STOMAS

Stoma is a Greek word meaning ‘mouth’ or ‘opening’. Depending upon the clinical situation, stoma may be end on or a loop, temporary or permanent.

Colostomy:

A colostomy is an artificial opening made in the large bowel to divert faeces and flatus to the exterior, where it can be collected in an external appliance (Fig. 1A,B).

Temporary colostomy: A transverse loop colostomy has in the past been most commonly used to defunction an anastomosis after an anterior resection. It is now less commonly employed as it is fraught with complications and is difficult to manage; a loop ileostomy is preferred.

Figure 1A loop colostomy

A loop left iliac fossa colostomy is still sometimes used to prevent faecal peritonitis developing following traumatic injury to the rectum, to facilitate the operative treatment of a high fistulain-ano and incontinence. A temporary loop colostomy is made, bringing a loop of colon to the surface, where it is held in place by a plastic bridge passed through the mesentery. Once the abdomen has been closed, the colostomy is opened, and the edges of the colonic incision are sutured to the adjacent skin margin. When firm adhesion of the colostomy to the abdominal wall has taken place, the bridge can be removed after 7 days

Figure 1B colostomy appliance

Following the surgical cure or healing of the distal lesion for which the temporary stoma was constructed, the colostomy can be closed. It is usual to perform a contrast examination (distal loopogram) to check that there is no distal obstruction or continuing problem at the site of previous surgery. Colostomy closure is most easily and safely accomplished if the stoma is mature, i.e. after the colostomy has been established for 2 months. Closure is usually performed by an intraperitoneal technique, which is associated with fewer closure breakdowns with faecal fistulae.

Double-barrelled colostomy: This colostomy was designed so that it could be closed by crushing the intervening 'spur' using an enterotome or a stapling device. It is rarely used now, but occasionally the colon is divided so that both ends can be brought to the surface separately, ensuring that the distal segment is completely defunctioned. (Fig. 2)

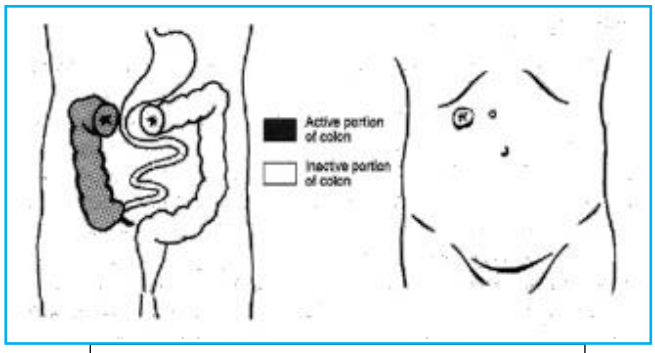

Figure 2 Double-barrelled colostomy

Permanent colostomy: This is usually formed after excision of the rectum for a carcinoma by the abdominoperineal technique. It is formed by bringing the distal end (end-colostomy) of the divided colon to the surface in the left iliac fossa, where it is sutured in place, joining the colonic margin to the surrounding skin (Fig. 3).The point at which the colon is brought to the surface must be carefully selected to allow a colostomy bag to be applied without impinging on the bony prominence of the anterosuperior iliac spine. The best site is usually through the lateral edge of the rectus sheath, 6cm above and medial to the bony prominence (Fig. 4). Closure of the lateral spac e between the intraperitoneal segment of the sigmoid colon and the peritoneum

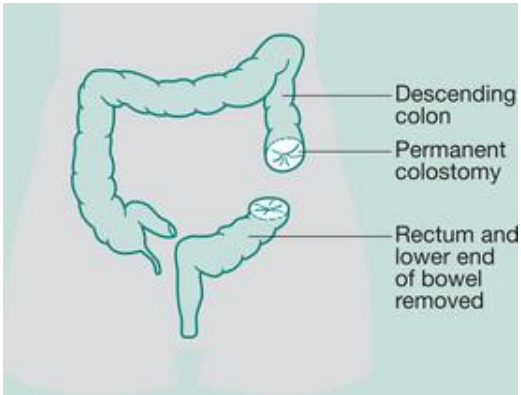

Figure 3: Permanent end colostomy

of the pelvic wall, to prevent internal herniation or strangulation of loops of small bowel through the deficiency, has been practised, but there is no good evidence that it is effective.

