

Groin lumps and pain

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Key Points

- An ordered history and examination will produce an appropriate plan of action for a diverse group of groin and scrotal conditions. With any groin problem, always examine both groins and, in males, both scrotums.
- Always consider malignant nodes, malignant testis, strangulated hernia, undescended testis or torsion of the testis. Rapid intervention may be required.
- With any acute abdominal problem always consider the possibility of a strangulated femoral hernia.
- Consider the early use of taxis to reduce early strangulated hernias. If this is successful, you must still observe the patient.
- Remember that ultrasound does not replace clinical assessment and judgement when diagnosing or managing hernias, occult hernias and sportsman's groin.



Associate Professor Maurice Brygel

Introduction

Patients of any age may present with pain, a lump or a painful lump in the groin or scrotum.

Groin pain is very common and occurs in all age groups – including infants and the elderly, males and females – and for any number of different reasons.^{1,2}

In sportspeople, for example, it accounts for 8-15% of acute and chronic pain problems.³

Because of their close anatomical relationship to the groin, scrotal conditions are usually considered simultaneously.

Pain may be referred from the back or hip or from urogenital conditions such as a calculus.

Viral and bacterial infections are additional possibilities, particularly sexually transmitted diseases in young males.

The classic groin swelling is a hernia, either inguinal or femoral, but there are other common or important lumps such as enlarged lymph nodes, an abscess, saphena varix or a haematoma.

While there may be pain due to or associated with these lumps, groin or testicular pain alone is often a diagnostic dilemma.

Pain from overuse, repetitive activity or increased activity alone is often termed groin strain but there are specific musculoskeletal conditions to account for this, such as adductor tendonitis, osteitis pubis or rectus abdominis tendinopathy.

These often occur concomitantly and may be labelled sportsman's groin or sportsman's hernia.³

Two specific clinical problems are directly groin related.

The first is the occult hernia, where an ultrasound diagnoses a hernia in a patient with groin pain but no hernia is detectable clinically.^{4,5}

The second is the condition known as sportsman's groin.³

This issue and its terminology became so complex that an international consensus meeting was held in Doha in 2014, partly prompted by the high incidence of abnormal findings in normal athletes.⁶

A suggested classification was:

1. Specific conditions of the groin such as adductor, iliopsoas, pubic and inguinal;
2. Hip-related; and
3. Other causes.

The ready availability of X-ray, ultrasound, CT scans, MRI and bone scans has added an extra dimension to diagnosis.

The author contends these methods of investigation are not always useful and, particularly in the case of groin pain or hernias, can be confusing. Clinical decision-making is paramount.

Assessment

In most cases, a focused local or general history as indicated, with an examination based on anatomical principles, will reveal the indicative diagnoses and should enable a pathway of investigation.

Ultrasound, core biopsy with or without ultrasound control, aspiration cytology, surgical intervention, histology and culture may be needed to confirm the diagnosis.

In all cases where a male has a lump in the groin, thoroughly assess both the inguinal canal and scrotum.

In females, consider the unusual diagnosis of a cyst of the canal of Nuck or a Bartholin's abscess.

It is important to be able to differentiate a femoral hernia from an inguinal because of the femoral hernia's propensity to strangulation.

Advise early surgery in the case of a femoral hernia.

You must also consider that men can develop femoral hernias and females can develop inguinal hernias.

In men, always examine the scrotum. It is more difficult to assess when there is a large inguinal hernia descending into the scrotum, particularly if it is irreducible.

Hernias and scrotal swellings may coexist. Careful anatomical localisation will help identify and differentiate the variety of conditions.

Boxes 1 and 2 outline considerations and features not to miss.

Box 1. Consider these features

- Is the lump painful?
- Is this an emergency?
- Is this a malignancy?

Box 2. Things not to miss

- Strangulated hernias in children and adults
- An undescended testis or torsion in children
- Testicular tumours – they are usually painless
- Malignant nodes in the groin

Tables 1 and 2 offer a guide to groin and local lumps.

