ALASKA COLORECTAL SURGERY

Colectomy

Surgery of the colon and rectum is done for various reasons including cancer, diverticulitis, inflammatory bowel disease, volvulus, and fistulae.

Pathology:

- Cancer of the colon and rectum is the most common cancer of the bowel.
- In men, it is the third most common lethal cancer next to cancer of the lung and prostate.
- In women, it is second only to lung and breast cancer as a cause of cancer related death.
- Cancer of the colon is common in patients over 50 and steadily rises after that. Americans have about a 5% chance of developing colorectal cancer if they live to 70 years of age.
- The onset of familial and hereditary forms of colorectal cancer occurs at a much earlier age.
- Diverticulosis is a condition that is common in western society. It increases with age and is present in approximately 75% of Americans over the age of 80.
    - It is associated with diverticula, which are protrusions of the innermost lining of the colon through the muscular outer layers of the colon wall.
    - The diverticula can become inflamed, a condition called diverticulitis, which can cause perforation of the bowel, abscess, bleeding, obstruction of the bowel or fistulae of the colon (a communicating hole between the colon and other organs such as the small bowel, urinary bladder, vagina or skin).
- There may also be inflammatory bowel disease (called Crohn's disease), ulcerative colitis or ischemic (decreased blood supply) colitis. These conditions result in inflammation of the colon that can involve the entire thickness of the colon wall (Crohn's disease, ischemic colitis) or only the mucosa, the innermost lining of the colon (ulcerative colitis).

Indications:

- Colectomy (removal of the colon) can be carried out for various diseases including:
    - Cancer: Removal of the colon and rectum is the mainstay of treatment for cancer. It can be curative or palliative at which time the surgery is performed to relieve symptoms. Colon surgery for cancer may be combined with other forms of treatment including radiotherapy and chemotherapy.
    - Polyps: Removal of the colon is performed for a condition called Familial Adenomatous Polyposis that is associated with numerous polyps in the

colon at a young age. It carries a very high incidence of colon cancer and hence requires the removal of the entire colon to prevent malignancy.
    - Colitis: Colon resection may be performed in patients with inflammatory bowel disease (ulcerative colitis or Crohn's disease) with persistent, intractable pain and failure of medical treatment, intestinal obstruction, fistulae, bleeding, perforation, and marked dilation of the colon.
    - Diverticular disease: Colon surgery is performed in patients with diverticulitis (acute inflammation of the diverticuli) with or without abscess formation, persistent profuse bleeding, pr perforation of the bowel wall.
- Other conditions that may necessitate removal of the colon include:
    - Intestinal obstructions
    - Perforation of the colon wall
    - Volvulus in which the bowel is twisted on itself causing obstruction
    - Ischemic colon (lack of blood supply to the colon)
    - Toxic megacolon (massive dilation of the colon)
    - Fistulae between the colon and other organs such as the bladder or vagina
- Removal of the colon may be carried out as a scheduled procedure or as an emergency in life saving situations such as severe bleeding or perforation of the colon.
- The extent of removal of the colon varies depending on the site of the disease. In the removal of the colon for cancer, all the lymph nodes that drain the tumor are also removed.

Adjuvant Therapy (Complimentary Therapy):

- Clinical trials are underway to determine the role of neoadjuvant therapy in treatment of carcinoma of the rectum.
- Neoadjuvant therapy for rectal tumors usually consists of external beam irradiation (X-ray radiation therapy) to the affected area plus administrations of chemosensitizing agents (medication that enhances the effect of radiation).
- Neoadjuvant therapy appears to result in a lower local recurrence rate following surgery. This downstages the tumor (shrinks the tumor mass) and more often allows preservation of the anal sphincters (muscles) in lower rectal tumors avoiding permanent colostomy.
- Neoadjuvant theapy appears to improve survival. A standard of care for these rectal lesions that includes neoadjuvant therapy should be forthcoming in the next few years.

Surgical Procedure:

- Before surgery, the bowel must be prepared to decrease the incidence of infection. Preparation begins a few days prior to colon surgery. The patient is placed on a low residue diet for 2-3 days prior to surgery and on liquids the day before surgery, which complete fasting from the midnight before surgery.
- The patient is usually admitted to the hospital on the day before surgery and is given some purgatives to cleanse the large bowel along with antibiotics.

- Intravenous fluids are given on the night before surgery to avoid dehydration resulting fromt the diarrhea due to the cleansing action of the purgatives.
- Intravenous antibiotics are usually administered just before surgery to reduce the incidence of infections. They may be continued after surgery.
- The procedure is usually done to under general anesthesia.
- An incision is made in the abdomen, The incision is carried through the wall of the abdomen to expose the bowel.
- The diseased portion of the colon is identified and that part of the colon and its blood supply is divided and removed. The ends of the bowel are sutured together by hand with individual sutures. Care is taken to identify the ureters, small intestine, and other organs so as to avoid injury to these organs.
- In the last ten years, special instrumentation has greatly simplified the procedure. A stapler placed across the colon seals the colon on each side of the stapler and then cuts the colon between the staples. Likewise, a different type of stapler staples the anastomosis together.
- After surgery, the abdominal wound is usually closed although in cases with colon perforation, the wound may be left open and closed at a later date.
- Sometimes, an emergency operation may need to be performed to remove the colon in cases with perforation of the colon, bleeding, or diverticulitis.
    - In such cases, a colostomy is usually performed where the colon is brought out through a separate incision in the abdominal wall and sutured to the skin.
    - Feces are then excreted into a bag attached to the skin.
    - This may be temporary or permanent.
- Tumors or lesions in the ascending colon can be treated by an operation to remove the last part of the small bowel, the ascending colon, hepatic flexure, and a small part of the transverse colon (right hemi-colectomy).
- In a similar fashion, lesions of the descending colon and sigmoid are dealt with by left hemi-colectomy (removal of descending colon, and adjoining parts of the sigmoid colon, splenic flexure, and part of the transverse colon) and sigmoid colectomy, respectively.
- After removal of a segment of colon, the two ends of the bowel are joined together (called an anastomosis). Tumors in the upper part of the rectum and lower part of the sigmoid colon are dealt with by an operation called an anterior resection, wherein the rectum and sigmoid colon are removed and the lower end of the rectum is joined to the colon.
- Removing the entire rectum and part of the sigmoid colon (abdomino-perineal resection) is used as the treatment of tumors low in the rectum.
    - The end of the remaining colon is brought out as a colostomy.
    - Polyps or tumors that are very low in the anal canal can sometimes be resected from below, through the anus (transanal resection of the tumor).

Complications:
In addition to the routine complications of any general anesthetic, there can be complications as a result of the colon surgery. These include:

- Postoperative bleeding
- Dehiscence or breakdown of the anastomosis
- Recurrence of tumor
- Wound infection
- Urinary or respiratory infections
- Deep vein thrombosis with or without pulmonary embolism
- Urinary retention
- Adhesions with bowel obstruction
- Injury to the ureter
- Obstruction at anastomosis site

After Surgery:

- The recovery period after colon surgery is widely variable. It usually involves a stay in the hospital from 3-10 days in uncomplicated cases.
- The patient will have a catheter in the urinary bladder for a few days and will be given adequate pain relief, intravenous, antibiotics, etc.
- For patients who do not have any oral intake for several days, nutrition may be provided intravenously or through a tube in the stomach or bowel.
- The function of the bowel is monitored closely to await the passage of gas or stool after surgery.
- The patient then gradually begins to take liquids by mouth and solid food later on, following which they will be discharged home.

Treatment Plan:

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