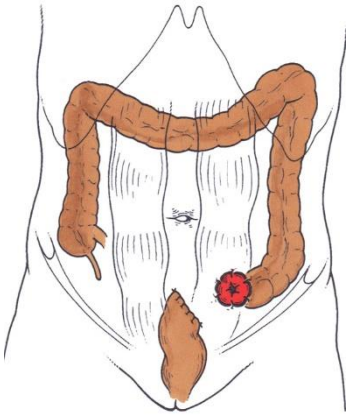

Figure 4: Site of colostomy

Colostomy bags and appliances

(Fig. 5) Faeces from a permanent colostomy are collected in disposable adhesive bags. A wide range of such bags is currently available.

Many now incorporate a stomahesive backing, which can be left in place for several days. In most hospitals, a stoma care service is available to offer advice to patients, to acquaint them with the latest appliances and to provide the appropriate psychological and practical help.

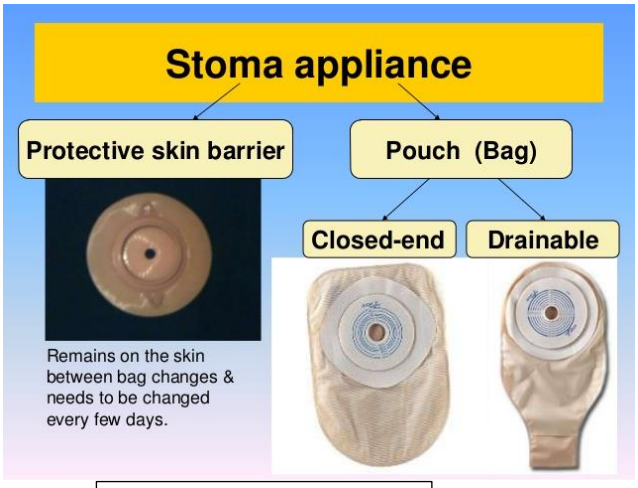

Figure 5: Colostomy bag

Complications of colostomies

The following complications can occur to any colostomy but are more common after poor technique or siting of the stoma:

- Prolapse;
- Retraction;
- Necrosis of the distal end;
- fistula formation;
- Stenosis of the orifice;
- Colostomy hernia;
- bleeding (usually from granulomas around the margin of the colostomy);
- Colostomy 'diarrhoea': this is usually an infective enteritis and will respond to oral metronidazole 200 mg three times daily. Many of these complications require revision of the colostomy. Sometimes, this can be achieved with an incision immediately around the stoma but, on occasion, reopening the abdomen and freeing up the colostomy may be necessary. Occasionally, transfer to the opposite side of the abdomen may be necessary.

Temporary ileostomy

A loop ileostomy (Fig.6) is now often used as an alternative to colostomy, particularly for defunctioning a low rectal anastomosis. The creation of a loop ileostomy from a knuckle of terminal ileum has already been described. The advantages of a loop ileostomy over a loop colostomy are the ease with which the bowel can be brought to the surface and the absence of odour. Care is needed, when the ileostomy is closed, that suture line obstruction does not occur.

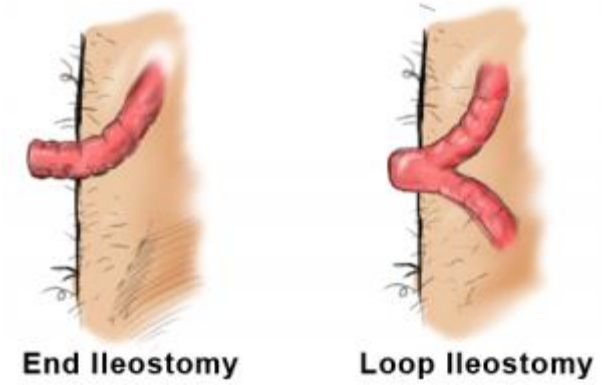

Figure 6: ilestomy

Permanent ileostomy

(Fig. 7A,B)Is used in patients after total proctocolectomy or in patients with obstruction. End ileostomy is the preferred configuration for a permanent ileostomy because a symmetric protruding nipple can be fashioned more easily than with loop ileostomy.