Table 1. A simple guide to groin lumps	
Condition	Features to determine
Inguinal hernia	Reducible, irreducible or strangulated
Femoral hernia	Reducible, irreducible or strangulated
Lymphadenopathy: inflammatory	Local, regional or generalised
Lymphadenopathy: malignant	Primary: lymphoma Secondary: local or regional
Infective	Abscess
Saphena varix	Varicose veins



(Left) Figure 1. Hidradenitis suppurativa: subcutaneous lump attached to skin and mobile over deep structures; (Right) Figure 2. Infected cyst.

Table 2. Local lumps	
Anatomical origin	Features
Nerve (rare)	Neuroma: fusiform and mobile in one direction only
Artery Artery	Aneurysms are pulsatile
Vein	Saphena varix: fluid thrill on coughing and compressible while standing. Disappears when recumbent.
Lymph node/s	Nodes may be reactive (fine and granular and palpable in thin individuals)

	<p>Nodes too small to aspirate are probably reactive Review to exclude pathological nodes Lymphocele: commonly occurs as a complication of groin dissection</p>
Muscle	<p>Torn adductor with or without haematoma Myositis ossificans: bony hard lump following repeated injury</p>
Sweat glands	<p>Hidradenitis suppurativa: recurrent discharge, attached to skin. Difficult to eradicate unless widely excised (see figure 1)</p>
Hair follicles	<p>Sebaceous cyst: a punctum and attached to skin (see figure 2)</p>
Fat	<p>Lipoma: the soft smooth lump with the slipping sign not to be confused with femoral hernia</p>

Examination

This is a particularly sensitive region. Inform the patient they will be palpated and explain the reasons for this.

The physical characteristics of the lump and its precise anatomical location will lead to the correct diagnosis.

Consider the lump in terms of its close relationship to the hip, abdominal wall, pelvic bones, pelvis and anal region.

The surface markings of the pubic tubercle, pubic crest, inguinal ligament, anterior superior iliac spine, mid inguinal point and groin skin crease are all utilised to identify the nature of the lump.

The structures and conditions to be considered include the lateral cutaneous nerve of the thigh (meralgia paraesthetica), femoral artery (aneurysm), long saphenous vein (saphena varix), fatty tissue (lipoma), sweat glands (hidradenitis suppurativa) and lymph nodes (infective or malignant).

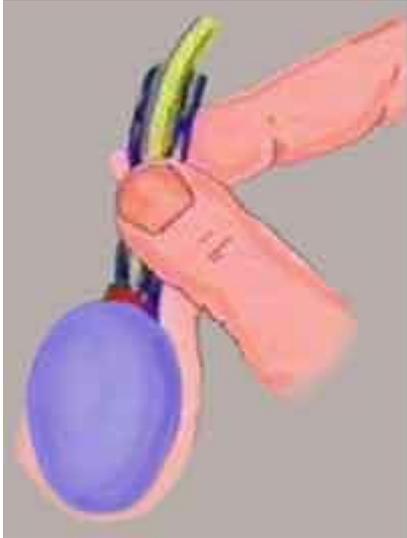
Inspection and palpation will identify the presence of a femoral or inguinal hernia.

A cremasteric reflex may be the first sign elicited when examining the scrotum with cold hands.

This reflex is due to the contraction of the cremaster muscle and may be the cause of pain in a condition termed retractile testis. Occasionally, this requires surgery in adults.

In children, excessive retraction may falsely arouse the suspicion of an undescended testis.

However, in both children and adults, the retractile testis can be manipulated back down into its normal scrotal position.



The pinch test (see figure 3, left) for scrotal conditions will determine if the lump is a hernia, a testis or an appendage.

The cord is pinched between the fingers to palpate the vas. If the lump is below the pinched fingers it is a testicular or related condition.

If the lump is above the cord, it is almost always an inguinal hernia.

If the fingers cannot be approximated, then a hernia descending into the scrotum is the most likely diagnosis and you cannot get 'above the lump'.

