

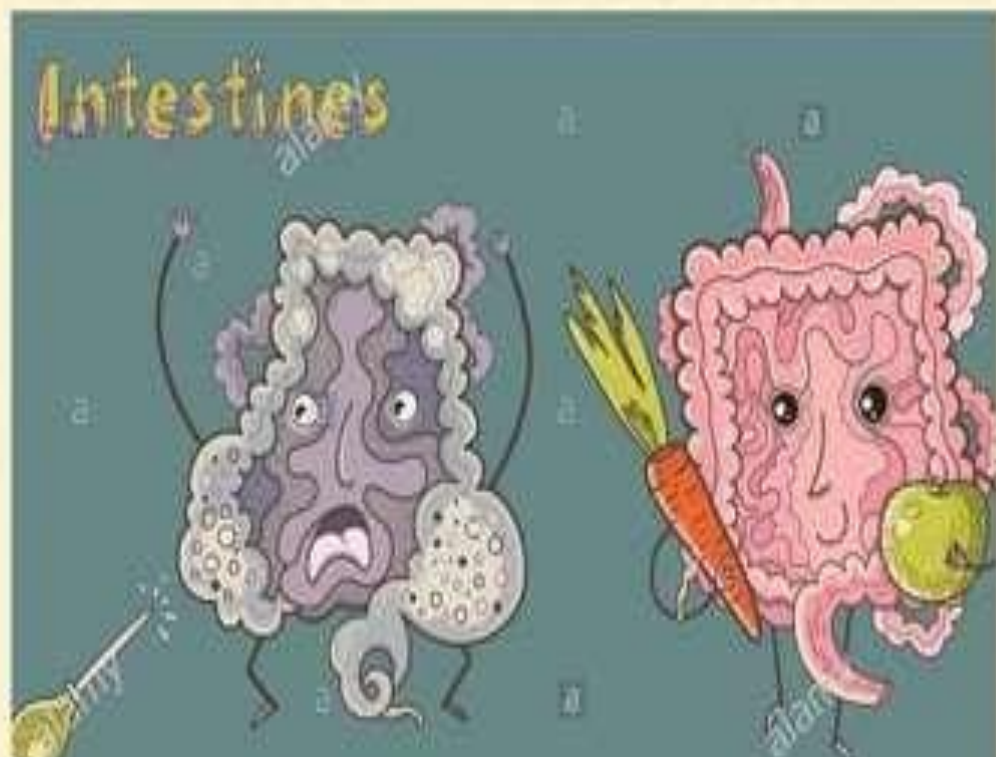


Seminar ON
Disorders related to Large Intestine: Inflammation, infection,
tumor and lump.

B. Sc (H) NURSING
RAKCON

CONTENT

- 1. Introduction
- 2. Anatomy and physiology of large intestine
- 3. Inflammatory bowel disease(IBD)
- 4. Large intestine infection
- 5. Lumps in large intestine
- 6. Tumor of large intestine
- 7. Nursing Process
- 8. Research and result
- 9. Summary and conclusion

