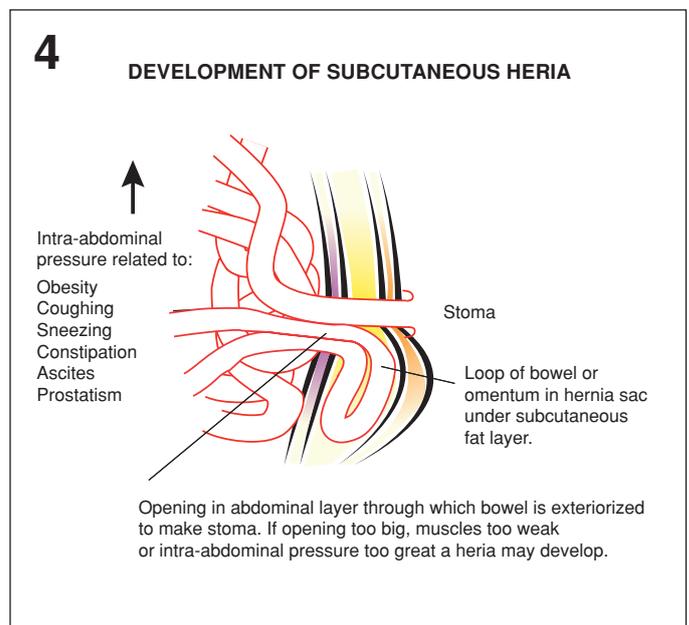
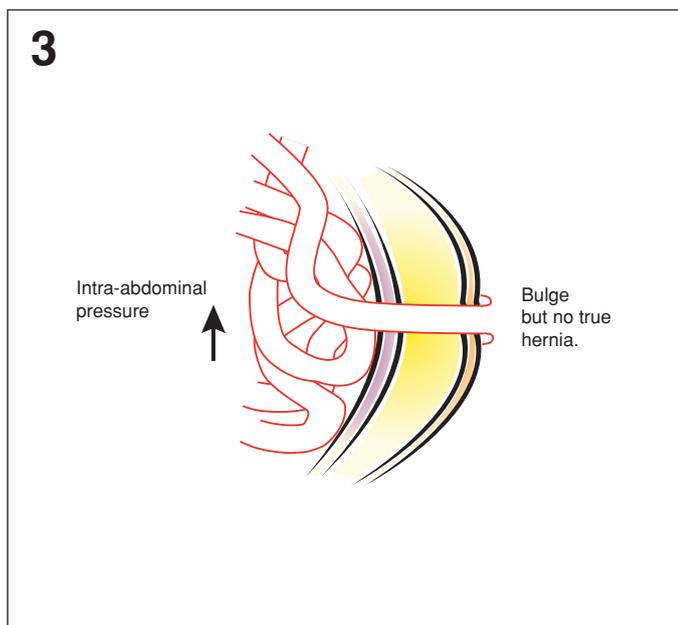
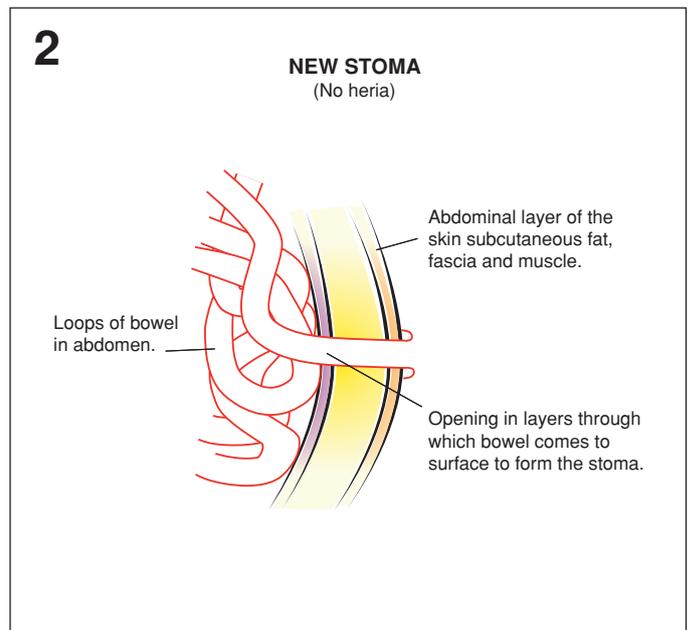
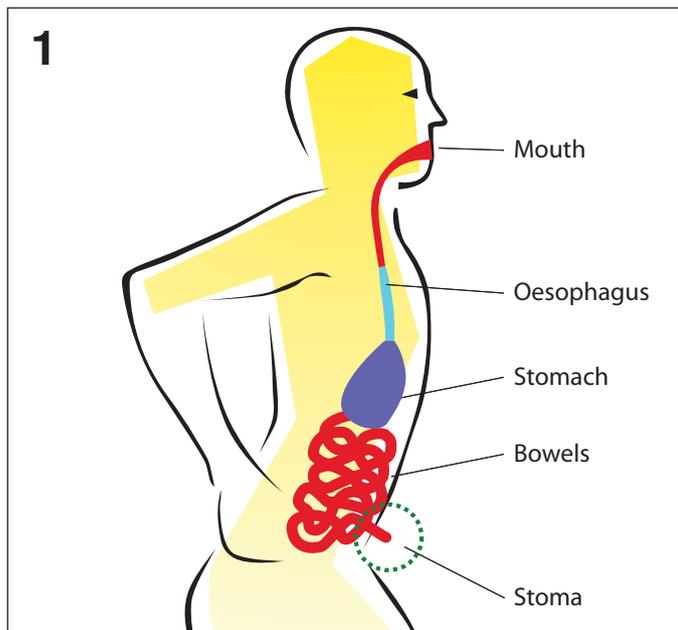