Common scrotal swellings include epididymal cyst, hydrocele or epididymo-orchitis. Less common, but important, are testicular tumours and torsion of the testis.

Hernias

Femoral hernias and inguinal hernias are often confused, both clinically and on ultrasound.

Inspect and palpate the patient while they are standing and recumbent, coughing and straining.

This detects a cough impulse or descent of a hernia. Examine femoral and inguinal canal orifices, including the opposite side.

Differentiation if the hernia is reducible should be fairly simple as its point of emergence from the respective canals can be palpated with the patient coughing.

Patients sometimes describe a recurring swelling that cannot be demonstrated at the time of examination.

In my experience, these patients usually have a hernia confirmed at surgery.

Differentiation of an inguinal hernia from a femoral hernia if irreducible or strangulated can be more difficult.

The landmarks and ring may be harder to identify because of pain and swelling.

Remember, femoral and inguinal hernias may occasionally coexist.

The irreducible hernia must be differentiated from other groin lumps, such as nodes or an abscess.

Taxis may be used in the early stages to reduce an acutely irreducible hernia (see box 3).

Box 3. Taxis for early acutely irreducible hernias

In the early stages, an acutely irreducible hernia may be reduced by a process termed taxis.⁷

This was an important manoeuvre before safe anaesthesia but can still be useful in many cases.

Taxis is achieved by placing the patient supine and elevating their legs.

Analgesia and then gentle compression and manipulation may reduce the hernia.

This may avoid emergency surgery, which is more dangerous because of oedema, as well as the risk associated with comorbid conditions.

If you successfully reduce the hernia, you must still observe the patient to ensure the reduced contents are viable.

Early elective surgery is then mandatory to prevent subsequent strangulation.

Inguinal hernia

Test a reducible hernia to determine whether it is indirect or direct.

An indirect hernia arises from lateral to the inferior epigastric artery through the deep ring and then descends obliquely medially.

When reduced, it can be controlled by pressure over the deep ring.

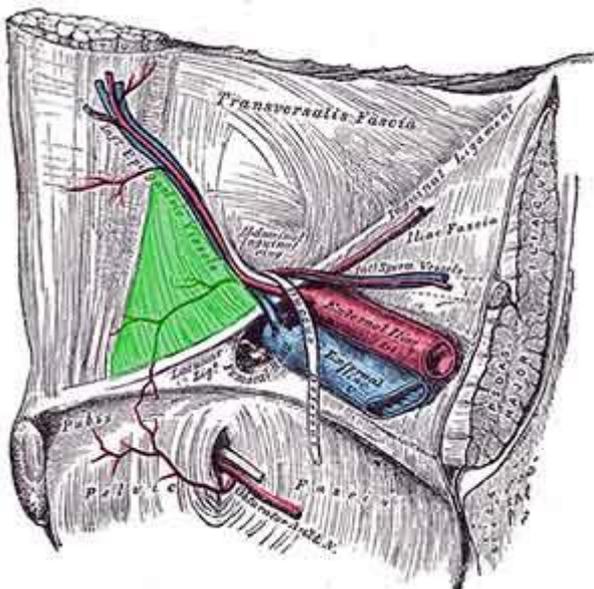


Figure 4. Click to expand.

A direct hernia protrudes medial to this through the posterior wall, known as Hesselbach's triangle (see figure 4, left).

Pressure over the deep ring does not control a direct hernia.

Large indirect hernias push medially and distend the deep ring and can simulate a direct hernia.

Clinical examination and ultrasound are unreliable in differentiating the types.

With safer surgical techniques and the use of mesh reinforcement, the differentiation between direct and indirect hernias is not as relevant.

Either type of hernia may strangulate.

Femoral hernia

Femoral hernias are far more commonly irreducible and prone to strangulation because of the tighter, rigid, narrow femoral canal and ring through which they emerge.

They comprise just 2-5% of all hernias.⁸

On inspection, a swelling may be obvious but is easily missed, particularly in a stout or elderly, frail and confused patient.