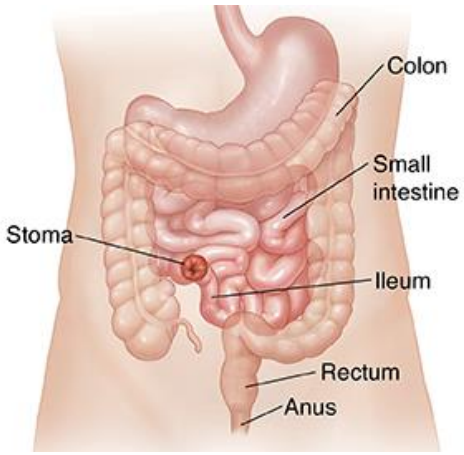

Figure 7A: End Ileostomy

Figure 7B: End ileostomy

Complications of ileostomy

- Stoma necrosis
- Dehydration with fluid and electrolytes abnormalities. Ideally, ileostomy output should be maintained at less than 1500ml/day.
- Skin irritation
- Obstruction can occur
- Parastomal hernia
- Prolapse

Caecostomy

This is rarely used now. In desperately ill patients with advanced obstruction, a caecostomy may be useful. In late cases of obstruction, the caecum may become so distended and ischaemic that rupture of the caecal wall may be anticipated. This can occur spontaneously, giving rise to faecal peritonitis, or at operation, when an incision in the abdominal wall reduces its supportive role and allows the caecum to expand. In such a situation, it should be decompressed by suction as soon as the abdomen is opened. In thin patients, it may then be possible to carry out direct suture of the incised

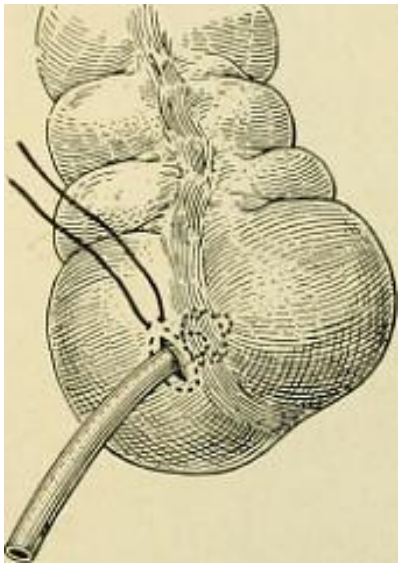

Figure 8: Tube caecostomy

or perforated caecal wall to the abdominal skin of the right iliac fossa, although a resection of this area is really the best treatment. Following on-table lavage, via the appendix stump, the irrigating catheter can be left in place as a tube caecostomy (Fig. 8). Caecostomy is only a short-term measure to allow a few days for the condition of the patient to improve. Reoperation should normally follow soon thereafter and a definitive procedure should be carried out.

INFECTIONS

Tuberculosis of the intestine

Tuberculosis can affect any part of the gastrointestinal tract from the mouth to the anus. The sites affected most often are the ileum, proximal colon and peritoneum. ***There are two principal types.***

Ulcerative tuberculosis

Ulcerative tuberculosis is secondary to pulmonary tuberculosis and arises as a result of swallowing tubercle bacilli. There are multiple ulcers in the terminal ileum, lying transversely (Fig.8), and the overlying serosa is thickened, reddened and covered in tubercles.

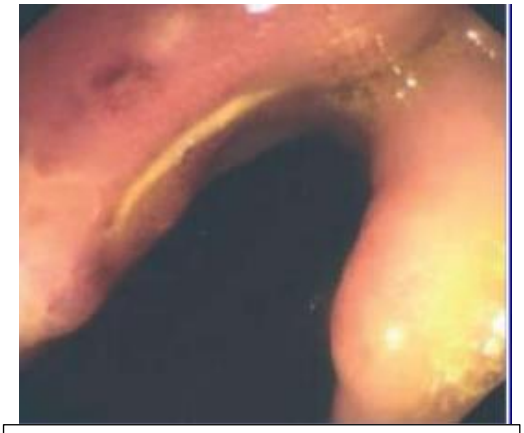

Figure 8: Circumferentially oriented intestinal TB ulcer with erythematous surrounding mucosa

Clinical features

Diarrhoea and weight loss are the predominant symptoms, and the patient will usually be receiving treatment for pulmonary tuberculosis.

