It has been estimated that 20-30% of Singaporeans will develop symptomatic haemorrhoids in their lifetime. Haemorrhoids can be classified as internal or external. Internal haemorrhoids are located above the dentate line (insensate area) whereas external haemorrhoids are those below the dentate line and covered by squamous epithelium containing sensory nerve endings. Treatment options depend on symptom severity and the degree of prolapse.

Anatomy
Haemorrhoids are part of normal anorectal anatomy. They are fibrovascular cushions located in the submucosa of the anal canal, classically described in the left lateral, right posterior and right anterior positions (3, 7 and 11 o’clock). These cushions fill up with blood during straining, coughing or sneezing. As a result, the anal canal is closed, thus preventing stool leakage. Fifteen to 20% of anal resting pressure is contributed by hemorrhoids in this way. The mucosa overlying the hemorrhoids conveys sensory impulses to enable discrimination between stool, liquid and gas. In social settings, this sensory information is important in maintaining continence.

Clinical Assessment
Hemorrhoidal symptoms include bleeding, prolapse, pruritus, soiling and thrombosis. Traditionally, bleeding from hemorrhoids manifests as painless bright red blood dripping into the toilet bowl or blood noticed on the tissue paper. It must be cautioned that colorectal neoplasia may coexist with hemorrhoids and a colon evaluation may be needed even when the bleeding is thought to be "typical" of hemorrhoids.

Prolapse occurs during straining due to increased intra-abdominal pressure. This may reduce spontaneously, require manual reduction or become permanently prolapsed over time. Pruritus and soiling may result from the persistent discharge. Hemorrhoids are classified based on the degree of prolapse (see Table 1). This classification is a useful guide to treatment selection.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bleeding; no prolapse</td>
</tr>
<tr>
<td>2</td>
<td>Prolapse with straining and spontaneous reduction</td>
</tr>
<tr>
<td>3</td>
<td>Prolapse with straining and requires manual reduction</td>
</tr>
<tr>
<td>4</td>
<td>Chronically prolapsed; irreducible</td>
</tr>
</tbody>
</table>
Hemorrhoidal symptoms may overlap with other medical conditions such as colorectal cancer, ischemic bowel disease, diverticular disease and colitides. A proper clinical assessment must include detailed characterization of the presenting symptoms, documentation of the patient’s bowel habits, any family history of colorectal cancer and a digital rectal examination and proctoscopy. Even in young patients with no evident risk factors, a differential diagnosis of colorectal cancer has to be entertained, particularly if the bleeding is not typical of hemorrhoids or when there is no response to initial medical treatment.

**Treatment for Haemorrhoids**

**Conservative management**

The main tools of conservative management of piles are dietary management and lifestyle modification. Dietary management consists of sufficient fluid and fibre intake. A Cochrane Review showed that fibre and adequate fluid intake are effective treatment options for bleeding haemorrhoids with lesser degrees of prolapse (Grades 1 and 2) but non-effective if used alone with Grades 3 and 4 haemorrhoids.

Oral flavonoids derived from citrus fruits are widely used in treatment of haemorrhoids. Randomized controlled trials showed that they compared favorably with other treatment modalities, including rubber band ligation, in the management of bleeding Grades 1 and 2 haemorrhoids. Oral flavonoids are safe for use in third-trimester pregnancies for short-term treatment of haemorrhoids.

Topical creams and suppositories are ubiquitous and may help alleviate local symptoms of pain and itch. However, there is still no clinical evidence to support their use. Prolonged usage should be eschewed due to their steroid content.

Lifestyle modification measures like regular exercise and avoidance of spending a long time on the commode will also help in symptom relief.

**Minor outpatient procedures**

Patients with refractory Grades 1, 2 and 3 haemorrhoids would be suitable for minor outpatient procedures. Rubber band ligation is the most commonly performed procedure. Other options commonly used include sclerotherapy, infrared coagulation and Doppler-guided haemorrhoidal dearterialisation.

