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Breaking the Taboo - Ileostomy – Review Article

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ABSTRACT

This Review article deals with what is the meaning of the term of Ileostomy, the indications and contraindications of the procedure, the different procedural methods of Ileostomy, the merits and demerits of each procedure, the contraindications of the performing an Ileostomy and what precautions a patient has to take after the procedure.

Keywords

Colostomy; End Stoma; Ileostomy; Loop Stoma; Mucus Fistula; Parastomal Hernia.

INTRODUCTION

An ileostomy occurs when the small bowel's lumen is introduced through the abdominal wall through a surgical hole made during surgery. This might be a temporary or permanent terminus, a loop, or both. An ileostomy is used to remove feces from the body through the ileum rather than the typical anus route.

Since the large bowel is responsible for making the feces more solid based on water absorption, the output from an ileostomy is often loose or porridge-like stool consistent with that expected to pass via the small bowel. An ileostomy is often created on the abdomen, and its outflow might vary but commonly varies from 200 to 700 ml per day.[1]

Anatomy and Physiology

A segment of the small intestine's ileum is used to create an ileostomy. The duodenum proximally, jejunum, and ileum distally are the three adjacent portions that make up the small intestine, which starts at the pylorus of the stomach. While the duodenum contains a retroperitoneal component, the jejunum and ileum are intraperitoneal structures. The small bowel mesentery, which are peritoneal folds containing blood arteries, lymphatics, and nerves, is where the

jejunum and duodenum are joined. The small intestine has a variable luminal diameter between 3 and 5 cm and measures around 6 to 7 meters in length. It performs a variety of tasks, such as nutrition absorption, enzyme and protein secretion, and food digestion.[2]

The mucosa, the submucosa, the muscularis propria (the layer of muscle), the subserosa, and ultimately the serosa make up the intestine's wall. Prior to forming the ascending colon, the ileum comes to a stop at the ileocaecal junction, which is a valve at the superior aspect of the caecum. At this point in the intestine where the tinea converge, the caecum may be seen.[3]

It's crucial to understand the architecture of the anterior abdominal wall before creating the trephine incision for the ileostomy. The skin, subcutaneous fat, Scarpa's and Camper's fascia, muscle, anterior rectus sheath, posterior rectus sheath (if above the arcuate line), and peritoneum are the layers that are encountered. The muscles include the rectus abdominis, transverse abdominis, and external and internal obliques. The rectus abdominis originates from the costal border and xiphoid process and descends to the symphysis pubis, whilst the obliques and transverse abdominis attach to the lower ribs and iliac crests at various levels. with addition to having thick tendons termed aponeuroses that converge at the midline to form the linea alba, the abdominal muscles are also covered with fascia.[4]

To lessen the chance of eventual parastomal hernia development, which happens when the abdominal contents push through the weakness caused by the incision, an ileostomy should be delivered via the rectus muscle and sheath.

Indications of Ileostomy [5]

1. Benign Complex Fistula
2. Colorectal Malignancy.
3. Perforation Peritonitis
4. Ulcerative Colitis
5. Crohn's Disease
6. Mesenteric Ischemia

Contraindications of Ileostomy[6]

There are no absolute contraindications to **ileostomy,** but relative **contraindications** include:

- **Ashort** mesentery **prevents** the ileum from **draining** through the abdominal wall to the skin without tension.**Unfortunately, this** is more common in obese patients.
- The ileostomy should be formed as **far** as possible to allow **sufficientintestinal** length for **nutrientabsorption.**
- **High-performance** ileostomy **may** lead to electrolyte disturbances **(especially** important to monitor and treat in patients with renal **failure),** as well as malabsorption leading to malnutrition.
- **Whencreatinganileostomy,** it is important to **puncture** the stump to **keepwaste** from **cominginto** contact with the skin.
- **The** ileostomy should be **placed** away from scars, skin **folds,** and bony prominences to allow placement of the **ileostomy** and **preventleaks.**

Preparation of the patient[7]

This includes elementsof physical and psychological preparation;

Here,Ostomynursesagainplayaninvaluableroleinhelpingpatientsthroughout the process.

Physical preparation varies somewhat depending on the nature of the operation involved and whether it is an emergency procedure or a planned elective operation.