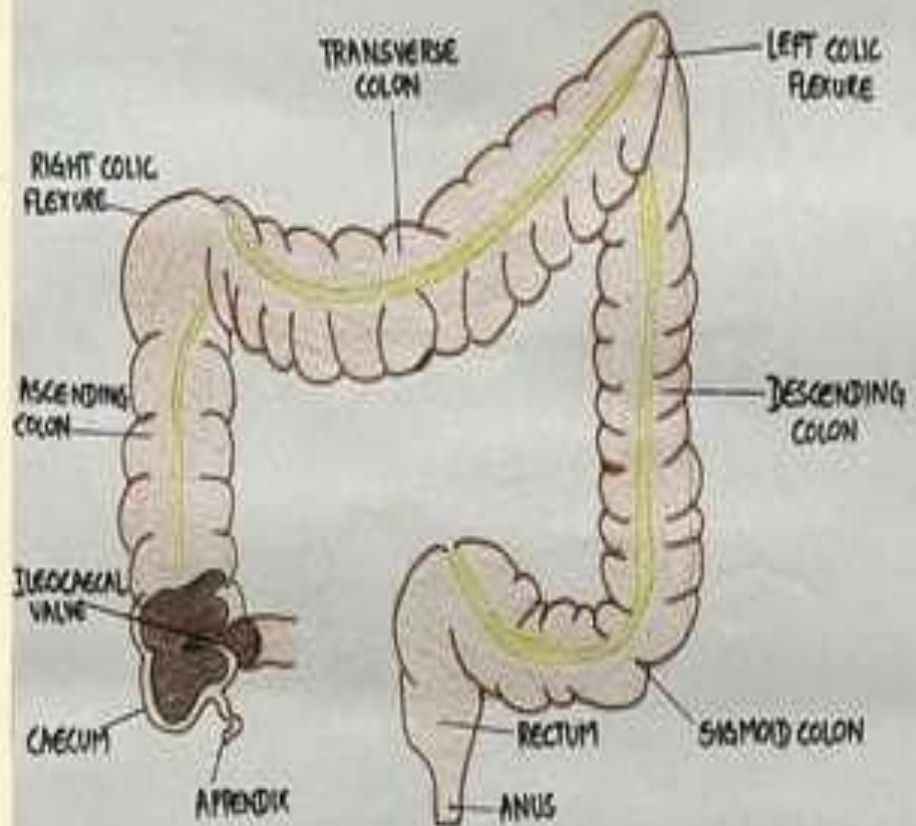


INTRODUCTION

In all age groups, a fast-packed lifestyle, high level of stress, irregular eating habits, insufficient intake of fiber and water, and lack of daily exercise contribute to GI disorders. There is a growing understanding of the bio-psycho social implications of GI disease. That is mind and emotions can have an impact on these GI disorders by identifying behavior patterns that put patients at risk, by educating the public about prevention and management, and by helping those affected to improve their condition and prevent complications.

ANATOMY OF LARGE INTESTINE

The large intestine comes after the small intestine in the digestive tract and measures approximately 1.5m in length in adult humans.



ANATOMY OF LARGE

CECUM

It is the proximal end of large intestine and is where the large and small intestine meet at the ileocecal junction.

COLON

It is the last part of the digestive system in most vertebrates. It extracts water and Salt from solid wastes before they are eliminated from the body and is the site in which flora aided (large bacteria) fermentation of unabsorbed material occurs.

The colon consists of four sections:

ASCENDING COLON

- extends superiorly from the right colic flexure near the liver, where it consists turns to you left.

DECENDING COLON

- extends from the left colic flexure to the pelvic. It is to store faeces that will be emptied into rectum.

- TRANSVERSE COLON

- Extends from the right colic flexure to the left colic flexure the spleen where the colon turns inferiorly.

- SIGMOID COLON

- forms an s- shaped tube that extends medially and then inferiorly into to the pelvic cavity and ends at the rectum.

Rectum

- It is a straight, muscular tube that begins at the termination of sigmoid colon- and ends at the anal canal. The muscular taenia is smooth muscle and it is cells relatively thick in the rectum compared with the rest of the cell's digestive tract. It is continuous about with the sigmoid colon, while below. It ends in anal canal.

Anal canal

- The last 2-3cm of the digestive tract. It can begin at the inferior and of the rectum and ends at anus. The smooth muscle of the anal canal is even thicker than that of the rectum and forms the internal anal sphincter end of another anal canal. The external anal sphincter at the inferior end of the anal canal is formed by skeletal muscle.

PHYSIOLOGY OF LARGE INTESTINE

Functions

- Absorbing water
- Absorption of vitamins
- Reducing acidity and protecting from infections
- Producing antibodies
- Defecation is the final act of digestion by which organisms eliminate solid, semi solid or liquid waste material (faeces) from the digestive tract via the anus.