1. **Rubber band ligation**

One or more hemorrhoids (up to 3) may be banded at each session. If the bands are placed above the dentate line, the procedure is relatively painless though post-procedural urgency may occur. The tissue that had been encircled would become ischemic and slough off after 7-10 days, resulting in an ulcer. Success rates range from 65 to 80%, depending on length of follow-up. In a meta-analysis by MacRae, band ligation was found to have the lowest recurrence rate but...
associated with more pain than sclerotherapy and infrared coagulation. Perianal sepsis is a rare and potentially fatal complication. A triad of fever, dysuria and significant pain should prompt immediate treatment with broad-spectrum antibiotics and examination under anaesthesia.

2. Sclerotherapy
In sclerotherapy, a sclerosant is injected submucosally into the apex of the haemorrhoid. It is less painful than band ligation and easy to perform but is less widely used because of a higher failure rate.

3. Infrared coagulation
Infrared coagulation involves direct application of infrared energy to haemorrhoids to induce protein necrosis. In the author’s practice, the probe is applied for 2 seconds in contact with the tissues and may be repeated 2-3 times on each haemorrhoid. It is useful for small bleeding hemorrhoids (Grades 1 and 2) but not effective for those with significant prolapse.

4. Doppler-guided Transanal Haemorrhoidal Dearterialisation (THD)
This was first introduced by Morinaga in 1995. A specially-designed proctoscope housing a Doppler identifies the 6 terminal branches of the superior rectal artery and enables the surgeon to suture-ligate them (dearterialisation). Success rates in case series were reported as high as 90% for Grade 3 haemorrhoids. In a small randomized study of 41 patients comparing THD with stapled haemorrhoidectomy for Grades 3 and 4 haemorrhoids, short-term morbidity and success rates were comparable. Postoperative pain was significantly less after THD. Larger comparative studies with longer follow-up would be needed for critical appraisal of this technique.

Surgical Treatment
In the same meta-analysis by MacRae, surgical haemorrhoidectomy is the most effective treatment for haemorrhoids, particularly those with substantial prolapse. However, it has the most postoperative pain and morbidity. For this reason, nonsurgical options should be offered first. Indications for surgery include failure of minor outpatient procedures, large external haemorrhoids and those with substantial prolapse.

1. Excisional haemorrhoidectomy
Excisional haemorrhoidectomy can be performed using open (Milligan-Morgan) or closed (Ferguson) techniques, the difference being that the wounds in the former are left open in a clover-leaf pattern to heal in 4-8 weeks whereas the wounds are closed primarily in the latter. Randomised studies comparing these 2 techniques showed no difference in postoperative pain and complications. Open or closed haemorrhoidectomy with scalpel, scissors, monopolar diathermy, laser, harmonic scalpel or bipolar diathermy did not show any clear superiority of any one option. Complications of haemorrhoidectomy include urinary retention, bleeding and anal stenosis.

For thrombosed external haemorrhoids, treatment options are observation or excision. Individuals who present with symptoms fewer than 48-72 hours should undergo excision under local or general anaesthesia. Incision and clot evacuation must be avoided. Thrombosis present for more than 72 hours can be treated conservatively with sitz baths and oral medications for analgesia and to avoid constipation.

2. Stapled haemorrhoidectomy
This alternative to excisional haemorrhoidectomy is performed using a specially-designed circular stapler. The technique removes a circular donut of mucosa and submucosa of the apex of the haemorrhoids. The resulting defect is then stapled closed. The end-result is that arterial inflow is interrupted and the remnant prolapsing haemorrhoids is restored to their anatomical position within the anal canal. Serious complications such as perianal fistula and pelvic sepsis have been reported. Randomised trials have shown less postoperative pain and quicker return to activity after stapled haemorrhoidectomy compared with excisional (open or closed) haemorrhoidectomy.

A recent systematic review by Burch concluded that there was no difference in the rate of complications between stapled and excisional haemorrhoidectomy. However, stapled haemorrhoidectomy has a higher recurrence rate of prolapse and reintervention for prolapse in the long term. Hence, the trade-offs for short-term pain versus long-term outcomes need to be communicated clearly to the patient. If haemorrhoid recurrence and prolapse are the more important clinical outcomes, excisional surgery may be the preferred surgical option.

References: