



Good health
can change the world

Surgicom Governance Project



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We share a common purpose of improving value for patients in a thriving and dynamic healthcare system. Together with healthcare professionals we hope to explore new ways to enhance the delivery of value-based care by developing shared-value initiatives.

These initiatives provide the next step in the healthcare delivery model with the core focus of improving patients' clinical outcomes and overall experience and cost effectiveness of care. These initiatives offer a framework that promotes better coordination of care, supports the personalised doctor-patient partnership and is underpinned by robust and intelligent digital health technology that improves the collection and sharing of critical information.

The Surgicom project applies focus to quality of care as its primary objective. Attention to this key factor has shown in many care delivery systems to be a precursor to enhanced clinical outcomes and an overall lower costs. Surgeons are critical contributors to the collection of clinical information, which will enable the sharing of valuable data to achieve these aims.

Surgicom initially chose the five most common conditions in general surgery to facilitate the collection of data. The categories that have been chosen are appendicectomy, cholecystectomy, groin hernia, anal conditions and varicose veins. The following pathways of care for these procedures have been developed as a guideline to participating surgeons in care delivery but also to facilitate data collection and analysis.

We welcome your participation in this initiative and look forward to your ongoing feedback in achieving its stated objectives.

Pathways of Care

LAPAROSCOPIC CHOLECYSTECTOMY

Definition:

Laparoscopic complete or partial (subtotal) removal of the gallbladder

Indication for procedure:

- Symptomatic gallstones
- Acute cholecystitis (calculus/acalculus)
- Chronic cholecystitis
- Mucocoele of the gallbladder
- Gangrene of the gallbladder
- Calcified/porcelain gallbladder
- Chronic acalculous cholecystitis – this diagnosis is made when there is a history of recurrent inflammation of the gallbladder in conjunction with radiological or operative findings of a small shrunken/fibrotic gallbladder in the absence of gallbladder or CBD stones
- Asymptomatic gallstones in diabetic patients
- Asymptomatic gallstones – the indications for cholecystectomy in patients with asymptomatic gallstones remains controversial
- Gallbladder polyps > 5 mm
- Gallstone pancreatitis

Contraindications: No absolute contraindications

Pre-operative investigations:

- The associated presence of choledocholithiasis may influence the operative strategy. Risk factor identification aids in the prediction of the likelihood of choledocholithiasis being present. A variety of different diagnostic and therapeutic options are available to achieve this. They will vary depending on resource availability and local expertise. For those identified at low risk of choledocholithiasis ERCP should be performed after a less invasive modality example (EUS or MRC) has confirmed the presence of stones in the duct.
- Full blood count (FBC)
- Liver function tests (LFTs)
- Abdominal ultrasound is the diagnostic modality of choice to confirm
- Cholecystolithiasis, determine stone size and bile duct dilatation
- In patients with cholangitis, percutaneous or ERCP drainage are the preferred methods of bile duct decompression
- Urea/creatinine/electrolytes (If hypertensive/diabetic/ U+E+Cr renal insufficiency) then: U+E+Cr

Hospitalisation

Pre-op admission days:

Elective cases on day of surgery

Average length of stay is 1one to three days

Theatre Requirements:

- Level 3 theatre.
- Special equipment: Equipment to perform an operative cholangiogram
- Suction equipment, retrieval bag, drain, haemostatic devices such as nukit in complex difficult cases.
- No blood transfusion expected
- Number of assistants: One general practitioner/ medical officer.

Complications:

Early:

- Pneumonia
- DVT
- Bile leak./ biliary peritonitis
- Jaundice
- Bile duct injury ~0.12,5%
- Right hepatic artery injury
- Cystic duct stump leak (0.3-0.5%)

Late:

- CBD strictures retained stones
choledocholithiasis

Code	Description
CPTTM code:	47600, 47605, 47610, 47612, 47620, 56340, 56341, 56342
ICD10 code:	K80, K81, K82, K83
SAMA code:	1761
Level of care:	LOC 3
Ancillary services:	0
Post operative investigations:	0
Certifications:	Master or Fellowship in General Surgery

ANORECTAL ABSCESS AND FISTULA

Definition:

An anorectal abscess most often originates from a cryptoglandular infection in the anal canal. These abscesses are classified into perianal, ischioanal, inter-sphincteric, and supra-levator based on location. Patients may present with a variety of signs and symptoms ranging from fever, pain, tenderness, erythema, and a fluctuant mass to relatively normal external findings and deep-seated rectal pain. In approximately 30% to 50% of patients with an anorectal abscess, a persistent tract, or fistula-in-ano, develops, extending from the anal canal to the perineal skin. The development of a fistula is largely unpredictable. Patients tend to report persistent purulent drainage or intermittent perianal swelling and tenderness followed by spontaneous discharge.