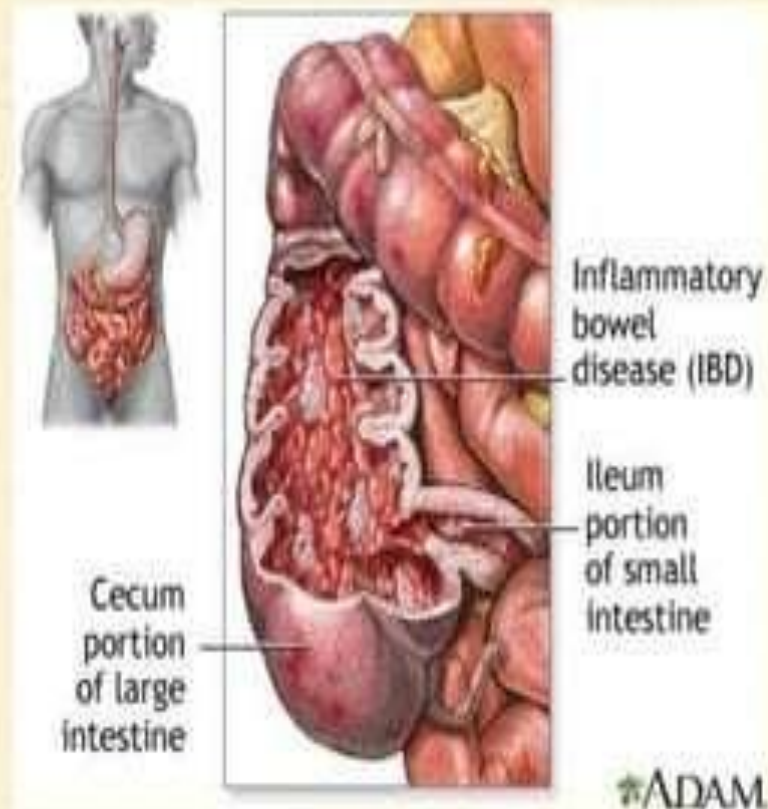
NORMAL FUNCTIONING DEFECATION REFLEX

A normal functioning defecation reflex produces a muscular contraction that serves as a signal to the body that it is time to move the bowels and eliminate stools. Prompt response to the defecation reflex by going to the bathroom when it is activated, prevents stool from drying out and becoming difficult to pass. The defecation reflex may be triggered about 45 minutes to an hour upon rising from sleep, after drinking of hot beverage, and after eating a meal. The defecation reflex will disengage after about 15 minutes of being ignored. Like any other muscle that is not used, it will break down and fail to function if continuously ignored. When the defecation reflex is ignored, constipation will result as a stool that is retained in the colon becomes dried out, hard and difficult to pass. Retained waste can stretch out the rectal sack. A stretched out rectal sack requires more and more stool to fill the rectal sack before the reflex will be activated. This causes even more stool to dry out as it collects behind the previously retained stool.

(A) INFLAMMATORY BOWEL DISEASE (IBD)

Inflammatory bowel disease (IBD) represents a group of intestinal disorder that causes prolonged inflammation of the digestive tract. Inflammation anywhere along the digestive tract disrupts BIS normal process. IBD can be painful and disruptive and in some cases, it may be life threatening. Main types of IBD are:

- 1.Ulcerative colitis
- 2.Crohn's disease



ULCERATIVE COLITIS

Ulcerative colitis is a chronic inflammatory condition of the colon that is marked by remission and relapses. Ulcerative colitis involves inflammation of the large intestine. Etiology of ulcerative colitis. Exact cause of ulcerative colitis remains unclear. Three characteristics the define the etiology:

- Genetic susceptibility
- Immune dysregulation
- Altered response to gut microorganisms



Pathophysiology of Ulcerative Colitis

The rectum is always involved, with inflammation extending proximally in a confluent fashion. The disease typically is most severe distally and less severe proximally. According to extent of proximal involvement it is classified into

Proctitis/ proctosigmoiditis (40 to 50%)

- Left sided colitis /extensive colitis (30 to 40%)
- Pancolitis (20%)

Information is limited to the mucosal layer of colon. Except in fulminant disease where inflammation extend beyond the mucosal layer and can develop a toxic mega colon.

Grading of disease

1. Mild-

- bleeding per rectum
- Less than 4 bowel motion per day

2. Moderate-

- Bleeding per rectum
- More than 4-6 bowel motions per day

3. Severe-

- Bleeding per rectum
- More than 6 bowel motions per day and a systemic illness with hypoalbuminemia($<30\text{g/l}$).

Clinical manifestation

Predominant symptoms are

- rectal bleeding
- frequent stools and mucus discharge from the rectum.
- Tenesmus
- Nausea
- weight loss
- abdominal pain
- severe dehydration
- Constipation

Complications of ulcerative colitis

Acute

- Toxic megacolon- potentially life-threatening complications
- Perforation
- Hemorrhage.

