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Nursing Cooperation of 11 Cases of NOSES Jinling Operation[1]

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Abstract

Objective: This study aims to investigate the operative collaboration of subtotal colon resection combined with modified colectomy using human natural cavity specimens. **Methods:** Retrospective analysis was conducted on the clinical data of 11 patients with refractory constipation who underwent Jinling surgery at the Gastrointestinal Surgery Department of our hospital from June 2017 to October 2020. **Results:** The mean operative time was (279 ± 99.7) minutes, intraoperative bleeding was (62.7 ± 47.7) milliliters, and the average length of hospital stay was (19 ± 8.3) days. All 11 patients underwent successful operations without experiencing postoperative bleeding, anastomotic fistula, intestinal adhesion, or other complications. **Conclusion:** Meticulous preoperative preparation and adept coordination are essential for ensuring the successful execution of NOS Jinling surgery.

Keywords

Jinling Surgery, NOSES, Refractory Constipation, Operative Collaboration

The prevalence of chronic constipation in adults in my country ranges from 4% to 6% and tends to increase with age. Approximately 10% of patients experience a protracted and recalcitrant course of the disease, known as refractory constipation [1, 2]. These patients often exhibit poor responsiveness to medical interventions and ultimately necessitate surgical treatment. Subtotal colectomy combined with modified Duhamel surgery, also known as Jinling surgery, has demonstrated effectiveness in treating refractory constipation and is deserving of recognition for its positive impact on alleviating constipation symptoms and improving the physical and mental well-being of patients [3, 4]. Even though laparoscopic Jinling surgery requires an incision of approximately 15 cm in the lower abdomen for specimen removal and intestinal anastomosis [5, 6], Natural Orifice Specimen Extraction Surgery (NOSES) offers a method for specimen removal from the natural orifice of the human body (rectum, vagina, or oral cavity) without the need for auxiliary incisions. From June 2017 to October 2020, our hospital performed 11 cases of NOSES Jinling surgery to treat refractory constipation, yielding favorable outcomes. The following report details our findings.

1. Materials and methods

1.1 Clinical data

There were 11 patients in this group, including 6 males and 5 females. The minimum age is 53 years old and the

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maximum age is 76 years old. The average age was (66.5±7.9) years old, and the BMI index was (23.9±7.8) kg/m². Among the 11 patients, 2 had a history of gynecological surgery.

1.2 Surgical Procedure

After general anesthesia, the "modified lithotomy position" is established. The surgery involves creating a passage using the 5-hole method, and under laparoscopy, the ascending colon is cut 10-15cm from the ileocecal valve. The colon is disconnected from the rectum 10cm from the peritoneum, the rectal stump is washed with iodine solution and a protective sheath is placed, the disconnected colon is removed from the rectal stump through the anus, then the rectal stump is closed, and an end-to-side anastomosis is performed between the ascending colon and the rectum through the anus.

2. Preparation before surgery

Item preparation: (1) Instruments and equipment: laparoscope main unit, movable secondary monitor, ultrasonic scalpel main unit, high-frequency electrosurgical unit, etc. (2) Minimally invasive instruments: high-definition lens, non-invasive grasping forceps, separation forceps, needle holder, scissors, absorbable and coagulating forceps, electrocoagulation hook, buckle clamp, titanium clamp, 5, 10, 12 mm Trocar, etc. (3) Special items: endoscopic linear cutting stapler and nail cartridge, tubular stapler, disposable ultrasonic blade, vascular ligation clip, titanium clip, F28 chest drainage tube, endoscopic protective cover, paraffin oil, development kit Gauze etc.

3. Cooperation during surgery

3.1 Cooperation of circulating nurses

3.1.1 Reasonably place instruments and equipment

The ultrasonic scalpel, electrosurgery, and suction device are placed on the upper right side of the patient's head. Place the laparoscope main unit at the head of the patient's bedside, place the sub-monitor on the right side of the patient, and connect the main unit and sub-monitor with an S-terminal cable. Adjust the position of the secondary monitor in real time according to the resected part.

