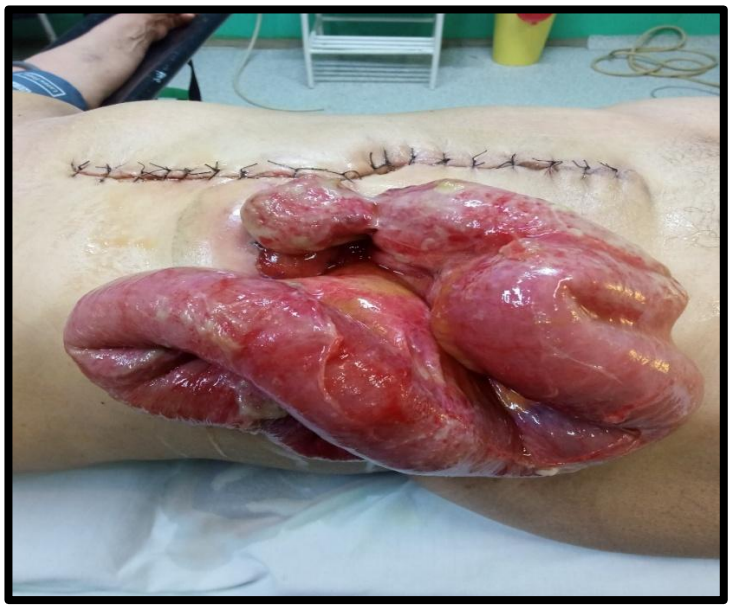

Figure 4: Parastomal evisceration. One meter of small intestine eviscerated through the stoma orifice with mucocutaneous dehiscence. Extracted from: Hasnaoui, A., Trigui, R., Heni, S. et al. Early postoperative parastomal evisceration after exploratory laparotomy: a case report of a

rare and life-threatening surgical complication. Patient Saf Surg 17, 26 (2023). https://doi.org/10.1186/s13037-023-00379-4. [46]

Redness, swelling, and pain in the stoma area is documented in elective surgery for locally advanced rectal cancer and a bypass colostomy, for chemotherapy and radiotherapy in neoadjuvant. An abscess was observed draining from the site of ulceration and a CT scan revealed the formation of an extensive subcutaneous abscess around the stoma. Radical surgery and stoma closure were performed, where the stoma wound was treated with local negative pressure. Regular outpatient visits are recommended, taking care that facial plaque can only be observed in detail during stoma care, it is important to identify skin lesions early. **[47]**

The permanent colostomy requires significant physical and psychological adaptation, experiencing decreased physical activity, a lower quality of life, and fear of movement. In the United States, it is estimated that about one million people are currently living with an ostomy, and that between 100,000 and 130,000 new procedures are performed each year. **[48]** Quality of life is assessed using the Stoma Quality of Life Questionnaire assessing the physical, psychological, and social impact of living with a temporary or permanent stoma. In addition, other evaluations are included, such as Kinesio phobia, which is defined as an excessive, irrational and disabling fear of movement, based on the perception of vulnerability to pain or a new injury, together with the six-minute walk test, which is a functional test used to evaluate a person's submaximal aerobic capacity and functional status. **[49, 50, 51]** Self-efficacy is defined as the perceived ability to perform specific actions necessary to achieve concrete goals. In people with chronic diseases, self-efficacy is defined as the patient's perception of their ability to manage various aspects of their disease and its treatment. **[52]** In our country, in the public hospitals of the state of the health system, the integrity of the concepts is not recognized or realized in any way.

On the other hand, in benign anorectal diseases, resources such as biofeedback therapy, which is not widely accessible, and many patients are treated by physiotherapists specialized in pelvic floor. For fecal incontinence, minimally invasive options include sacral neuromodulation and anal injection of dextranomer, with colostomy being infrequent at present. Surgical interventions must balance long-term efficacy with potential risks. **[53]** Fecal incontinence is a debilitating and distressing condition that affects up to 19% of the population; first-line treatment often includes dietary modifications, antidiarrheals, and pelvic floor physical therapy, or even the colostomy itself. **[54]**

Targeted interventions, such as nurse-led stoma education and simplification of discharge criteria, significantly reduced delays, as inadequate preparation for stoma care, wound management, and dietary changes increases patient anxiety, support needs, and risks of complications, delaying the transition to home care. **[55, 56]** Establishing and maintaining a secure seal between the pouching system and the peristomal skin is critical to effective ostomy care. Convex skin barriers are often used to improve outcomes when the stoma is retracted, the ostomy is emptied at or below the skin, the peristomal surface is concave or irregular, or when the outlet volume is elevated or liquid. **[57]** Overall, palliative care varied significantly during the postoperative period in patients undergoing ostomy. The domain of Stoma Support with the main symptoms differed by period, including "feeling sad or depressed <1 month, gaining

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knowledge about managing stoma complications 1-3 months, knowing the prices of ostomy bags and their prolonged use 4-6 months and maintaining a positive attitude > 6 months. **[58]**

