ANO-RECTAL CONDITIONS: AN OVERVIEW

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ABSTRACT

Ano-rectal diseases are arrays of disease conditions occurring within the rectum and anal canal. Diseases of the rectum and anus are common and affect a large proportion of the population. It is thought that most patients with symptoms referable to the ano-rectum do not seek medical attention and many prefer to seek alternative therapy. Most ano-rectal diseases can be diagnosed by detailed history, physical examinations and when necessary ancillary investigations. Correct diagnosis is mandatory for proper management.

Ano-rectal conditions are of varying aetiology and can be classified as either Congenital or Acquired.

Common congenital ano-rectal conditions include

- Hirschsprung disease
- Ano-rectal malformation

Acquired conditions are Hemorrhoid, Ano-rectal abscesses, Fissure-in-ano, Fistula-in-ano, Rectal prolapsed, Pilonidal sinus, Ano-rectal malignancy, Polyps and those due toTrauma.

RELEVANT ANATOMY

THE RECTUM

It is part of the large gut, placed between sigmoid colon above and anal canal below. It is about 10-15cm long and lies in front of last pieces of sacrum and coccyx. It differs from the colon by absent sacculation, appendices epiploical and taenia coli.

The upper 3rd covered with peritoneum in front and sides, middle 3rd only in front and lower 3rd is devoid of peritoneum. The Rectum is separated from prostate in males and vagina in females by fascia of Denonvilliers. The rectum is pulled forward by pubo-rectalis muscle forming anorectal sling. Embryologically the rectum develops from the division of the cloaca by the urorectal septum.

ANAL CANAL

It is 4cm long and extends from the Levator ani muscles to the anal verge. The dentate line represents the former site of embryonic anal membrane and is about halfway in the anal canal. The epithelium above this is columnar and below it is squamous. The innervation above the dentate line is autonomic (not pain nerve fibers). This allows many surgical procedures to be performed without anesthesia above the dentate line. Below it is somatic, innervated by the pudendal nerve (the peri-anal area is one of the most sensitive areas of the body). The double innervation is a reflection of its double embryology from the cloaca and the proctodaeum.

BLOOD SUPPLY

Venous drainage**:** Above the dentate line it is by inferior mesenteric and portal vein and below it is to the systemic venous circulation, situated in the anal column at 3, 7 and 11 O'clock. These points represent the usual anatomical locations of primary hemorrhoids.

Arterial supply:

Rectum: Superior, middle rectal arteries and median sacral artery

Anal canal: inferior rectal artery

CLINICAL FEATURES OF ANORECTAL DISEASES

- Anal pain- the distal anus is extremely pain sensitive
- Bleeding per rectum – bright red/altered, streak/mixed with stool or post-defecation
- Pus discharge from and around the anus
- Prolapse; Anal Itching (Pruritus ani); Peri-anal swelling or lumps; Passage of mucus per rectum; Constipation usually chronic; Diarrhoea; Difficulty in passing stool; Incontinence to flatus or feces; Absent anus, delayed or non passage of meconium and passage of meconium from abnormal orifices is typical of congenital problems.

In adults, the presentation of these conditions may also be influenced by the patients understanding of own pathology.

INVESTIGATIONS

The patient's history, physical examination

especially ano-rectal inspection and digital palpation remain crucial to diagnosis of ano-rectal lesions. Ancillary investigations may however be necessary. This include

- Anoscopy [proctoscopy] remains the mainstay in the detection of anal pathologies.
- sigmoidoscopy or colonoscopy with biopsy
- Contrast enema studies
- Ano-rectal physiology including electro-myography(EMG)
- Endoanal ultrasonography
- Anal manometry
- Defecography
- Fistulograms
- Magnetic resonance imaging (MRI)
- Computerized tomographic scanning

TREATMENT OF ANORECTAL CONDITIONS

Most cases can be treated by conservative medical treatment such as dietary manipulations, analgesics, antibiotics, Sitz baths, Stool softeners, haemorrhoidal creams and suppositories

or conservative non-surgical procedures. However surgery remains the definitive treatment in many instances. Below is a brief description of some common anorectal conditions, their presentation, investigations and management.

CONGENITAL DISEASES OF THE ANO-RECTUM

These arise as a result of disordered embryology. Most leads to neonatal intestinal obstruction. The two most common congenital anorectal conditions are Hirschsprung's disease and anorectal malformations.

Hirschsprung's disease: This is a congenital disorder characterized by a variable length of intestinal aganglionosis of the hindgut. The parasympathetic ganglion cells are absent in the Auberch's (inter-myenteric) and Meissner's (sub-mucosal) plexuses. The classical type is commoner in male M: F of 4:1. The cause is unknown but genetics and environmental factors may play a role.