Radiology A barium meal and follow-through or small bowel enema will show the absence of filling of the lower ileum, caecum and most of the ascending colon as a result of narrowing and hypermotility of the ulcerated segment (Fig.9).

Treatment A course of chemotherapy is given. Healing often occurs provided the pulmonary tuberculosis is

Figure 9: Barium enema in intestinal TB

adequately treated. An operation is only required in the rare event of a perforation or intestinal obstruction.

Hyperplastic tuberculosis this usually occurs in the ileocaecal region (Fig.10), although solitary and multiple lesions in the lower ileum are sometimes seen. This is caused by the ingestion of Mycobacterium tuberculosis by patients with a high resistance to the organism. The infection establishes itself in lymphoid follicles, and the resulting chronic inflammation causes thickening of the intestinal wall and narrowing of the lumen (Fig. 11).

- Most common site of abdominal tuberculosis due to:
  - Stasis
  - Abundant payer's patches
  - Alkaline media
  - Bacterial contact time is more
  - Minimal digestive activity
  - Maximum absorption in the area

Figure 10: Causes of ilecaecal TB

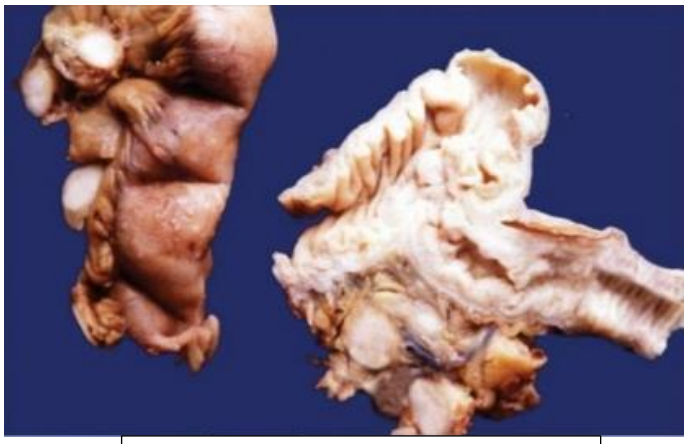

Figure 11: Hyperplastic ileocaecal TB

There is early involvement of the regional lymph nodes, which may caseate. Unlike CD, with which it shares many similarities, abscess and fistula formation is rare.

Clinical features Attacks of abdominal pain with intermittent diarrhoea are the usual symptoms. The ileum above the partial obstruction is distended, and the stasis and consequent infection lead to steatorrhoea, anaemia and loss of weight. Sometimes, the presenting picture is of *a mass in the right iliac fossa in a patent with vague ill health*.

The differential diagnosis is that of

- appendix mass,
- carcinoma of the caecum,
- CD, tuberculosis or actinomycosis of the caecum.

Radiology

A barium follow-through or small bowel enema will show a long narrow filling defect in the terminal ileum (Fig.12).

Treatment

When the diagnosis is certain and the patient has not yet developed obstructive symptoms, treatment with chemotherapy is advised and may cure the condition. Where obstruction is present, operative treatment is required and ileocaecal resection is best.

Figure 12: Ileocaecal TB, showing shrunken caecum (straight arrow) and narrowing of terminal ileum (curved arrow)

Actinomycosis of the ileocaecal region

Abdominal actinomycosis is rare condition (Fig.13) caused by infection with anaerobic gram +ve branching filmanetous fungal like bacterium **Actionmycosis israeli**. unlike intestinal tuberculosis, narrowing of the lumen of the intestine does not occur and mesenteric nodes do not become involved. However, a local abscess spreads to the retroperitoneal tissues and the adjacent abdominal wall, becoming the seat of multiple indurated discharging sinuses. The liver may become involved via the portal vein.