AUTHORS' OBSERVATIONS

1. The colostomy or temporary ileostomy should not be fixed to the aponeurosis. Only the skin
2. The "maturing" of the stoma should be performed after the closure of the surgical wound, avoiding infection/infection and with the possibility of remodeling in the same surgical time as far as possible. Later maturation on the floor or in the patient's bed will not be able to detect early acute complications of the stoma and will require a new surgical event.
3. The hole in the aponeurosis/muscle area should be less than 2 cm or two fingers. There will be a hernia or prolapse in the major. In case of a greater extension of the aponeurosis, closure should be performed with separate single points, avoiding ischemia of the intestine.
4. Loop colostomy is appropriate in certain pathologies, where there will be no improvement or any opportunity to modify clinical conditions, such as in locoregionally advanced obstructive rectal cancer, or in radiation proctitis with incoercible bleeding. Adding shunt colitis to the already exhausting/terrible pathology. In addition, it facilitates its protocol/study.
5. Loop stomas in the small intestine are complex in their control/care, so they should be avoided (in the conduct of a scheduled subsequent local surgical closure) as something of less morbidity/comfort/simpler. However, the authors advise abandoning this technique, as there is a possibility of more morbidity/death in reconnection. And a new exploratory laparotomy is recommended in form. Because the abdominal cavity presents:
   Multiple adhesions due to sepsis and previous surgery.
   - Loop kinking and secondary bowel obstruction.
   - With the above items, the consequence is a high risk of intestinal dehiscence/perforation and again abdominal sepsis/death.
   - In most cases, it is not possible to have a correct surgical field, guaranteeing circulation or blood supply, intestinal continuity of transit and therefore a high percentage of failure.
   - The stoma area, skin, cellular tissue and even muscle, can present infectious and inflammatory processes, burns, abrasions, thickening due to dermatitis, ulcers, microabscesses, etc. That elective surgery is not the best condition, since there is an exponential increase in the risk of surgical wound infection/cellulitis/fasciitis/evisceration and the increase of imminent failure, in a process that was of "less morbidity". Remember that it is a dirty wound and that the skin must be left open.
   - The closure of the skin where the stoma was, as mentioned before, in medical literature it is stated that the skin remains open because it is a dirty wound, the authors perform the complete closure with previous inclusion with isodine without removal, with great success and no infection after intestinal restitution.

6. When the loop stoma matures, permanent suture that is non-reactant and non-proliferative of infection, such as polypropylene 00 or 000, should be used.
7. Permanent stomas should be fixed to the aponeurosis with seromuscular points in the intestine and total points in the muscular fascia of the wall, with the understanding that the patient is relaxed with anesthesia and that when she is not, she will pull the tissues, tear the fixations (no greater than 3) and lead to a risk of perforation. abscesses, purulent/fecal peritonitis, and endless complications. So a certain space, or play of the tissues, must be left with the opportunity for a certain movement and/or expansion and not tension.
8. The ileostomy should be like a "volcano mouth" as mentioned in the literature at more than 2 cm from the level of the skin and the colostomy should be flush with the skin.
9. When there is no tissue, intestine or technical possibility, or even in an emergency due to hemodynamic instability, a transverse stomy or transverse colon stoma can be performed in the midline or even in the same surgical incision (only in emergency), a scenario described in the world medical literature.
10. The technique of maturing a small/large intestine stoma is to place total stitches on the skin first, then in the deepest part of the intestine from top/terminal downwards/distal seromuscular points in the intestine of the intestine more than 5 cm in the colon only 3 cm, a second seromuscular point at 2 cm in the small intestine and a second point in the same way in the colon. a third point at 2 cm in the small intestine and already in a colon the third total point, finally in the small intestine the fourth total point. The ends of the sutures should be referred and knotted until the 4 quadrants are completed, avoiding the mesointestine at all levels.
11. In loop stomas, the points at the vertices are placed in a "double u" shape, fortuitously sealing and completely peritonizing the viscera to the skin, avoiding hernias or prolapse. And the use or not of a stake/probe that should be removed in 8 to 21 days, avoiding retraction and encouraging peritonization.
12. Different shapes or varieties of stomata can be performed, scenarios that will depend on each patient and the criteria of the surgeon's expertise. Such as performing the so-called mucous fistulas: they involve the externalization of an excluded intestinal tract. These stomata are always colon. Its objective is to keep a defunctionalized colonic segment, usually extensive, in contact with the outside to prevent bacterial overgrowth inside and the formation of a sepsis focus. Avoiding colitis after the shunt, blind loop syndrome or even facilitating the location in a future intestinal restitution.

CONCLUSIONS

The ileostomy, as well as the colostomy, are therapeutic arsenals that, well indicated or justified, are to some degree a timeless benefit or with asynchrony in terms of their creation, which greatly impacts the life of the emergency or scheduled patient secondary to an underlying disease that causes or provoked it.

The controversy of the current surgical conduct of performing a small intestine or colon stoma is even sometimes condemnatory by the surgical community, however, it is still a salivary strategy, timely or excellent, depending on the context of each patient.

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Performing a stoma entail added morbidity, so that performing it correctly, with a refined surgical technique adapted to each patient; results in having the minimum of complications or none of them, for this reason it is recalcitrant to have written this manuscript.

CONFLICT OF INTEREST

The authors stated that they had no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

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