Exclude a femoral hernia in any patient with abdominal symptoms.

Some patients may develop shock in cases of strangulated hernias. They need urgent resuscitation before anaesthesia to avoid fatalities.

The lump is lateral to the pubic tubercle and below the inguinal ligament (see figures 5 and 6).



(Left) Figure 5. Right femoral hernia in a female, with surface markings; (Right) Figure 6. Left femoral hernia in a female.

However, as the hernia enlarges and is constrained by the overlying fascia of Scarpa, it may ride up over the inguinal ligament.

In thin patients, the inguinal ligament can be palpated and the hernia made out below.

A finger in the external ring can usually exclude an inguinal hernia, thus confirming a femoral hernia.

However, large irreducible or strangulated hernias can still cause confusion because the swelling makes the surface markings less clear.

It can be difficult to distinguish a femoral hernia from an enlarged inguinal lymph node or an abscess.

A femoral hernia often consists mainly of fat and may have some of the signs of a lipoma.

In the author's experience an ultrasound may help but may not be conclusive.

Lymph node enlargement

A node may enlarge from draining an infection (sometimes an ingrowing toenail) or as part of a generalised infection (see figure 7).



Figure 7. Right groin swelling from lymph node enlargement.

The node may be metastatic from a melanoma of the leg or a squamous cell carcinoma of the anus or vulva.

A local or generalised neoplastic process such as a lymphoma may also produce enlarged groin nodes.

It is not always easy to determine whether nodes are 'reactive' or pathological.

Histopathology allows definitive diagnosis, via aspiration cytology (see figures 8, 9), core biopsy or surgical removal of the node.



(Left) Figure 8. Lymph node aspirate for cytology; (Right) Figure 9. Lymph node aspirate to be smeared and sent for cytology.

Abscess

An abscess can be almost impossible to differentiate from a strangulated femoral hernia.

In both conditions, patients may experience pain, erythema, heat and tenderness.

Seek a possible source of infection and do not forget to examine the foreskin.

Sexually transmitted diseases such as chlamydia or lymphogranuloma venereum may be a cause.

Ask men about dysuria, discharge from the penis, testicular pain, swelling or fever.

If untreated, chlamydia in men may spread to the testicles, causing epididymitis.

Lipomas

Lipomas are generally clinically obvious but may cause confusion when they occur over the site of a hernia.

This is because hernias often have a fatty component and can feel just like a lipoma.

A separate entity is a lipoma of the cord in the inguinal canal.

An irreducible femoral hernia can feel just like a lipoma but is not as mobile.

Condition of scrotum and testes

The testis is oval and situated anterior to the epididymis, with its long axis vertical.

The epididymis can be palpated posterolateral to the testis as a longitudinal, ribbon-like structure.

It is less tender than the testis on palpation. The spermatic cord can be palpated as a number of vertical strands from which the epididymis hangs.

The vas deferens can be readily identified as a cord-like, firm structure with a smooth surface that slips readily between the fingers.

The structures usually display constant relations and basic shapes, which is helpful for anatomical localisation of the origin of a swelling.

The testis may, however, be undescended or anteverted, reversing the clinical signs with the epididymis situated anteriorly.

Abnormalities in position and size can occur, either as a congenital or acquired process.

For example, an undescended testis is often small.

Swellings of the cord

A varicocele is an abnormally dilated plexus of veins that may cause aching (see figures 10, 11).



(Left) Figure 10. Varicocele; (Right) Figure 11. Compressing the varicocele.

It is detected by examining the patient while they are standing.

The swelling is compressible 'like a bag of worms' and disappears when the patient is recumbent.

Varicoceles can, in rare cases, be the result of a carcinoma of the kidney, which obstructs the testicular vein and leads to a dilated pampiniform plexus.

An encysted hydrocele of cord is confirmed by the 'pinch test' (see figure 3).

The vas can be palpated both above and below the swelling, confirming the diagnosis.

Scrotal swellings

Multiple swellings can arise in or on the testis, its coverings or epididymis.