Fistulas are categorized based on their anatomical course relative to the sphincter complex: inter-sphincteric, trans-sphincteric, supra-sphincteric, and extra-sphincteric. Fistulas can also be classified as "simple" or "complex," with simple fistulas including low trans-sphincteric and inter-sphincteric fistulas that cross 30% of the external sphincter. Complex fistulas include high trans-sphincteric fistulas with or without a high blind tract, supra-sphincteric and extra-sphincteric fistulas, horseshoe fistulas, and those associated with inflammatory bowel disease, radiation, malignancy, preexisting incontinence, or chronic diarrhea, as well. Given the attenuated nature of the anterior sphincter complex in women, fistulas in this location deserve special consideration and may be considered complex as well.

Indications

Initial evaluation of perianal abscess and fistula-in-ano.

A disease-specific history and physical examination should be performed, emphasizing symptoms, risk factors, location, and presence of secondary cellulitis or fistula-in-ano.

01 | *Perianal abscess* - Patients with acute ano-rectal abscess should be treated in a timely fashion with incision and drainage. After simple incision and drainage, the overall recurrence rate ranges from 3% to 44%, depending on the abscess location and the length of follow-up. Antibiotics have a limited role in the treatment of uncomplicated ano-rectal abscess. Antibiotics may be considered in patients with significant cellulitis, underlying immunosuppression, or concomitant systemic illness. Imaging like ultrasound and MRI can be used for deep seated abscesses but are rarely needed. Crohn's disease is one example that might need further imaging.

02 | *Fistula-in-ano* - The goal in the treatment of fistula-in-ano is to obliterate the internal fistulous opening and any associated epithelialized tracks with minimal sphincter division. In addition, the aetiology should be determined. Approximately 80% of fistulas are secondary to cryptoglandular infection, but other diagnoses such as Crohn's disease, trauma, radiation, malignancy, or infection must be considered in fistulas with an unusual appearance or location. Because no single technique is appropriate for the treatment of all fistulas-in-ano, treatment must be directed by the aetiology and anatomy of the fistula, degree of symptoms, patient comorbidities, and the surgeon's experience. One should keep in mind the progressive trade-off between the extent of operative sphincter division, postoperative healing rates, and functional compromise. MRI is indicated in complex fistulas, for example patients suffering from Crohn's disease. It is best that the MRI be evaluated by a radiologist with an interest in soft tissue and Crohn's disease

- **Treatment options for simple fistula-in-ano** - There is no universal answer to the question of how much muscle can be safely divided during a fistulotomy. Nevertheless, with proper patient selection, fistulotomy has been associated with success rates of 92% to 97%. Higher recurrence rates have been associated with complex fistulas, failure to identify the internal opening, and Crohn's disease.
 1. Simple anal fistulas may be treated by fistulotomy. The addition of marsupialisation may improve the rate of wound healing.
 2. Concomitant fistulotomy with incision and drainage may be considered in select patients with anorectal abscess and fistula.
 3. Simple anal fistulas may be treated with debridement and glue injection.

- **Treatment options of complex fistula-in-ano** - In select patients, radiographic evaluation may be beneficial to identify an occult internal opening and secondary tracts or abscesses, or to help delineate the fistula's relationship to the sphincter complex.
 1. Complex anal fistulas may be treated with debridement and fibrin glue injection.
 2. Anal fistula plug may be used for treatment of complex anal fistula disease.
 3. Endo-anal advancement flaps may be used for treatment of complex anal fistula disease.

Name	Description
Contraindications	None, but caution in Crohn's disease and sphincter failure or any patient with a history of anal incontinence.
Pre-operative	Most patients are admitted on the day of surgery. Fleet enema if tolerated, often not tolerated.
Investigations	Although anorectal abscess and fistula-in-ano are most commonly diagnosed and managed on the basis of clinical findings alone, adjunctive radiological studies can occasionally provide valuable information in complex tracts or recurrent disease. The vast majority of fistulas, however, do not require any imaging. Radiological imaging options include: Ultrasound (endoanal), CT and MRI.
Hospitalisation	Most anal abscess and fistula procedures are performed as day case procedures or require an overnight stay. Complicated abscesses may be associated with cutaneous gangrene necessitating colostomy, vac therapy and a very prolonged hospital stay.
Theatre requirements	Assistant optional. Procedure time varies: From 30 min for fistulotomy to 2 hours for LIFT procedure. Depending on procedure options: A Lone star retractor with disposable hooks may be required.
Length of stay	Usually day case depending on degree of sepsis (if present)
Anticipated complications	Recurrence abscess/fistula (most likely). Failure of procedure (complex fistulas failure rates are high). Sphincter damage
Post operative investigations	Clinical follow up only