3.1.2 Prevent intraoperative complications

(1) Prevent pressure injury: Discard part of the 3L isotonic flushing solution so that the filling volume reaches 1/3-1/2 of the entire water bag, wrap it with clean soft cotton cloth and place it on the patient's sacrococcygeal area. When a shoulder rest is used in a head-down position with the feet elevated, a square pad should be placed on the shoulder rest to prevent the patient from sliding toward the head. (2) Prevent nerve damage: support the calf and knee with a leg frame, and place soft pads in the popliteal fossa to prevent damage to the popliteal fossa blood vessels, common peroneal nerve and gastrocnemius muscle. (3) Prevent intraoperative hypothermia: use a warming device to warm the infusion to 37℃; cover the non-surgical field with a quilt; reduce the exposure of the non-surgical field; use an inflatable heating blanket to cover the chest and upper limbs after getting into position, with a range of 38℃-43℃; use 37℃ isotonic irrigation solution during surgery.

3.2 Cooperation of equipment nurses

3.2.1 Establish pneumoperitoneum and operating channels

Carefully check the shaft joints and tiny screws of each minimally invasive instrument, and count the instruments, gauze, suture needles, etc. with the circulating nurse [7]. Make a 1 cm incision below the navel and place a 10 mm Trocar as the lens hole. Apply a layer of iodophor to the preheated lens and place it into the lens hole. The other four sheath card placement positions: the first main operating hole is located at the midpoint of the line connecting the umbilicus and the xiphoid process, and a 12mm Trocar is inserted; the two auxiliary operating holes are located at the intersection of the lines connecting both sides of the umbilicus and the anterior axillary line, and a 5mm Trocar is inserted; When the main operating hole is to free the sigmoid colon and rectum, a 12mm Trocar is inserted in the right lower quadrant near the anterior superior iliac spine.

3.2.2 Free resection

(1) Use atraumatic forceps and ultrasonic scalpel to free the right colon through a caudal approach, preserving the ileal and colonic vessels. Continue to mobilize the left colon, sigmoid colon, and rectum. (2) Use an endoscopic linear cutting stapler to separate the ascending colon at a distance of 10-15 cm from the ileocecal valve, and remove the appendix [8]. Pass VCP784D suture to suture the stump. (3) Tie the shoelace about 10cm away from the peritoneal reflection to prevent

intestinal contents from contaminating the abdominal cavity after incision. Use an ultrasonic scalpel to make a small incision in the rectum below the sneaker laces, insert the suction device into the small incision and flush the rectum and anal canal with 1:10 dilute iodophor. Cut the disposable lens protective cover to about 20cm, apply sterile paraffin oil both inside and outside, and feed it into the anal canal from the abdominal cavity through a small incision in the rectum. Doctors in the anal group fully dilated the anus, flushed the rectum with dilute iodophor, and then wiped the rectum with dilute iodophor gauze several times. Use oval forceps to clamp the protective sheath from the anus, and then insert the stapler nail holder from the anal protective sheath into the rectum. Use non-injurious grasping forceps to grasp the nail holder and place it into the abdominal cavity for later use. Use the ultrasonic scalpel to cut off the rectum 10cm away from the peritoneal reflection.

3.2.3 NOSES removes specimens and reconstructs the digestive tract

(1) NOSES specimen removal: Under the protection of the endoscopic sleeve, drag the specimen out of the rectal stump from the rectum and anus, use a linear cutting stapler to install a golden staple cartridge to close the rectal stump, and retain 5 cm of the rectum above the peritoneal reflection. (2) Perform purse-string suture of the colon 2cm away from the stump of the ascending colon. Use the ultrasonic scalpel and electric hook to open a small incision at the purse string of the stump colon, insert the nail holder and perform purse string ligation, and hold the stapler nail holder with the buckle clamp. After the doctor in the anus group re-dilated the anus, he inserted a No. 29 tubular stapler into the posterior wall of the rectum 1.5 cm above the dentate line and penetrated the nail head to perform a side-to-side anastomosis between the ascending colon and the posterior rectal wall. (3) In patients with functional outlet obstruction, a linear cutting stapler is used to expand the anastomosis, and a side-to-side anastomosis of the ascending colon rectum is performed. After checking that the anastomosis is good and there is no bleeding, the instrument nurse and the circulating nurse will jointly count the items and close the abdomen.