Points to consider include:

- Abdominalwall hair removal
- Body mass index (BMI) of patients undergoing planned ileostomy in the elective setting:
- Patients may be required to lose weight before the procedure in order to improve the ability to anesthetize and also reduce the distance from the mesentery of the small intestine must travel to reach the skin without strain.
- Scars/deformitiesduetopreviousSurgery of the abdominal wall.
- PreviousSurgery increases adhesion
- Presence of hernia
- Additionally, in a planned setting, the effects of smoking and diabetes control willbeconsideredfor wound healing
- Most importantis the location of the ostium, which is usually located on the upper right side of the abdomen,to the lateral edge of the rectus muscle, at a level where the patient can see it, reach it easily, and does not preventinterference with thewaist or skin folds.
- It should also ideally avoid the costal margin and umbilicus.
- A nasogastric tube in cases of obstruction/perforation or if anticipating a post-operative ileus
- Adequate fluid and electrolyte resuscitation.

Technique of the Procedure

Ideally, the site would be marked pre-operatively with indelible ink or an "X" scored into the skin.This is so that the site can still be seen at the end of a long operation when the antiseptic prep or blood may have distorted the skin.If a laparotomy has been formed then the linea alba, which is the cut edge of the abdominal wall, is grasped with Kocher clamps or Littlewood clamps and retracted toward the midline to approximate the two wound edges together.

As this will be the anatomically correct position of closure of the abdominal wall, it will also help identify where the ileostomy will be sited once the wound is closed.

If a loop ileostomy is being made laparoscopically, then under vision the ileum can be grasped with a pair of Johan atraumatic graspers and bought towards the anterior abdominal wall to sit in a position where it is not under tension.[8]

A 2.5 to 3 cm circle or ellipse of skin is excised using monopolar diathermy (it may be helpful to elevate the skin with Alice forceps or Littlewood forceps).The tissue was then dissected through the subcutaneous fat to the anterior fascial sheath of the rectus muscle, which was then opened through a diagonalincision.The rectus muscle contracts or retractsinwards; however, care must be taken to avoid damageto the epigastric vessels that run deepinto the center of this muscle.

When the muscle is retracted, wesee the posterior sheath beneathitnormally closed and attached to the peritoneum on its underside.

Another diagonal incision is made in the posterior capsule, then two Kelly clips are used to clamp the peritoneum and elevateit.Usingsurgical scissors, anincision is made in the peritoneum between two forcepsto access the peritoneal cavity.The surgical defect is stretched to allow two fingers to pass through it, ensuring sufficientspace for the small bowel to be acquired to form the ileostomy.

The next step is to gently pass the selected segment of the terminal ileum (verified to beoffull length, mobile,

and freeoftension) through the trephine tube you just created.

Ifanilealloopanastomosisisformed,theilealloopisbroughttotheskinthroughthedefectintheabdominalwall.

If a terminalileum is formed, it is simply the stapled end of the acquire dileum.

The right ileum is placed so that the proximal end is at the 12 o'clock position.

It must also protrude approximately 5 cm from the skin before placingan absorbable muscleserumretention suture (e.g., monocryl 3.0 or rapidvicryl)onto the skin to prevent the ileum from slidingin wards.

This then allows you to perform the final checks (orientationcheck,hemostasischeck,lavage,straightcatheter,drainage)before closing the abdomen and protecting the wound with abandage before exercising focuses on the for mationofanileostomy.

It is considered standard practice to close any abdominal woundbe fore forming the ileostomy to avoid any fecal contamination of the wound with feces from the ileum.

Fig 1- Procedure of Ileostomy

Variations in the Treatment Procedure[9]

Loop Ileostomy

About halfway up from skin level, the distal limb is opened transversely for two-thirds of its diameter. Bipolar cautery can be used to control submucosal hemorrhage. In order to take seromuscular bites at the lumen of the proximal limb and around 4 cm along the loop before taking a subcuticular bite of the skin at the trephine skin edge, interrupted absorbable sutures are positioned at the 3, 9, and 12 o'clock positions. These places are not close to the supply depot. The lumen can then be helped to evert so that the limb is gushing by using a Langenbeck retractor. Next, square knots are used to secure the disrupted sutures.