Code	Description
46020	Placement of seton
46030	Removal of anal seton, other marker
46040	Incision and drainage of ischiorectal or perirectal abscess (separate procedure)
46045	Incision and drainage of intramural, intramuscular, or submucosal abscess, transanal, under anaesthesia
46050	Incision and drainage, perianal abscess, superficial
46060	Incision and drainage of ischiorectal or intramural abscess, with fistulectomy or fistulotomy, submuscular, with or without placement of seton
46270	Surgical treatment of anal fistula (fistulectomy/fistulotomy); subcutaneous
46275	Surgical treatment of anal fistula (fistulectomy/fistulotomy); intersphincteric
46280	Surgical treatment of anal fistula (fistulectomy/fistulotomy); transsphincteric, suprasphincteric, extrasphincteric or multiple, including placement of seton, when performed
46285	Surgical treatment of anal fistula (fistulectomy/fistulotomy); second stage
46288	Closure of anal fistula with rectal advancement flap
46706	Repair of anal fistula with fibrin glue
46707	Repair of anorectal fistula with plug (for example porcine small intestine submucosa [SIS])

ICD10 Code:

- K61.0 Abscess perianal
- K61.3 Abscess Ischio-rectal
- K61.4 Abscess intersphincteric
- K60.3 Fistula in ano low
- K60.4 Fistula in ano above sphincter
- K60.5 Fistula in ano rectum,

SAMA Code:

- 1713 Anal fistula subcutaneous
- 1713 Anal fistula submuscular
- 1711 Anal fistula high track / complex
- 1709 Anal abscess Intramuscular
- 1709 Anal abscess Ischio-rectal
- 1727 Anal procedure multiple

ANAL FISSURE

Definition:

An anal fissure is an oval, ulcer-like, longitudinal tear in the anal canal, distal to the dentate line. In almost 90% of cases, fissures are identified in the posterior midline, but can be seen in the anterior midline in up to 25% of affected women and 8% of affected men. Early or acute fissures have the appearance of a simple tear in the anoderm (anal canal), whereas chronic fissures, defined by symptoms lasting more than 8 to 12 weeks, are further characterised by oedema and fibrosis.

Indications

- 01** | Non-operative treatment continues to be safe, has few side effects, and should usually be the first step in therapy. Almost half of all patients in whom an acute anal fissure has been diagnosed will heal with non-operative measures, for example sitz baths, bulking agents, with or without the addition of topical anaesthetics or anti-inflammatory ointments.
- 02** | Anal fissures may be treated with topical nitrates, although nitrates are only marginally superior to placebo with regard to healing.
- 03** | Anal fissures may be treated with topical calcium channel blockers, with a lower incidence of adverse effects than topical nitrates. There is insufficient data to conclude whether they are superior to placebo in healing anal fissures.
- 04** | Botulin toxin injection has been associated with healing rates superior to placebo. There is inadequate consensus on dosage, precise site of administration, number of injections or efficacy.
- 05** | Lateral internal sphincterotomy (LIS) is the surgical treatment of choice for refractory anal fissures.
- 06** | Anal advancement flap and subcutaneous fissurotomy are surgical alternatives to LIS.
- 07** | Surgery is consistently superior to medical therapy and may be offered without a pharmacological treatment failure.

Contraindications	None, but caution in Crohn's disease and sphincter failure or any patient with a history of anal incontinence.
Pre-operative	Standard work-up for patient undergoing a general anaesthetic, in other words assessment of cardiac and respiratory risk factors Keep nil by mouth, anticipating surgery Fleet enema if tolerated, often not tolerated
Investigations	Not routinely required. In Crohn's Disease, an anal U/S and or MRI may be indicated
Hospitalisation	Most anal sphincteromies are done as day case procedures. Hospitalisation may be required if patient still in pain after four hours to one day stay
Theatre Requirements	Assistant usually not required Procedure time and requirements depend on procedure: 30-60 min. Equipment requirements depend on surgical option.
Length of Stay	Day case unless unusually complicated
Anticipated Complications	Recurrence Sphincter failure/damage Anal haematoma Fistula/abscess formation
Ancillary services	Seldom required
Post-op investigations	Seldom required