Clinical Types include:

- Ultrashort – affects rectum below the peritoneal reflection
- Short segment – Classical type, limited to the rectosigmoid
- Long segment- a longer portion above the sigmoid colon is involved
- Total colonic aganglionosis – whole of colon including the appendix and a variable portion of the terminal ileum is involved
- Total intestinal aganglionosis – whole of the gastrointestinal tract is involved

Clinical Features

The presentation varies according to the age. In Neonates**:**

- Delay in passing meconium. **Any neonate that fails to pass meconium within 36hrs should be considered to have Hirschsprung's disease until proven otherwise.**
- Infrequent defeacation
- Progressive abdominal distension
- Bilious vomiting

Older Children:

- Chronic constipation
- Failure to thrive

There may be a family history of this and other associated malformations.

INVESTIGATIONS: This includes:

- Barium enema:- Transition zone between distal collapsed gut and proximal dilated gut
- Rectal biopsy (absence of ganglion in myenteric and submucosal plexus). This may be by rectal suction or full-thickness biopsy. Rectal biopsy result is the Gold standard.
- Manometric studies

Management: Initial resuscitation followed by a leveling colostomy

Definitive reconstruction using any of the standard procedure

- Swenson pull through
- Soave
- Duhamel

These procedures may also be accomplished primarily without colostomy. Laparoscopic assisted and trans-anal pull through are currently in vogue in some western countries.

Male Perineal fistula	**Female:** Perineal fistula
Recto-urethral fistula	Vestibular fistula
Recto-vesical fistula	Imperforate anus without fistula
Imperforate anus without fistula	Rectal atresia
Rectal atresia	Complex malformation including of the Cloaca

Table 1: Ano- Rectal Malformation

ANO- RECTAL MALFORMATION

Incidence is 1 in 4,000 – 5,000 newborns with a higher male predominance. A simple classification is as follows (see table 1):

Diagnosis is usually clinical.

No passage of meconium; Passage of faeces through the genito-urinary tract; Features of large intestinal obstruction; A bulge of an anal membrane; Flat perineum without anal dimple suggests an high anomaly; Other congenital anomalies should be looked for especially cardiac, gastrointestinal, skeletal and renal anomalies.

Investigations:

- Plain abdominal X-ray – features of intestinal obstruction
- Invertogram or lateral prone cross table X-ray to determine the distance between pouch and anal dimple
- IVU to rule out associated urinary abnormalities
- Abdominal ultrasound, CT and MRI may be necessary
- Echo cardiogram to rule out congenital heart lesion

Treatment

- Most cases are now treated with the Minimal, Limited or Full Posterior Sagittal Ano-rectoplasty (PSARP) depending on how high the rectal pouch is from the anal dimple.
- Preliminary colostomy is preferred in the high anomalies prior to definitive PSARP
- More complex anomalies requires more complex repairs

Complications

- Faecal incontinence
- Anal sternosis
- Mucosal prolapse

ACQUIRED CONDITIONS

Hemorrhoids:-

This is due to dilatation of superior and inferior rectal plexus of vein. Most likely close to 50% of the population develops hemorrhoids by the age of 50. **Predisposing factors** include heredity, age, sex, pregnancy, cathartic abuse, diarrhoea, constipation obesity and increase abdominal pressure.

Classification:

- Primary hemorrhoids located at 3, 7 & 11 O'clock
- Secondary (Satellite)
- - 1st Degree Hemorrhoids
- - 2nd degree Hemorrhoids
- - 3rd Degree Hemorrhoids
- Internal Hemorrhoids (above the dentate line) or external

Hemorrhoids typically presents with Passage of bright red blood, unmixed with stool, anal prolapsed on defecation, mucoid discharge and peri-anal Irritation**.** Symptoms may however be non-specific diagnosis only made on clinical examinations.

On examination, skin tags, associated anal fissure may be found. Prolapse may also be seen at areas of primary hemorrhoids on straining..

Investigation: PCV – may reveal anaemia

- Procto-sigmoidoscopy is mandatory
- Colonoscopy – may reveal associated colonic tumours.

Grades of haemorrhoids

I Bleeding and discomfort; Hemorrhoids visible on anoscopy, which may protrude during straining.

II Bleeding, discomfort, Discharge /pruritus; Prolapse visible at anal verge during straining with spontaneous return to normalcy when straining ends.

III Bleeding, discomfort, discharge/pruritus and Prolapse requiring manual replacement. staining of undergarments.

IV Bleeding, discomfort, discharge/pruritus and Irreducible prolapse.; staining of undergarments and pain.

Treatment can be Conservative and Operative measures.