Clinical features The usual history is that appendicectomy has been carried out for an appendicitis. Some 3 weeks after surgery,s

Figure 13: Actinomycosis of the ileocaecal region

a mass is palpable in the right iliac fossa and, soon afterwards, the wound begins to discharge. At first, the discharge is thin and watery, but later it becomes thicker and malodorous. Other sinuses may form and a secondary faecal fistula may develop. Pus should be sent for bacteriological examination, which will reveal the characteristic sulphur granules.

Treatment Penicillin or cotrimoxazole treatment should be prolonged and in high dosage.

Enterocutaneous or faecal fistula

An external fistula communicating with the caecum sometimes follows an operation for gangrenous appendicitis or the draining of an appendix abscess. A faecal fistula can occur from necrosis of a gangrenous patch of intestine after the relief of a strangulated hernia, or from a leak from an intestinal anastomosis (Fig. 14). The opening of an abscess connected with chronic diverticulitis or carcinoma of the colon frequently results in a faecal fistula. Radiation damage is also another cause of fistula formation. The most common cause of enterocutaneous fistula is, however, previous surgery. This happens most often in patients with adhesions following previous operations. Damage to the small intestine occurs inadvertently during dissection of the adhesions and, because of an associated subacute obstruction or abscess, the fistula 'blows' postoperatively.

Figure 14: Enterocutaneuos fistula

Enterocutaneous fistulae can be divided into:

- those with a high output, more than 1 litre day
- those with a low output, less than 1 litre day.

They can also be described anatomically as simple, with a direct communication between the gut and the skin, or complex, i.e. those with one or more tracts that are tortuous and sometimes associated with an intervening abscess cavity half way along the tract. The discharge from a fistula connected with the duodenum or jejunum is bile-stained and causes severe excoriation of the skin. When the ileum

or caecum is involved, the discharge is fluid faecal matter; when the distal colon is the affected site, it is solid or semisolid faecal matter. The site of leakage and the length of the fistula can be determined by small bowel enema and barium enema, by fistulography and, most importantly, by CT of the abdomen will show up any associated abscesses (Fig.15).

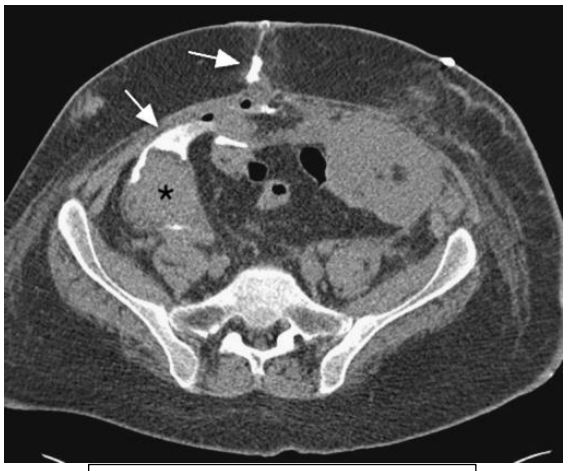

Figure 15: CT Fistulogram

Treatment

This can be very challenging in patients with a high-output fistula. Low-output fistulae can be expected to heal spontaneously, provided there is no distal obstruction.

Reasons for failure of spontaneous healing also include:

• epithelial continuity between the gut and the skin;

• the presence of active disease where, for example, there is CD or carcinoma at the site of the anastomosis or in the tract;

• an associated complex abscess.

The abdominal wall must be protected from erosion by the use of appliances. The patient must remain nil by mouth; intravenous nutrition is started and signs of a decrease in fistula output are sought. The higher the fistula in the intestinal tract, the more skin excoriation must be expected, and this is worst in the case of a duodenal fistula. High-output fistulae cause rapid dehydration and hypoproteinaemia. Vigorous fluid replacement and nutritional support are essential. The drainage of an intra-abdominal abscess can be life-saving. This can be achieved by either CT-guided drainage or, occasionally, laparotomy. In patients with a complex fistula, it may be necessary to bring out a defunctioning stoma upstream of the fistula site, even if this results in a high-output stoma.

Operative treatment Operative repair should be attempted only after a trial of conservative management. The surgery can on occasion be extremely technically

demanding, and an anastomosis should not be fashioned in the presence of continuing intra-abdominal sepsis or when the patient is hypoproteinaemic.