CPTTM

Code	Description
45905	Dilation of anal sphincter (separate procedure) under anaesthesia other than local
46080	Sphincterotomy, anal, division of sphincter (separate procedure)
46200	Fissurectomy, including sphincterotomy, when performed
46505	Chemodenervation of internal anal sphincter
46940	Curettage or cautery of anal fissure, including dilation of anal sphincter (separate procedure); initial
46942	Curettage or cautery of anal fissure, including dilation of anal sphincter (separate procedure); subsequent
46999	Unlisted procedure, anus

SAMA code:	1715	Anal dilatation
	1715	Lateral sphincterotomy
	1727	Anal multiple procedures

APPENDICECTOMY

Definition:

Removal of the appendix by open or laparoscopic surgery

CPTTM

ICD 10 **K35.8 : Acute Appendicitis**

SAMA CODE **1675 : Appendicectomy**

Indications	A history of persistent abdominal pain, with or without fever and signs of localised or diffuse peritonitis, especially if a leucocytosis is present. Occasionally chronic right iliac fossa with abnormal imaging of the appendix eg: suspected mucocoele.
Contraindications	<p>Presence of coagulopathy or anticoagulants – correct prior to surgery</p> <p>Severe dehydration – correct prior to surgery.</p> <p>Haemodynamic instability due to endotoxic shock – resuscitate first, but without undue delay before surgery in order to deal with source of sepsis.</p> <p>Previous surgery may be a relative contraindication to laparoscopy surgery depending on the extent of the adhesions. Pregnancy initially thought to be a contraindication to laparoscopic approach, but now considered to be the standard of care for all gravid patients with suspected appendicitis.</p> <p>Diffuse peritonitis initially considered a contraindication to laparoscopic approach as an increased number of intra-abdominal abscesses occurred post-op when compared to open procedures. This is no longer the case and rates of post-op abscess formation are now similar, or decreased with the laparoscopic approach.</p>
Pre-operative	<p>Standard work-up for patient undergoing a General Anaesthetic, ie assessment of cardiac and respiratory risk factors</p> <p>Keep nil by mouth, anticipating surgery</p> <p>Establish venous access and commence IV fluids</p> <p>Avoid opiate analgesics until surgical assessment made unless there is a delay of more than 4 hours</p> <p>IV antibiotics only given at induction of anaesthesia unless significant delay before surgery. FBC and CRP.</p>

Investigations	<p>If diagnostic doubt after history and examination, then non-contrast CT scan is imaging of choice Ultrasound occasionally helpful in thin patient if CT not available Ultrasound or MRI in pregnant patients Diagnostic laparoscopy if uncertainty still exists. This is particularly useful to exclude acute gynaecological pathology.</p>
Hospitalisation	<p>If diagnosis suspected then admit to hospital, and investigations if required are performed as urgent. If surgery indicated then should be usually be performed on the same day, unless patient is admitted in the evening and is stable under which circumstances surgery may be safely delayed until the following morning.</p>
Pre-op admission	<p>Admit to General Ward unless septic and unstable requiring admission to High Care or ICU Commence IV fluids If laparoscopic surgery is chosen, the patient should be warned of the possibility of conversion to an open procedure</p>
Theatre Requirements	<p>All patients require a General anaesthetic with endotracheal intubation and paralysing agents Open procedure – General Abdominal Tray and appropriate sutures Laparoscopic procedure – Laparoscopic stack, atraumatic graspers, clips or endoloop for appendix base, retrieval bag if appendix cannot be removed via port If there is pus present then irrigation and suction is necessary with either approach. Drains are not usually left unless there has been an abscess with severe localised inflammation</p>
Antibiotics	<p>Intravenous prophylactic antibiotics should be routinely administered. If the appendix is inflamed but not perforated with no associated pus – no further antibiotics are necessary If localised pus present, then antibiotics continued until temperature down for 24 hrs. For generalised peritonitis, a full 5 day course of antibiotics is recommended</p>
Length of Stay	<p>1 to 3 days postop in a General ward for non-perforated appendicitis and appendicitis with localised pus. For diffuse peritonitis, patient may need 5 to 7 days to recover, and may require time in the High Care or ICU</p>
Anticipated Complications	<p>Wound Infection: 10-15% in open appendicectomy. Less than 5% with laparoscopy Intra-abdominal Abscess – may need percutaneous drain or repeat surgery Persistent ileus Caecal fistula Incisional hernia</p>
Ancillary Services	<p>Only required for ruptured appendix with diffuse peritonitis where patients might require : ICU, Physiotherapy, Intensivist/Physician, Dietician</p>
Post-op Investigations	<p>If complications develop such as an intra-abdominal abscess, a CT scan with possible percutaneous drain or re-look procedure would be indicated</p>

Conclusion

Traditionally the advantages of open appendicectomy over the laparoscopic approach were considered to be shorter operating time, decreased cost and lesser risk of forming intra-abdominal abscesses post-operatively in cases of appendix rupture with diffuse peritonitis. However as image quality, instrumentation and techniques have improved, operating times and rates of intra-abdominal abscess formation have become similar or better than in open surgery.