A summary on parastomal hernias

Julia M Thompson RN PhD

DEFINITION: Abdominal wall hernias occur when tissue structure and function are lost at the load-bearing muscle, tendon and fascial layer (Franz, 2008). During stoma creation an opening is made to allow the intestine to be advanced to the skin and, if this defect enlarges, a parastomal hernia can develop. It is a type of incisional hernia (Pearl, 1989) and 67.8% of incisional hernias develop within 1 year of surgery (Akman, 1962). Contents of hernia sac may include omentum, small bowel, stomach or colon. (Diagrams 1,2,3,4)



THE INCIDENCE is high but data vary due to non-standardization of methods. Carne et al's (2003) meta-analysis concluded that parastomal hernia affects:

4.0 - 48.1% end colostomies

0 - 30.8% loop colostomy

1.8 - 28.3 % end ileostomies

0 - 6.2% loop ileostomies

A review of 16,470 on the American United Ostomy Association Register revealed 30% incidence over all types of stomas. (Gray et al, 2005)

SUBTYPES OF PARASTOMAL HERNIAS (Devlin, 1983)

SUBCUTANEOUS: hernia sac lies in the subcutaneous plane (Diagram 4)

INTRASTOMAL: hernia sac penetrates into a spout ileostomy (Diagram 5)

INTERSTITIAL: hernia sac lies within layers of abdominal wall (Diagram 6)

Although no data on relative numbers, this classification assists with description of hernias detected on CT.

DIAGNOSIS

Clinical examination

Digitally examine the stoma with the patient standing and performing Valsalva's manoeuvre. If hernia is present, this will reveal an enlarged fascial ring and inability to maintain increased intraperitoneal pressure during the manoeuvre (Franz 2008). When standing upright the hernia is more prominent but when supine it will usually reduce.

Symptoms

Most are an asymptomatic swelling / bulge near to or around the stoma. Some cause mild discomfort or a dull ache or dragging / heavy sensation which may restrict activity. Some are associated with nausea related to stretching of bowel mesentery as it protrudes through the defect (Shell et al 2008). The natural history is gradual enlargement of the hernia and stoma aperture (Rubin and Bailey, 1993 cited in Kane et al, 2004). Changing stoma size, shape and parastomal contours may require changing appliances to one with increased adhesive area or added tapes or borders (eg. hydroframes) and / or a more flexible baseplate. Seals or paste may be needed as the parastomal area alternates between stretching and relaxing while the patient changes position and the hernia changes size. Anxiety, distress and psychological problems can arise from rapidly changing body image, embarrassment, resentment and even fear that the bulge could be a tumour (Thompson and Jack, 1994).

Subclinical hernia If history suggests a hernia but it cannot be proven clinically, organize a CT scan with oral contrast or an upper GIT x-ray such as small bowel series or retrograde contrast study to visualize the loops of bowel.