Chronic

- Cancer
- Extra alimentary manifestations-skin lesions, eye problems and liver disease

Diagnosis

Diagnosis relies on a formulation of compatible

- Clinical features
- Endoscopic appearance
- Histology finding
- Surface ulceration
- Inflammation confined to the mucosa
- Excess inflammatory cells in the lamina propria
- Loss of goblet cells
- Presence of crypt abscess
- Laboratory studies
- Imaging studies
- Plain abdominal X Ray

Treatment

MEDICAL TREATMENT

- 5-ASA (5-Aminosalicylates)
- Corticosteroids
- Thiopurine
- Cyclosporine
- Biologics

SURGICAL

- About 10% to 20% of patients with UC

INDICATIONS

- Chronic intractable diseases
- Not controlled with medication
- Drug side effects are too severe
- Severe acute colitis requiring an urgent procedure
- Presence of dysplasia or cancer
- Colonic perforation surgery
- Proctocolectomy

CROHN'S DISEASE

Crohn's disease is an idiopathic, chronic, transmural inflammatory process of the bowel that can affect any part of the gastrointestinal tract from the mouth to the anus. Most cases involve the small intestine, particularly the terminal ileum. Classification of Crohn's disease:

On the basis of GIT which affects:

Ileocolic Crohn's disease- affects both the ileum and the large intestine (50%)

Crohn's Ileitis- affects the ileum only (30%)

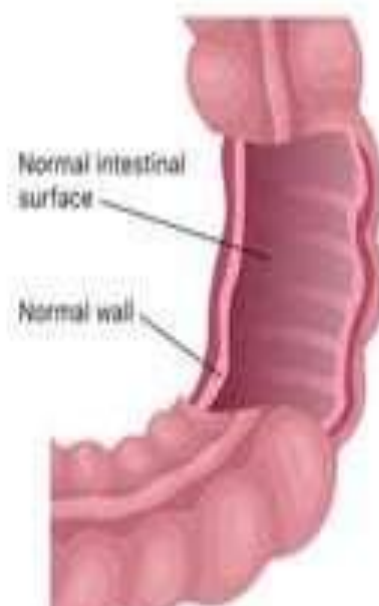
Crohn's colitis- affects the large intestine, account for the remaining 20% of cases.

Etiology of crohn's disease

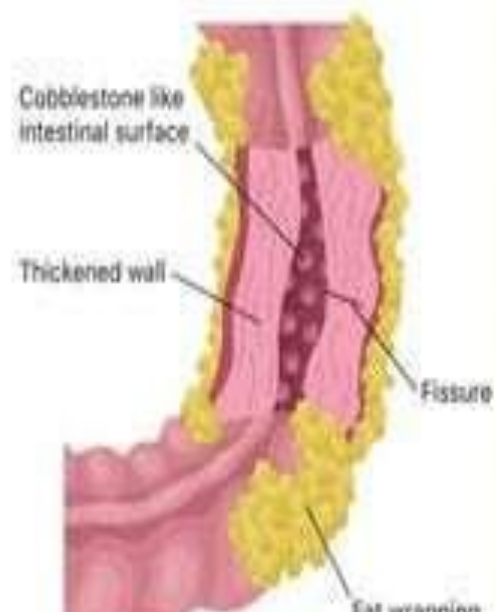
- Unknown
- It may be genetic or immunologic
- May be exacerbated by stress.

Crohn's Disease

Normal Intestine



Crohn's Disease



PATHOPHYSIOLOGY

- Biopsies of the colon are taken to confirm the diagnosis
- Crohn's disease shows a trans-mural pattern of inflammation showing entire depth of the intestinal wall.
- Ulceration is an outcome seen in highly active disease.
- Inflammation is characterized by fecal infiltration of neutrophils, a type of inflammatory cell, into the epithelium.
- These neutrophils leading to inflammation or abscess.
- Granulomas known as giant cells, are found in 50% cases of Crohn's disease.

CLINICAL MANIFESTATIONS

- Lower quadrant abdominal pain.
- Diarrhea unrelieved by the defecation
- Crampy pains after meals (to reduce pain, patient tends to limit food intake, amount and type)
- Weight loss/ malnutrition
- Steatorrhea (excessive fat feces)
- Anorexia

Complications

- Intestinal obstruction or stricture formation
- Perineal disease
- Fluid and electrolyte imbalance
- Enterocutaneous fistula (abnormal opening between the small bowel and the skin).