The well-described advantages of laparoscopic surgery include:

- decreased post-op pain
- decreased risk of wound infection
- better cosmesis
- shorter time of return to work and athletic activities
- improved ability to diagnose and deal with other pathologies if the appendix is normal
- The Society of American Gastrointestinal Endoscopic Surgeons (SAGES) endorses laparoscopic approach as the method of choice for dealing with appendicitis.



GROIN HERNIA REPAIR

Definition

Repair of an inguinal or femoral hernia either laparoscopically or by open technique.

CPT Code: Laparoscopy: Surgical repair of initial inguinal hernia 56316
Laparoscopy: Surgical repair of recurrent inguinal hernia 56317

SAMA Code: 1819, 1825, 1827, 1836

Indications

All patients with clinically detected groin hernias whether symptomatic or not should be offered a repair. There is no place for watchful waiting. A particular consideration is "sportsman's (Gillmore's) groin". This is an uncommon, complex condition presenting with groin pain and may be associated with a groin hernia. Surgery is a last resort. Most patients benefit from a rehabilitation program including physiotherapy and bio kinetics.

If the patient is deemed fit for general anaesthesia, a laparoscopic repair is recommended, if unfit, an open repair under local or regional anaesthesia is appropriate. This recommendation is irrespective of the site, side, sex of the patient and whether the hernia is primary or recurrent or unilateral or bilateral. In the case of an irreducible or strangulated hernia, the open procedure may be deemed to be safer. A mesh is always required to obtain a tension free repair. A simple 10 x15 cm polypropylene, per side will usually suffice.

Contraindications	Asymptomatic hernias in patients with very limited life-expectancy and poor functional status.
Pre-operative investigations	Most patients are admitted on the day of surgery These are seldom required. Where uncertainty exists, ultrasound or MR imaging is very occasionally required.
Theatre requirements	One general practitioner assistant. Procedure time varies: 30-60 min Laparoscopic surgery required a fully equipped laparoscopic theatre
Length of stay	Most are day case procedures. An overnight stay may be required because of excessive pain or urinary retention.
Anticipated complications	Uncommon (less than 10%). Includes: urinary retention, seroma , haematoma, nerve entrapment, chronic groin pain, visceral injury and recurrence ,SSI
Level of care:	General ward
Post operative investigations:	Clinical follow up only

HAEMORRHOIDECTOMY

Definition

Removal of fibrovascular cushions in the anal canal.

Indications

The diagnosis of haemorrhoids is almost always a clinical one. The physical examination should include visual inspection of the anus, digital examination, and anoscopy and/or proctoscopy looking for evidence of thrombosis or concomitant anorectal pathology, such as fissure, fistula, abscess, or evidence of Crohn's disease. Internal haemorrhoids, located above the dentate line, can be assigned a grade based on the definitions in the table below, which will help to guide therapy.

Table: Classification of Internal Haemorrhoids

Grade	Physical Findings
I	Prominent haemorrhoidal vessels, no prolapse
II	Prolapse with Valsalva and spontaneous reduction
III	Prolapse with Valsalva requires manual reduction
IV	Chronically prolapsed manual reduction ineffective

Complete endoscopic evaluation of the colon is indicated in select patients with haemorrhoids and rectal bleeding. Although commonly associated with haemorrhoids, complaints of rectal bleeding may be a symptom of other disease processes, such as colorectal cancer, inflammatory bowel disease, diverticular disease, and angiodysplasia. A thorough personal history, a detailed family history, and a physical examination, which may include proctoscopy and/or flexible sigmoidoscopy, will identify high-risk patients requiring more extensive evaluation. Those who fulfil the select criteria should have a full colonic evaluation with colonoscopy.

Treatment options

Dietary management consisting of adequate fluid and fiber intake is the primary first-line non-operative therapy for patients with symptomatic haemorrhoid disease. Constipation must be avoided.

01 | Office treatments

Most patients with grade I and II haemorrhoid disease in whom medical treatment fails may be effectively treated with office-based procedures, such as banding, sclerotherapy, and infrared coagulation. Haemorrhoid banding is typically the most effective option.