Ask the patient about the onset of the swelling (sudden or gradual), a history of trauma and the presence of pain (mild, moderate or severe).

Identify the structure and determine whether it is cystic or solid.

Cystic swellings are nearly all fluctuant except when very small.

Cysts transilluminate except where the contained fluid is opaque, such as a blood clot, or where the walls of the cyst are thickened, such as in infection.

Hydrocele

Hydroceles and epididymal cysts are collections of fluid, but the difference is that the hydrocele surrounds the testis whereas the cyst is separate.

A primary hydrocele is a bag of fluid (see figure 12) described as idiopathic or degenerative.



Figure 12. Ultrasound of a hydrocele of the scrotum.

It is common after middle age. The tunica has the appearance of an invaginated sac and contains the testis and most of the epididymis, however the epididymis can be palpated because the sac is deficient posteriorly.

The testis cannot be readily palpated because it is surrounded by a large, tense volume of fluid.

A secondary hydrocele is usually smaller and lax and does not readily transilluminate.

You can usually palpate the underlying testis. The fluid may be secondary to a testicular cancer or an infection such as epididymo-orchitis.

Epididymal swellings

Swellings of the epididymis may be diffuse or localised.

The cysts are a collection of clear fluid, palpated quite separately from the testis and usually superiorly (see figure 13).

A cyst of the hydatid of Morgagni is a small embryological remnant the size of a match head on the superior pole of the testis.

These may undergo torsion, particularly in children.



Figure 13. Epididymal cyst.

Conditions of the testis

Testicular cancers occur most commonly in 20 – 40-year-olds.⁹

Consider any hard lump or thickening in or on the surface of the testis a carcinoma until proven otherwise.

A malignancy of the testis can be focal or produce a diffuse swelling, often associated with diminished testicular sensation. Sometimes there is an associated, small, secondary hydrocoele.

Classically the swelling is painless but, occasionally, haemorrhage occurs into the tumour and may mimic an acute, painful infection.

Patients may sometimes give a misleading history of trauma and may also describe the testis as 'feeling heavy'.

The risk of malignancy is increased with an undescended testis even when the testis has been placed into its correct position (see figure 14).



Figure 14. Carcinoma of the testis in a previously undescended testis – note the scar.

An ultrasound is vital in confirming the diagnosis.

Serum tumour markers such as alpha fetoprotein will help diagnose the type of tumour, for example, seminoma or non-seminoma.

Markers are also used to assess prognosis, determine treatment success and detect recurrence.

Epididymo-orchitis

Patients with this condition present with mild to moderate pain compared with the severe pain of torsion of the testis.

There is often a history of urethral irritative symptoms or discharge with orchitis.

The most common type begins as an epididymitis and spreads to the testis to become an epididymo-orchitis.

In the early stages, the epididymis may be palpable, tender and diffusely enlarged.

As the infection spreads to the testis, the tissue plane between the testis and the epididymis is obliterated and the swelling increases in size.

The cord is often thickened and tender and the skin may appear inflamed and almost adherent to the testis.

The cause is commonly an STI in younger patients, while *Escherichia coli* is the common cause in older patients, often from a urinary source.¹⁰ However, an organism cannot often be identified.

In contrast, mumps orchitis only affects the testis and there are other features of mumps.

Epididymo-orchitis must not be confused with a torsion of the testis.

With torsion the pain is more acute and severe. An ultrasound is able to confirm blood flow with orchitis, to differentiate this from torsion, where blood flow to the testis is absent.¹¹

Surgery must not be delayed for an ultrasound.

In a patient under 35, even in the presence of the irritative symptoms, one cannot assume the patient has orchitis.

If there is any doubt, refer the patient urgently to an ED or urologist. Consider an exploration of the scrotum to absolutely exclude torsion.

Torsion of the testis

This condition is common in prepubertal boys but may occur up to the age of 25.¹¹

A typical history includes an acute onset of pain. Young men with this history and tender, scrotal swelling should undergo urgent surgical exploration to either confirm or exclude torsion of the testis.