POSSIBLE COMPLICATIONS

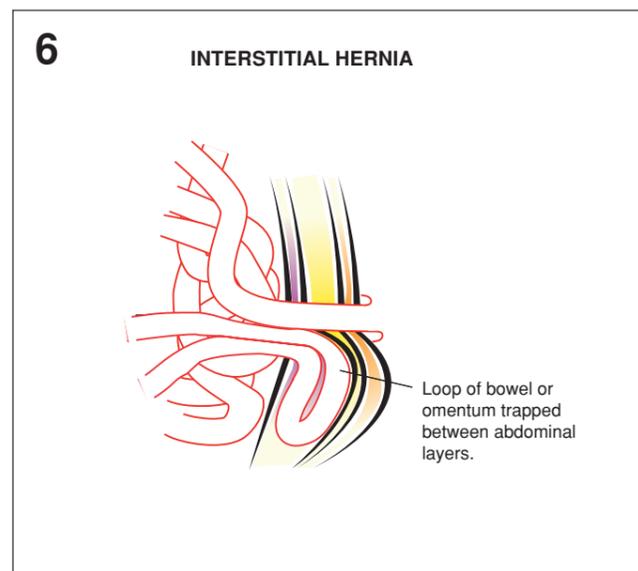
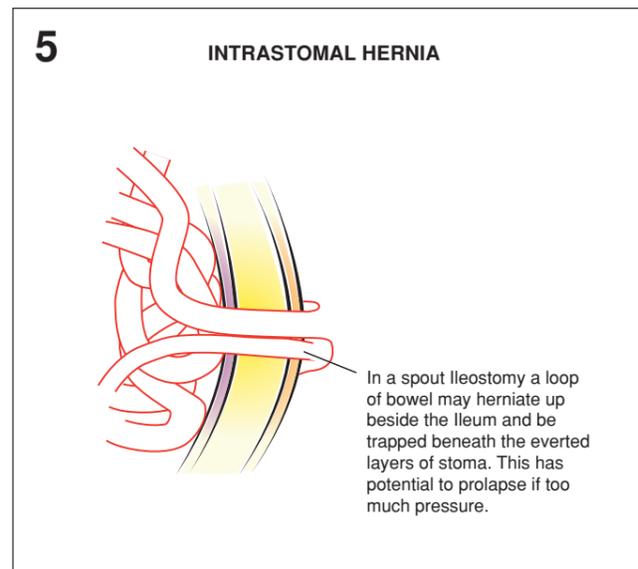
Intermittent obstruction with bowel inactive during periods of physical activity and then stoma works when person is resting (Gray et al, 2005).

As the overlying skin is stretched, the subcutaneous tissue atrophies and the skin at the apex becomes ischaemic and susceptible to ulceration and infection (Shell et al 2008). This is compounded by leaking appliances.

Incarceration - intestine is trapped in the hernia sac.

Strangulation - trapped intestine becomes twisted and its blood supply cut off or twisted around adhesions at lateral margins of hernia sac (Shell et al 2008).

Perforated bowel - due to pressure build up proximal to obstruction.



Ineffective irrigation. Also, fluid trapped in the hernia sac may cause perforation.

Back pain - due to failure of abdominal wall muscles to counter balance back muscles and help maintain posture (Shell et al 2008). Pain is alleviated when the hernia is repaired.

Respiratory problems may be exacerbated. As the hernia defect widens the diaphragm loses synergy with the abdominal wall (Shell et al 2008) compromising expulsive functions such as in coughing and micturition.

RISK FACTORS may be intrinsic or extrinsic and include:
Genetically determined abnormal collagen metabolism (Franz 2008).

Acquired collagen defects are ascribed to cigarette smoking or nutritional deficiencies (Franz 2008) including obesity and people with malignancies.

Age McGrath et al (2006) cite a prospective review over 22 years by Londono-Schimmer et al (1994) who found hernias more likely in elderly and Mylonakis et al (2001) who that found 22% > 60 years old developed hernias compared with 4.8% in those < 60 years old. This may be related to thinning of rectus abdominus and increasing subcutaneous fat (Kanehisa et al 2004 also cited in McGrath et al 2006).

Wound infection Bucknall (1983) demonstrated a link between infection and incisional hernias and Ahrendt (1996) showed that sepsis inhibits collagen synthesis and decreases fibroblast concentration thus contributing to tissue degeneration. Wound failure can also be related to **corticosteroids** and **malignancy**.

Obesity

Obesity predisposes infection. Avascularity decreases oxygen, impeding phagocytosis by neutrophils (McGrath et al, 2006). In obese people abdominal surgery takes longer increasing exposure to contaminants. There is increased tension on fascial edges at time of wound closure and increased risk of fluid collections in adipose tissue further adds to this increased tension (Baker, 2006). Using engineering theory, De Ruiter and Bijnen (cited in Carne et al, 2003) concluded that obese patients (large abdominal wall radius) with large openings (loop stomas and colostomies) should theoretically be a higher risk of hernias.