The goals of all office-based procedures are three-fold: to decrease vascularity, reduce redundant tissue, and increase haemorrhoidal fixation to the rectal wall to minimize prolapse. Patients should understand they all have a variable recurrence rate and may require repeated applications.

- Rubber Band Ligation
- Sclerotherapy
- Infrared Coagulation. Infrared coagulation involves the direct application of infrared waves that results in protein necrosis within the haemorrhoid. This can be used for grade I and II haemorrhoids

Patients should be counselled regarding the but devastating complications of perianal sepsis and urinary retention and fever with all office-based haemorrhoid procedures.

02 | *Surgical Haemorrhoidectomy*

Surgical haemorrhoidectomy should be reserved for patients who are refractory to office procedures, who are unable to tolerate office procedures, who have large external haemorrhoids, or who have combined internal and external haemorrhoids with significant prolapse (grades III to IV).

- Surgical Excision. Either open or closed haemorrhoidectomy can be performed with a variety of surgical devices including surgical scalpel, scissors, monopolar cauterization, bipolar energy, and ultrasonic devices. In general, there appears to be no definitive advantage of one over the other. As such, individual patient factors and preferences need to be carefully weighed and considered before a decision for operative therapy.
- Haemorrhoidopexy. Stapled haemorrhoidopexy uses a circular stapling device that resects internal haemorrhoids and fixes the remaining tissues in place. Although effective for internal prolapsing disease, it may not adequately address external haemorrhoids. In general, the stapled procedure is not effective for large external or thrombosed haemorrhoids, although limited data have demonstrated some success.
- Doppler-Guided Haemorrhoidectomy. Doppler-guided/assisted haemorrhoidal ligation is a procedure that uses an anoscope fashioned with a Doppler probe for identification of each haemorrhoid arterial blood supply that is subsequently ligated. A potential benefit is the lack of tissue excised and less pain. A rectomucosal pexy is done at same setting.

Acutely thrombosed and prolapsed internal haemorrhoids are best treated by haemorrhoidectomy. Occasionally 1-2 days of conservative treatment in hospital is required pre-operatively.

The table below provides the likely treatment options by haemorrhoid grade:

Internal Haemorrhoid Grade	Medical treatment	Office-Based Procedures			Surgical Haemorrhoidectomy		
	Diet Modification	Rubber Band Ligation	Sclero-Therapy	Infrared Coagulation	Surgical Excision	Stapled Haemorrhoidopexy	Doppler Guided Ligation
I: No prolapse	x	x	x	x			
II: Prolapse spontaneous reduction	x	x	x	x			x
III: Prolapse, manual reduction	x	x	x		x	x	x
IV: Chronically prolapsed							

Contraindications	None, but caution in Crohn's disease and sphincter failure or any patient with a history of anal incontinence.
Pre-operative	Most patients are admitted on the day of surgery Fleet enema may be requested.
Investigations	Full evaluation for rectal bleeding if unexplained. The majority of cases will require with flexible sigmoidoscopy or colonoscopy.
Hospitalisation	Most haemorrhoidectomies are done as day case procedures. An overnight stay may be required because of excessive pain or urinary reterntion.
Theatre requirements	Assistant optional Procedure time varies: 30-60 min
Length of stay	Most are day case procedures. An overnight stay may be required because of excessive pain or urinary reterntion.
Anticipated complications	Urine retention Haemorrhage
Ancillary services	A Dietician may be consulted
Level of care	General ward
Post operative investigations	Clinical follow up only

CPT Code:

Code	Description
46221	Haemorrhoidectomy, internal, by rubber band ligation(s)
46945	Haemorrhoidectomy, internal, by ligation other than rubber band; single hemorrhoid column/group
46946	Haemorrhoidectomy, internal, by ligation other than rubber band; 2 or more hemorrhoid columns/groups
46220	Excision of single external papilla or tag, anus
46320	Excision of multiple external papillae or tags, anus
46320	Excision of thrombosed haemorrhoid, external
46250	Haemorrhoidectomy, external, 2 or more columns/groups
46255	Haemorrhoidectomy, internal and external, single column/group;
46257	Haemorrhoidectomy, internal and external, simple; with fissurectomy
46258	Haemorrhoidectomy, internal and external, single column/group; with fistulectomy, including fissurectomy, when performed
46260	Haemorrhoidectomy, internal and external, 2 or more columns/groups;
46261	Haemorrhoidectomy, internal and external, complex or extensive; with fissurectomy
46262	Haemorrhoidectomy, internal and external, 2 or more columns/groups; with fistulectomy, including fissurectomy, when performed
46500	Injection of sclerosing solution, haemorrhoids
46947	Haemorrhoidopexy (eg. for prolapsing internal haemorrhoids) by stapling