Similar to the distal limb, it is likewise everted, but it will be less spouted since it protrudes less above the skin. Applying interrupted absorbable sutures circumferentially around both limbs involves caution to avoid compromising the mesenter's vascular supply.

End-Ileostomy

The trephine forms in this instance in the same manner as previously described. After inserting the

stapled end of the ileum through the abdominal wall defect and securing the stay suture, you continue with the customary examinations and wound closures as described before. After that, you remove and discard the staple line from the ileal end using a monopolar diathermy. Some surgeons could decide to use dissecting scissors to clip the staple line off. Nevertheless, this raises the possibility of bleeding from the slashed bowel margins, which can occasionally be difficult to control.

After the staple line has been removed, open the lumen and seromuscular bites should be taken. Then, place the three interrupted absorbable sutures at the three, nine, and twelve o'clock positions. Once more, evert the lumen's mucosa with a Langenbeck retractor till the limb is gushing. Next, square knots are used to secure the disrupted sutures.

Complications of the Procedure

These can be categorized as general and procedure-specific problems, as well as immediate, early, or late difficulties. It is noteworthy that 20% of individuals develop difficulties after the establishment of an intestinal stoma. The sort of procedure required to determine if an ileostomy is warranted can lead to a variety of general problems. The following are complications unique to a procedure:

the distal limb above skin level. Interrupted absorbable sutures are applied circumferentially around both limbs, taking care not to compromise the vascular supply of the mesentery.

End Ileostomy

The formation of the trephine is the same here as mentioned above. Once you pull the stapled end of ileum through the abdominal wall defect and apply the stay suture, you still proceed to carry out the usual checks and close the wounds as previously mentioned. Then taking the monopolar diathermy, you excise the staple line from the ileal end and discard it. Some surgeons may choose to cut the staple line off using dissecting scissors. However, this increases the risk of bleeding from the cut edges of the bowel which can be troublesome at times to control. Once the staple line has been excised, open up the lumen and then apply the 3 interrupted absorbable sutures at the 3, 9 and 12 o'clock position taking seromuscular bites. Again using a Langenbeck retractor, evert the mucosa of the lumen so that the limb is now spouting. The interrupted sutures are then tied in place using square knots.

Go to:

Complications

These can be classified as immediate, early or late or as procedure specific and general complications. It is important to note that complications following the creation of an intestinal stoma are experienced by 20% of the patients. General complications vary depending on the type of operation being undertaken for an ileostomy to be necessary. Procedure-specific complications include the following [4]:

- Stenosis
- Ischemia/Necrosis
- Hemorrhage
- Infection/Abscess
- A parastomal hernia
- Retraction/Prolapse
- Electrolyte imbalance due to the high output of the effluent from the ileostomy
- Dehydration

- Renal impairment
- Hematoma/Seroma
- Obstruction
- Fistula formation
- Skin irritation

1. Stenosis
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10. Hematoma/Seroma
11. Obstruction
12. Fistula formation
13. Skin irritation

Clinical Significance of the Procedure[10]

In order to improve the quality of life of the patient, or to help save their lives, the formation of an ileostomy, whether in an emergency or elective setting, may be considered to be an adjunct to a lifesaving surgical technique. It is essential to reassure patients that, despite ileoostomy, they can still live ordinary lives and remain active in their daily activities.

Clinical Significance

The formation of an ileostomy, whether in an emergency or elective setting, can be considered an adjunct to a life-saving operative technique and this is a procedure that is performed in the best interests of the patient to either improve their quality of life or to help save their life. It is critical to stress to patients that it is still possible to live a normal life and continue with theirusual activities of daily living despite having an ileostomy [5]. [6] [7] [8]

Go to:

Enhancing Healthcare Team Outcomes

Enhancing Healthcare Team Outcomes[13]

Both emergency and elective surgery can result in the formation of an ileostomy. The risk of formation and its ramifications must be thoroughly discussed in both cases. The surgeon, who has the duty to obtain the patient's consent regarding the specifics of the procedure as well as the post-operative course involved, is a key participant in this process. The stoma nurses are very beneficial for stoma education, psychological support, and determining the best location for the ileostomy.

Other important personnel during the procedure include the scrub nurse and, as necessary, the surgical assistant. Patients with ileostomies should seek out a mental health consultant because many of them are unaware of all that it entails.

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