CONSERVATIVE MEASURES

- Avoid constipation and catharsis
- Use of suppositories and rectal antiseptic ointments
- Anti-pruritic agents
- Adequate Local Hygiene

OPERATIVE METHODS

Sclerotherapy – 5% phenol in almond oil; Rubber band ligation; Cryo-surgery; Infrared coagulation; Doppler guided hemorrhoidal artery ligation [DGHAL]; Radiofrequency ablation; Heater probe; Haemorrhoidectomy for 3rd degree or failure of non-operative methods. This may be by conventional method or by STAPLED HEMORRHOIDOPEXY.

TUMOURS OF ANORECTAL REGION are either benign or malignant

A. Benign
   - Epithelial origin: Adenoma and Polyposis
   - Connective tissue origin: Leiomyoma , Lipoma and Neurofidroma
   - Vascular: Haemangioma

B. Malignant
   - Epithelial origin: Carcinoma; Carcinoid tumour; Malignant melanoma
   - Connective tissue origin: Leiomyosarcoma; Fibrosarcoma
   - Vascular: Lymphoma

MALIGNANT TUMORS OF THE ANO-RECTUM

This is the third commonest malignant neoplasm. Early diagnosis is of utmost importance as the disease is curable if diagnosed early. Predisposing factors include pre-cancerous conditions such as

Adenoma, Familal adenomatous polyposis [FAPs], Ulcerative colitis, Crohn's disease, Hereditary non-polyposis coli, Lynch syndrome I , Lynch syndrome II, Diet – Saturated fat, Low fiber diet.

PATHOLOGICAL TYPE

- cauliflower, ulcerating, annular or scirrhous, tubular

SPREAD BY

- Direct infiltration, Lymphatics, Haematogeneous and Transperitoneal mode.

GRADING

Different staging methods are used

- Dukes classification
- Aster- Coller modification of Dukes
- T.N.M. Staging

CLINICAL FEATURES

Haematochezia, Spurious diarrhea, Constipation alternating with diarrhea, Tenesmus, Abdominal Distension, Associated haemorrhoid, Sacral or sciatic pain due to involvement of sacral plexus, Fistula formations e.g. Recto-vaginal fistula or Recto-vesical fistula.

Examination will reveal features of chronic large intestinal obstruction. Ascites may be present as well as jaundice and hepatomegaly which suggest metastasis.

Most rectal carcinoma are palpable by digital rectal examination. A r*ectal examination is mandatory in any patient with rectal bleeding.*

INVESTIGATIONS

Barium enema especially double contrast; Recto-sigmoidoscopy with biopsy; Colonoscopy to rule out synchronous tumours; rectal endo-sonography; CT scan or IVU.

TREATMENT

- Preoperative – bowel preparation
- General measure – anaemia corrected CVS, RS assessed

DEFINITIVE TREATMENT

Options include Neo-adjuvant radiotherapy, Neo-adjuvant chemotherapy, Abdomino – perineal resection + colostomy, Splinter saving resection, Anterior resection, Adjuvant radiotherapy, Adjuvant chemotherapy

PALLIATIVE TREATMENT

Hartman operation; Diathermy fulguration/Nd YAG Laser; Colostomy

POLYPS are Neoplastic; Hamartomatous polyps**;** Inflammatory polyps and Hyperplastic polyps

The commonest type is the adenomatous polyp, which may be scattered throughout the colon. A child presenting with bleeding per the rectum and the protrusion of 'something' from the anus may have a juvenile rectal polyp, which needs colonoscopy, biopsy and removal. Occasionally, fibrous anal polyps may be found in association with anal fissures or hemorrhoids. These also have to be removed.

CLINICAL FEATURES

Rectal bleeding usually bright red in colour, Mucosa diarrhoea, Colicky abdominal pain, Rectal prolapsed e.t.c

INVESTIGATIONS

- Proctosigmoidoscopy, Biopsy and Colonoscopy

TREATMENT

- Diathermy excision
- Resection anastomosis for malignant adenoma or with malignant potential.
- Patients with familial polyposis and other premalignant lesions requires long term follow-up

Other uncommon conditions include

Sacro-coccygeal pilonidal sinus disease; Condylomas; Connective tissue masses such as papilloma, fibroma and lipoma; Inflammatory conditions [Proctitis, anal cryptitis and papillitis]; Inflammatory bowel disorders [Ulcerative colitis and Crohn's disease]; Hypertrophied anal papillae; Strictures of anal canal or rectum.

CONCLUSION

Diseases of the ano-rectum form a wide spectrum. While many are common in the general population others are less common. The essential requirements for diagnosis include knowledge of anatomy, detailed history and physical examination especially ano-rectal inspection and digital examination. Ancillary investigations may be required for proper evaluation and management.

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