DIAGNOSIS

- A proctosigmoidoscopy is usually performed initially to determine whether the rectosigmoid area is inflamed
- Stool examination
- Barium study of upper GIT that shows the classic "string sign" on an X-ray film of terminal ileum.
- Biopsy
- Sigmoidoscopy, where a short flexible tube is used to investigate lower bowel.
- Colonoscopy, where the long flexible tube is used to investigate colon.
- Endoscopy
- CT- scan

Treatment

Crohn's disease treatment depends on the

- Where the Inflammation is situated
- The severity of disease
- Complications
- The patient's response to previous

Medical treatment

- Anti-inflammatory drugs
- Cortisone or steroids- corticosteroid are drugs containing cortisone and steroids.
- Antibiotics
- Anti-diarrheal and fluid replacement
- Biologics: - for example
- Infliximab (Remicade)
- Adalimumab (Humira)
- 6-Mercaptopurine (Purinethol)
- Methotrexate
- Imuran (Azathioprine)

Surgical treatment

- Crohn's disease cannot be cured by surgery.
- Surgery required in case of obstruction, fistulas, and/ or abscesses, or if the disease does not respond to drugs.
- Colonoscopy
- Bowel resection

APPENDICITIS

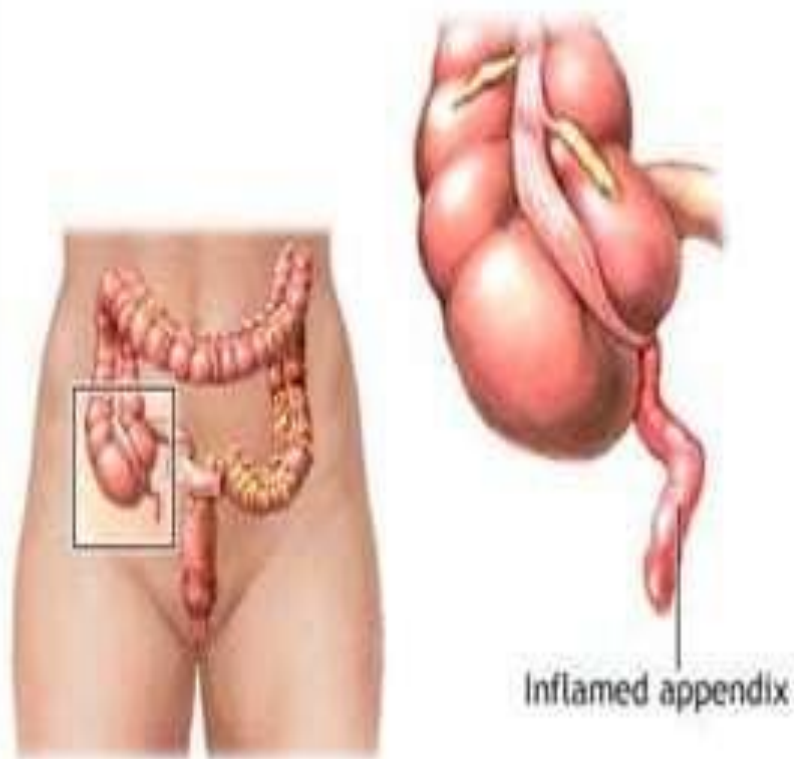
A blockage, or obstruction, in the appendix can lead to appendicitis, which is an inflammation and infection of appendix. The blockage may result from a build-up of mucus, parasites, or most commonly, fecal matter.

Etiology of appendicitis

- Obstruction of the lumen of the appendix is the main cause of acute appendicitis.
- Fecalith (a hard matter of fecal matter) normal stool, or lymphoid hyperplasia are the main cause for obstruction.

Pathophysiology of appendicitis

- Appendicitis likely stems from obstruction of the appendiceal orifice.
- The results in inflammation, localized ischemia, perforation and the development of a contained abscess or Frank perforation with resultant peritonitis.