4. Discussion

In recent years, with the gradual application of clinical minimally invasive technology in the medical field, abdominal surgery has gradually shifted from conventional laparotomy to minimally invasive surgery. Relevant studies have proven that laparoscopic surgery is superior to open surgery in both short-term and long-term efficacy. Traditional laparoscopic surgery requires an auxiliary incision to remove the specimen. This incision will cause abdominal wall pain in the patient, increase the patient's risk of infection, and affect the appearance of the abdomen. Therefore, the NOSES Jinling surgery can effectively avoid the auxiliary incision of laparoscopic surgery and has the characteristics of less pain and less trauma. Good perioperative care is the main guarantee for the effective implementation of laparoscopic rectal cancer specimen removal surgery through the natural orifice. Minimally invasive surgery has gradually developed rapidly, and patients who can pull out specimens through the anus without auxiliary incisions in the lower abdomen have a high clinical acceptance. With the gradual promotion of the surgery, many patients are willing to actively accept this surgery, and the surgeons have a strong sense of accomplishment. For innovative surgical methods, clinical nursing needs to master the patient's routine care. At the same time, targeted care should be provided based on the characteristics and methods of the surgery. Attention should be paid to effective preoperative admission assessment for patients. Responsible nursing staff need to actively introduce themselves to patients, check the hospitalization information of newly admitted patients, and conduct comprehensive and detailed assessments for patients, mainly including the patient's skin, self-care ability, Medication allergy history, and other relevant information. At the same time, preoperative nursing routines should be followed to provide nutritional support and antibiotic skin testing for patients and to prepare the skin before surgery. Patients should be guided to take laxatives correctly, and adverse reactions after taking the medication should be observed and treated accordingly. At the same time, effective psychological counseling should be provided to patients before surgery to avoid anxiety and fear in patients. In order to ensure the safety of patients after surgery, nursing staff should actively prevent postoperative tube slippage, falls, pressure ulcers, and other incidents. They should also pay attention to effective tube care and pressure ulcer management. Advise the patient to engage in early activities. On the day of surgery, after waking up, he can carry out activities involving the upper and lower limbs without requiring guidance from the patient. The patient should be encouraged to do hip and knee flexion exercises and avoid flexion and extension exercises. During the first two days, he can move around the ward and provide pain care while standing beside the bed. For patients experiencing postoperative pain, it is recommended to effectively use videos and music to distract them, helping them relax and achieve effective pain relief.

Since the patient's surgical tumor specimens should be removed through the anus, it is easy to cause damage to the anal canal, and the patient may experience increased stool frequency and incomplete stool after surgery. We need to pay attention to the dryness and cleanliness of the perianal skin and provide perianal skin care to the patient. At the same time,

the patient is provided with reasonable dietary guidance to promote the recovery of intestinal function after surgery. The patient is informed to abstain from spicy, irritating, and fried foods after surgery, to avoid overeating, to maintain small meals with frequent meals, and to deal with the patient's intestinal problems during the eating process. Evaluate the recovery of tract function. If the patient has abdominal pain or bloating, he or she needs to stop eating in time, reduce the amount of food he or she eats, and increase the number of meals he or she eats. The doctor should effectively cooperate with the doctor to implement corresponding treatment. Provide advance discharge guidance to patients before discharge, inform them of the importance of improving exercise, and guide patients to continue to perform anal sphincter exercises after discharge, use effective exercise methods for patients to prevent anal dysfunction, guide patients to pay attention to rest after discharge, and avoid avoidance of anal dysfunction within one month. Perform heavy physical labor, maintain a balance between work and rest, and maintain a comfortable mood. And ensure daily small and frequent meals, a balanced diet, return to the outpatient clinic 2 weeks after the operation to formulate a follow-up rehabilitation treatment plan, and conduct regular reviews. Explain in detail to the patient that anal bleeding, lower abdominal pain, etc. need to be returned to the hospital for treatment, so as to improve safety of postoperative rehabilitation for patients.

5. Conclusion

Since the NOSES Jinling procedure is complex and takes a long time, it is necessary to prevent intraoperative pressure injuries. The homemade water bag placed on the patient's sacrococcygeal area can not only change the stress point with the change of body position by virtue of the fluidity of the filled liquid, reducing local pressure but also improving local blood circulation and increasing the patient's comfort. Secondly, attention needs to be paid to preventing intraoperative infection. Nurses should fully prepare the bowel before surgery until the patient's stool becomes watery and use prophylactic antibiotics 30 minutes before the surgical incision. Instrument nurses must perform strict aseptic operations and place clean and dirty instruments separately. Sneaker straps and endoscopic protective sleeves are used during the operation to prevent intestinal contents from flowing out and contaminating the abdominal cavity when the intestinal cavity is opened. Use dilute iodophor to flush the abdominal cavity thoroughly before the end of the operation. With the emergence of various complex operations such as NOSES Jinling surgery, the requirements for operating room nurses are constantly increasing. They must not only be familiar with the surgical procedures, but also master the use and maintenance of various instruments and instruments. Only by making adequate preoperative preparations can you cooperate with the doctor tacitly and ensure a smooth operation.

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