ICD10 Code:

O22.4 Anal haemorrhoids pregnancy
 K64.0 Anal haemorrhoids first degree
 K64.1 Anal haemorrhoids second degree
 K64.2 Anal haemorrhoids third degree
 K64.3 Anal haemorrhoids fourth degree
 K64.5 Anal venous thromboses
 K64.9 Anal haemorrhoids unspecified

SAMA Code:

1723 Haemorrhoidectomy including simple, complex, stapled
 1725 Perianal haematoma
 1727 Anal multiple procedures
 1719 Banding
 1721 Injecting
 1729 Anal skin tag
 1701 Rectum mucosa prolapse repair (perineal repair)

VARICOSE VEIN

Definition:

Any procedure which is aimed at addressing the presence and consequences of venous hypertension in the superficial venous system, in patients presenting with symptoms, varicose veins, oedema or the cutaneous complications of chronic venous insufficiency. Procedures include saphenofemoral ligation with stripping of the great saphenous vein (GSV), sapheno-popliteal ligation, multiple avulsions (phlebectomy), endovenous ablation (Radiofrequency or Laser or Mechano-chemical) of GSV, Short Saphenous Vein (SSV), large accessory veins and perforators, Perforator Ligation, Ultrasound guided foam sclerotherapy and liquid sclerotherapy, and embolization of ovarian veins

Indication For Procedure:

- Symptoms related to venous hypertension
- Varicose veins
- Oedema
- Thrombophlebitis
- Bleeding from varicosities
- Skin complication including Haemosiderin staining, lipodermatosclerosis, current or healed venous ulcers

Contraindications:

- Occluded deep venous system
- Uncorrected ischaemia to leg
- Immobile patients
- Systemically unwell patients (not as applicable to the newer minimally invasive techniques that can be performed under local anaesthetic, often in the rooms)

Pre-Operative Investigations:

Imaging of venous system

- Duplex Ultrasound of superficial and deep venous system

Where indicated:

- CT Venogram
- MR Venogram
- Contrast Venography

Hospitalisation

Pre-op admission :	Not necessary
Theatre Requirements	1 assistant Procedure time: Unilateral 1- 1.5 hours Bilateral 1.5 – 2 hours. Theatre time will vary depending on the number of phlebectomies, whether this is a recurrence and the level of expertise of the assistant.
Length of Stay	Day case 1 day in cases where extensive open surgery performed or surgery performed late in the day
Complications	<ul style="list-style-type: none"> ▪ Deep Vein thrombosis 0,2-1.3% ▪ Thrombophlebitis 7% ▪ Thermal Skin Injury <1% ▪ Bruising Hyperpigmentation 5% ▪ Paraesthesia 1-2% ▪ Haematoma 0-7% ▪ Wound infection 2-6%
Level of Care	General ward
Ancillary Services	Intra-operative duplex ultrasound is essential for the the endovenous techniques including radiofrequency ablation, endovenous laser ablation, mechanico-chemical ablation and ultrasound guided foam sclerotherapy. Full evaluation for rectal bleeding if unexplained. The majority of cases will require with flexible sigmoidoscopy or colonoscopy.
Post Operative Investigations	Duplex ultrasound 1 week post endovenous thermal ablation to exclude endovenous heat induced thrombus (incidence 0.3-7.8%)

Comments:

- 01 | Pathology** - Varicose veins are common and develop in 25-30% of the population. The underlying cause is venous hypertension. Venous hypertension is caused by reflux (incompetent valves) in 90% of cases and obstruction in 10%. Risk factors include increasing age, female gender, pregnancy, obesity, occupations that involve standing, caucasians and a positive family history.
- 02 | Presentation and Assessment** - Patients should be assessed using the CEAP Classification

Classification	Description
C0	No visible or palpable signs of venous disease
C1	Telangiectasia or reticular veins
C2	Varicose veins
C3	Oedema
C4a	Hyperpigmentation or eczema
C4b	Lipodermatosclerosis or atrophie blanche
C5	Healed venous ulcer
C6	Active venous ulcer

Symptoms are non-specific and include aching, throbbing, tired legs and itching. They are usually worse with dependency and relieved by elevation or compression stockings. Patients may present with the skin complications as manifest in C4-6 disease or with bleeding from varicosities or inflammation in the form of superficial thrombophlebitis.