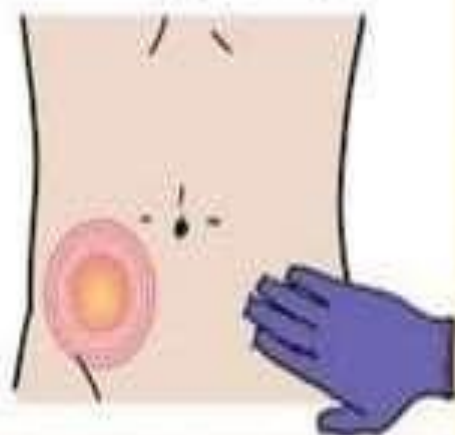
Clinical manifestations

- Sudden pain that begins on the right side of the lower abdomen
- Sudden pain that begins around your navel and often shifts to your lower right abdomen
- Pain that worsens if you cough, walk or make other jarring movements
- Nausea and vomiting

Main Signs of appendicitis

- Rovsing sign
- Psoas sign
- Obturator sign

Rovsing's Sign



A positive Rovsing's sign is when there is tenderness in the RLQ when palpating the LLQ

This could also mean **appendicitis**

Psoas Sign



The psoas sign. Pain on passive extension of the right thigh. Patient lies on left side. Examiner extends patient's right thigh while applying counter resistance to the right hip (asterisk).

Obturator Sign



• Internally rotate right leg at the hip with the knee at 90 degrees of flexion. Will produce pain if inflamed

COMPLICATIONS

- A ruptured appendix- spread infection throughout the abdomen (Peritonitis)
- A pocket of pus that form in abdomen. If the appendix bursts, it may develop a pocket of infection (abscess).

Diagnosis

Physical examination to check

- Rovsing sign/Psoas sign/Obturator sign
- Guarding
- Rebound tenderness
- Digital rectal exam
- Pelvic exam
- Lab test(Blood test)
- Urinalysis
- Pregnancy test
- Imaging test
- Abdominal ultrasound

Treatment

Appendicitis is usually treated with antibiotics and surgery is required within 24 hours of its diagnosis. If untreated the appendix can rupture and cause an abscess or systemic infection (sepsis)

MEDICAL TREATMENT

- Antibiotics – stops the growth of or kill bacteria.
- Penicillin- stops growth of or kills specific bacteria.

SURGICAL TREATMENT

- Appendectomy- surgical removal of the appendix.
- Laparotomy- surgical opening made in the abdomen to diagnose or treat various disease.
- Laparoscopic surgery- surgery that uses a video camera and thin tube inserted into

(B) LARGE INTESTINE INFECTION

1. PSEUDOMEMBRANOUS DYSENTERY

It refers to the swelling or inflammation of the large intestine (colon) due to overgrowth of *Clostridium difficile* bacteria. This infection is common cause of diarrhea after antibiotics use.

S/S

- Watery diarrhea
- Abdominal cramps, pain or tenderness
- Fever
- Pus or mucus in stool
- Nausea

Diagnosis

- Sigmoidoscopy (thin flexible tube {sigmoidoscopy} that enables doctor to view the interior of large intestine.
- Stool sample (to identify the toxins produced by C. diff.)

Treatment

- Treatment includes antibiotics. Even when treated with antibiotics, the infection may come back. In rare cases, faecal transplant surgery may be needed.
- Antibiotics (stop or kill the growth of antibiotics)

II. BACTERIAL DYSENTERY

It is an intestinal infection caused by a group of Shigella bacteria which can be found in the human gut.

Clinical manifestation

- Diarrhea with belly cramps
- Fever
- Nausea and vomiting
- Blood or mucus in the diarrhea

Diagnosis

Stool sample to analyse bacterial infection

Treatment

- Treatment consists of fluids- prompt medical care is required for bloody diarrhea.
- Treatment may include increase fluid intake rehydration solutions. IV fluids and antibiotics

Bacterial dysentery includes five more infections-

- Campylobacteriosis
- Shigellosis
- Salmonellosis
- Yersiniosis

III. PARASITIC DYSENTERY

Parasitic dysentery is caused by protozoan parasitic *Entamoeba histolytica*. The dysentery can alternate with periods of constipation or remission.

Clinical manifestation

- Fever
- Chills
- Bloody or mucous diarrhea
- Abdominal discomfort

Diagnosis

- Diagnosed by finding parasites under microscope.
- An antibody blood test.

Treatment

- Antibiotics and antiparasitic
- Oral rehydration therapy.