Smoking With other factors held constant, smokers have a four-fold higher risk of developing incisional hernias. Animal studies show nicotine inhibits cell repair and smoking inhibits synthesis of subcutaneous collagen. Long term smoking cessation studies are needed to determine whether smoking cessation may reduce incisional herniation (Sorensen et al 2005)

Remember ... abdominal wall hernias occur when tissue structure and function are lost at the load-bearing muscle, tendon and fascial layer. Raised pressure can contribute to this failure. .

Raised intra abdominal pressure as in **COAD, prostatism, chronic constipation, ascites.**

Mechanical strain like coughing and weight-lifting, can induce secondary changes in tissue fibroblast function within load-bearing tissues and chronic loading induces pathologic changes in structural tissue cellular and molecular function (Franz, 2008).

Emergency surgery is proposed as a factor by some but McGrath, Porrett and Heyman (2006) found it is not supported by Del Pino et al's (1997) prospective study over 19 years where 59% of the 1758 stomas were emergencies (peritonitis/obstructions/haemorrhage) but only 3% had hernias.

Location of the stoma (Sjodahl et al 1988) found that stomas should be through the rectus abdominus muscle and not lateral to it. However Carne et al's (2003) systematic review found that the incidence of hernias was not affected by:
- the location of the stoma (whether through or lateral to rectus abdominus)
- trephine size (surgical opening).
- fascial fixation (fixation to abdominal wall)
- closure of lateral space

Gray et al's (2005) review concluded available data does not support relationship between hernia and:

- location of abdominal wall trephine since series too small and no randomized.
- stoma created using intraperitoneal or extraperitoneal technique
- preoperative consultation /siting by stomal therapy nurse.

Previous hernia repair

Secondary fascial pathology occurs when fascial planes are replaced with scar tissue (Franz 2008). Newer techniques and introduction of synthetic prosthetic mesh materials have reduced recurrence rates (mesh implantation appear best) to about 22% and other complications (strictures and infection) to 20% (Reiger et al 2004), but repairing a hernia may increase incidence of other complications as well as exposing the patient to the many general hazards of another anaesthetic and surgical procedure.

MANAGEMENT

The best treatment for parastomal hernia is to remove the stoma, but then risks hernia in old stoma site.

Most hernias can be managed conservatively – using support device, exercises and education.

Surgical repair has a high recurrence rate and is generally avoided.

Indications for surgery include: obstruction ; strangulation; extreme difficulty gaining a seal.

Relative indications are – recurrent pain and cosmesis.

Surgical treatments

Local tissue repair - reported recurrence 46-100% but small numbers in studies.

Stoma relocation - better than local repair and better when stoma moved to other side of abdomen.

Repair with mesh - various methods include intraperitoneal – limited series published with reasonable results but no long term results concerning complications.

preperitoneal - ie in plane between rectus muscle and posterior fascia/peritoneum – very small series, good repair but reports of complications.

fascial overlay mesh repair - commonest method, reasonable results. Infection not common but may require removal of mesh.

Laparoscopic repair - few published papers, usually single cases – no reports of recurrences but follow up is short.

For full review of mesh repair techniques see Israelsson (2008)

Surgical prevention

The only randomized study to demonstrate reduced incidence of hernias is one in which “a large-pore mesh with a reduced polypropylene content and a high proportion of absorbable material placed in a sublay position at the primary operation”, but no long term follow up yet (Israelsson, 2008).

NON-SURGICAL PREVENTION

Thompson and Trainor (2005) examined 2 groups for incidence of parastomal hernia development.

1. Retrospective study of those with a stoma formed 1.8.01 – 31-7-02

2. Prospective study 1.8.02 – 31.7.03 These received discharge instructions not to lift heavy objects, and at 3 months were instructed about abdominal exercises and encouraged to wear support belts or girdles when lifting.

Results: Incidence of hernias in group 1 = 33% but in group 2 = 15% and 56% had developed their parastomal hernias within 6 months of surgery.

What nursing interventions are effective for managing peristomal hernia?

Gray et al's (2005) review concluded:

No proper studies – just expert opinion and clinical experience about:

Changes in pouching system

Patient education about obstruction and incarceration and to seek medical attention if stoma changes color or severe unremitting pain

Schedule regular follow up visits so STN can monitor progress of hernia

If irrigating and there is any difficulty in introducing fluid or prolonged or incomplete evacuation, then ought to stop procedure.