- 03 | Imaging of varicose veins - Duplex ultrasound** is the primary diagnostic investigation of choice in venous disease as it is non-invasive, relatively cheap and does not involve radiation. It is able to provide both haemodynamic and anatomical information. Duplex ultrasound is mandatory. Prior to intervention to assess cause of venous hypertension, exclude deep venous obstructive disease, and to assess suitability for endovenous therapy
- C3-C6 disease
 - Suspicion of deep vein thrombosis
 - Recurrent varicose veins

CT Venogram or MR Venogram are indicated in cases where duplex is not able to adequately assess or in unusual cases where deep vein obstruction, May-Thurner Syndrome, pelvic vein incompetence or vascular malformations are suspected.

Phlebography is rarely indicated as a diagnostic tool and is usually used as part of an intervention.

04 | Conservative management - Compression therapy with Class 2 graduated elastic stockings (giving 30 mmHg pressure at the ankle) remains the mainstay of conservative management. They improve patient's symptoms and may prevent recurrence of venous ulcers. Compliance is a problem and they potentially can exacerbate venous eczema. Arterial disease is a contra-indication to compression. Elastic stockings require proper fitting and need to be replaced at 4-6 month intervals to remain effective.

Venous Ulceration

- Compression with multilayer elastic and inelastic bandages (providing at least 40 mmHg of pressure at the ankle) and walking exercises are effective as the initial treatment modality to promote healing of venous ulcers.
- Leg elevation and massage are good adjuncts
- Endothermal techniques should be considered to treat the superficial venous reflux to prevent recurrence.

Medical Treatment

- There is some evidence that venotonic drugs like micronized purified flavonoid fraction and Red vine leaf extract reduce pain and swelling in chronic venous disease.

05 | Operative management - For the treatment of GSV reflux and SSV reflux in patients with symptoms and signs of chronic venous disease, endothermal venous ablation techniques are recommended in preference to surgery and foam sclerotherapy¹.

- For uncomplicated varicose veins (C2 and C3), surgical management is recommended instead of conservative management to improve symptoms, cosmetics and quality of life.^{1,2,3}
- In cases where surgery is performed, high ligation and stripping is preferred to high ligation alone.

CPT™ Code:

Code	Description
37500	Endoscopy, surgical, with ligation of perforator veins, subfascial (SEPS)
37700	Ligation and division of long saphenous vein at saphenofemoral junction, or distal interruptions
37718	Ligation, division, and stripping, short saphenous vein
37722	Ligation, division, and stripping, long (greater) saphenous veins from saphenofemoral junction to knee or below
37735	Ligation and division and complete stripping of long or short saphenous veins with radical excision of ulcer and skin graft and/or interruption of communicating veins of lower leg, with excision of deep fascia
37760	Ligation of perforator veins, subfascial, radical (Linton type), including skin graft, when performed, open, 1 leg
37761	Ligation of perforator vein(s), subfascial, open, including ultrasound guidance, when performed, 1 leg
37765	Stab phlebectomy of varicose veins, one extremity; 10-20 stab incisions
37766	Stab phlebectomy of varicose veins, one extremity; more than 20 incisions
37780	Ligation and division of short saphenous vein at saphenopopliteal junction (separate procedure)
37785	Ligation, division, and/or excision of varicose vein cluster(s), one leg
36475	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, radiofrequency; first vein treated
36476	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, radiofrequency; second and subsequent veins treated in a single extremity, each through separate access sites (List separately in addition to code for primary procedure)
36478	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, laser; first vein treated

36479	Endovenous ablation therapy of incompetent vein, extremity, inclusive of all imaging guidance and monitoring, percutaneous, laser; second and subsequent veins treated in a single extremity, each through separate accessites
36470	Injection of sclerosing solution; single vein
36471	Injection of sclerosing solution; multiple veins, same leg
37241	Vascular embolization or occlusion, inclusive of all radiological supervision and interpretation, intraprocedural roadmapping, and imaging guidance necessary to complete the intervention; venous, other than hemorrhage (eg, congenital or acquired venous malformations, venous and capillary hemangiomas, varices, varicoceles)
36011	Selective catheter placement, venous system, 1st order branch

ICD10 Code:

I83.0 Varicose ulcer, Chronic venous stasis ulcer

I83.9 Varicose Veins

I83.1 Varicose Veins with Inflammation

I83.2 Varicose Veins with ulcer

I87.8 Venous Stasis

SAMA Code:

 1413 Combined procedure for varicose veins:
 Unilateral

 1415 Combined procedure for varicose veins:
 Bilateral

1417 Subfascial perforator ligation

1419 Varicose veins lesser procedure

1421 Vein sclerotherapy one vein

 5078 Ultrasound guided Foam Sclerotherapy
 (Equivalent code)

5022 Embolization of vein per vein

References:

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