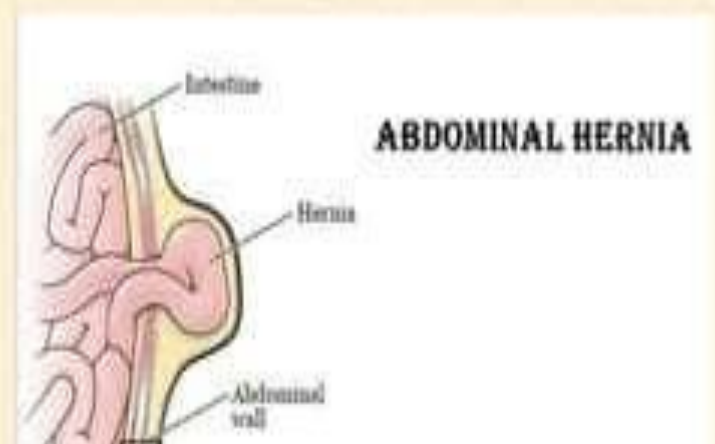
(C) LUMPS IN LARGE INTESTINE

An abdominal lump is a swelling or bulge that emerges from any area of the abdomen. It is most often feeling soft, but it may be firm depending on its underlying causes.

In most cases the lump is caused by Hernia. An abdominal hernia is when the feeling abdominal cavity structures push through a weakness in abdominal wall muscle. Usually this can be corrected by surgery. In rare cases, the lump may be undescended testicle, are harmless hematoma or a lipoma.

HERNIA

A hernia occurs when an organ pushes through an opening in the muscle or tissue that holds it in place. For example- the intestine may break through a weakened area in the



Etiology of hernia

The etiology remains uncertain even though the lifetime risk of developing hernia is 27% for men and 3% for women.

Pathology of Hernia

A hernia refers to when an internal body part pushes through a weak area of muscle or the surrounding tissue wall.

Clinical manifestation

Symptoms include

- A bulge, swelling or pain
- In some cases there are no symptoms but may experience pain in abdomen, -
pelvis or testicle.
- Abdominal discomfort
- Distension
- Groin discomfort or tenderness.

Diagnosis

- The diagnosis is made by physical examination.
- Ultrasonography
- Computed tomography scan (CT –scan)

Treatment

- Treatment includes monitoring the condition. If required, surgery can return tissue to its normal location and close the opening.
- Monitor for changes or improvement.

SURGICAL

- Laparoscopic surgery
- Hernia repair

(D) TUMOUR OF LARGE INTESTINE

An abnormal mass of tissue that forms when cells grow and divide more than they should. Tumors may be benign or malignant.

BENIGN TUMOR

- When the cells in the tumor are normal, it is benign. Something just went wrong, and they overgrew and produced a lump.
- Non-cancerous cells.

MALIGNANT TUMOR

- When the cells are abnormal and can grow uncontrollably, and the tumor is malignant.
- They are cancerous cells.
- Colon cancer is a type of cancer that begins in the large intestine (Colon). The colon is the final part of the digestive tract. Colon cancer typically effects older adults, though it can happen at anyone.

COLON CANCER

- is a type of cancer that begins in the large intestine(colon). The colon is the final part of digestive tract. Colon cancer typically effects older adults, though it can happen yo anyone.
- It is also known as colorectal cancer

Etiology of colon cancer (colorectal cancer)

- The exact cause of colorectal cancer is not known, but certain risk factor is strongly linked to the disease, including diet, tobacco smoking and heavy alcohol use.
- Also, people with hereditary cancer syndromes or a family history of colorectal cancer have a high risk of developing this disease.

Pathophysiology of colorectal cancer

- Most colorectal cancers start as a growth on the inner lining of the colon or rectum.
- These growths are called polyps.
- Some type of polyps can change into cancer over time (usually many years) but not all polyps become cancer.
- The chance of a polyps changing into cancer depends on the type of polyp it is.

Clinical manifestation

- Colorectal cancer symptoms depend on the size and location of the cancer.
- Pain in abdomen.
- Blood in stool, changes in bowel habits.
- Constipation, narrow stools, or passing excessive amount of gas.
- Anemia
 - Fatigue
 - Abdominal discomfort
 - Weight loss

Diagnosis

It includes physical examination:

- Colonoscopy
- Biopsy
- Molecular testing of tumor
- Blood test
- CT-scan
- MRI
- Ultrasound
- Chest X-ray
- PET or CT-scan (positron emission tomography)

DIAGNOSIS OF COLON CANCER

Ultrasound

PET

Biopsy

Blood test

Molecular
Testing

Chest Xray

MRI

Colonoscopy

Treatment

Treatment depends on the size, location and how far the cancer has spread. Common treatments include surgery to remove the cancer, Chemotherapy and radiation therapy.

MEDICAL

- Chemotherapy
- Chemotherapy protection drugs. (Reduces the side effects of chemotherapy treatment)

SURGICAL

- Lymph node dissection (removal of lymph node)
- Colectomy (surgical removal of all or part of the colon)

THE ULTIMATE GUIDE AND DATABASE

Nursing Care Plans



NURSING DIAGNOSIS - I

Acute pain related to distension of intestinal tissue as evidenced by facial expression, verbal reports.

GOALS: Relieve from pain.

INTERVENTIONS

- Encourage patient to assume a comfortable position and provide comfort measures.
- Encourage patient to report pain on the basis of duration, location and intensity (0-10) scale
- Observe for intestinal infection by monitoring and recording increased temperature, decreased BP

NURSING DIAGNOSIS - II

Risk of fluid volume deficit related related to impaired fluid intake, vomiting and diarrhea.

GOAL: Maintain normal fluid volume.

INTERVENTIONS

- Assess vital signs (BP, pulse, respiration, temperature)
- Urge the patient to drink prescribed amount of fluid.
- Monitor I/O chart.

NURSING DIAGNOSIS -III

Diarrhea related to presence of toxins

GOAL: decrease bowel frequency back to normal

INTERVENTIONS

- Observe for presence of any associated factors such as fever, chills, abdominal pain and bloody stool.
- Observe and record stool frequency characteristics and amount and precipitating factors.
- Start Oral Rehydration Solutions(ORS) gradually. Offer clear liquids hourly and avoid

NURSING DIAGNOSIS - IV

Risk of infection evidenced by redness and swelling at the surgical site.

GOAL: Less risk of infection.

INTERVENTIONS

- Maintain aseptic technique and hand hygiene.
- Sterilize and disinfect the articles required before and after using.

NURSING DIAGNOSIS - V

Anxiety due to change in economic status, environment as evidenced by patient being nervous and confused.

GOALS: Relax patient to manageable level.

INTERVENTIONS

- Encourage verbalization of feelings and provide feedbacks.
- Provide a calm, restful environment.
- Encourage patient to consider positive self talk like..... "I can do this one step at a time"

"I don't have to be perfect"

RESEARCH

Management of Ulcerative Colitis: present and future treatment

Arpan Kumar Maiti, Spoorthi B.C, Shashwati Gosh and Ishita Saha

ABSTRACT

Treatment of UC involve and maintenance of reavailable therapies mainly include anti-inflammatory, aminosalicylates and corticosteroids, immunosuppressive agents, antibiotics and biologic agents. However, each of these therapeutic classes are besieged with their own limitations ushering the need for safe and better alternatives. Some patient are not fully responsive to the the conventional treatment or lose efficacy over time and have undergo colectomy. Presently there is a serious urgency for the initiation of the disease and its advancement to the ulcerative and inflammation. Our focus will be to highlight the existing medication along with future treatment options with novel mechanism of action with the hope that in the future more patients can attain disease remission.

CONCLUSION

In the past decade, several medications have been developed to treat UC and improve quantity of life of UC patients. Though different therapeutic strategies and agents exist, it is still difficult to understand how to choose among these treatments in a clinical setting. On top of that a substantial number of patients are not fully responsive to treatment or lose efficacy over time and undergo colectomy. So there is a need to look for safer and better therapeutics agents with a hope that in the near future more patients can attain disease remission.

CLINICAL EXAMPLE

Patient name: Amar Singh

Age: 76 yrs

Diagnosis: Intestinal Obstruction related to sigmoid colostomy

Subjected Data : patient c/o abdominal pain

- severe constipation
- anorexia
- nausea and weakness
- fever

SUMMARY AND CONCLUSION

- In this, we have discussed about various disorders of large intestine, etiology, pathophysiology, complications, clinical manifestations, diagnosis, and treatment.
- Disorders related to inflammation, infection, lump and tumor.
- The information about large intestine disorders helps to provide careful nursing management to client, so that the patient is able to come over from the disease condition.

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