An ultrasound, if immediately available, can confirm your diagnosis by showing an absence of blood flow, but do not delay any surgical exploration while waiting for an ultrasound or tests.

If torsion is present, explore the opposite scrotum and correct the congenital abnormality predisposing to the torsion by fixing the testis to the bottom of the scrotum.

Groin pain

Groin pain is a common acute or chronic problem in sportspeople but may be caused by overuse, work or exercise.

These patients are often referred to a surgeon because of a suspected hernia.

Consider the many other causes of groin pain at all ages and in both sexes especially if no hernia is present on examination.^{1,2}

Walking, standing or straining usually aggravates pain from a hernia. Its radiation is limited.

If the pain is worse when lying down at night, this tends to suggest that it is not due to a hernia.

Use screening questions to assess whether the pain originates in the hip, such as the timing of the pain (worse at night), when lying down or when getting out of the car, because these actions externally rotate the leg.¹²

Hip examination is vital.

An ultrasound is usually carried out in the absence of a clinical diagnosis of hernia or when considering other musculoskeletal problems.

This examination often reveals a hernia when none has been demonstrated clinically; a condition known as the occult hernia.⁴

A reasonable approach might be ongoing observation but many patients are not prepared to wait.

The dual risks of not finding a hernia and the patient experiencing post-hernia chronic pain syndrome deters many surgeons from operating on the occult hernia.^{13, 14}

In the author's opinion, many occult hernias are actually small lipomas of the cord.

In a random survey, we found that up to 10% of the clinically detectable hernias seen in our practice and referred for surgery were actually lipomas.

The ultrasounds had, like the surgeon, diagnosed hernias.

We also noted the inaccuracy in distinguishing direct from indirect hernias on ultrasound. The literature reflects many conflicting views.¹⁵

Sportsman's groin

This distinct entity, also known as Gilmore's groin or sports hernia, is common in soccer players, footballers and athletes. There is pain particularly with activity.

Clinical assessment includes an accurate description of the pain (onset, severity and precipitating factors) and a history of any hip or back problems.³

There may be a weakness in the posterior wall of the inguinal canal and tenderness in the region of the conjoint tendon.

A possible explanation, in the author's opinion, is inflammation or tendinopathy at the insertion of the rectus muscle and conjoint tendon into the pubic bone, somewhat akin to adductor tendonitis.

At this point, and just proximally, the rectus sheath is quite tight around the muscle, which may be hypertrophied in sportspeople. There is no real consensus regarding this condition.

Other problems to consider that are now achieving greater recognition include femoral acetabular impingement and other femoral head conditions that may present with groin pain.

Examination includes all related areas including the adductor tendon and pubic symphysis.

Ultrasound does not show a hernia, but may show a slight bulge, and may show a tear of the rectus sheath or muscle.

The treatment includes ongoing observation and assessment, rest, anti-inflammatories, physiotherapy or, in some cases, surgery.

The type of procedure carried out varies enormously from open to laparoscopic, with mesh or without mesh.

Groin pain without a hernia in the absence of another diagnosis can be a troubling problem and is difficult to treat.

As a result, it is easy at times to grasp at the diagnosis of an occult hernia or state that it is a sportsman's groin and mistakenly advocate surgery.

Box 4. Summary of examination

Inspect all sites

- With the patient standing
 - observe scars
 - patient coughs
- Palpate both sides with the patient standing
- Palpate both sides with the patient coughing
- Assess the swelling: reducible or irreducible while
 - watching and
 - asking about pain
- If hernia present and readily reducible, assess if indirect or direct
- Assess scrotum, cord, testis and epididymis
- Palpate other hernia sites, e.g. femoral and umbilicus

THEN

- Examine the patient recumbent with same routine
- Examine abdomen and assess for divarication of rectus abdominis

THEN

- If hernia is present, with the hernia reduced and a hand over deep ring, get the patient to stand and assess descent to see if it is indirect or direct

Investigation

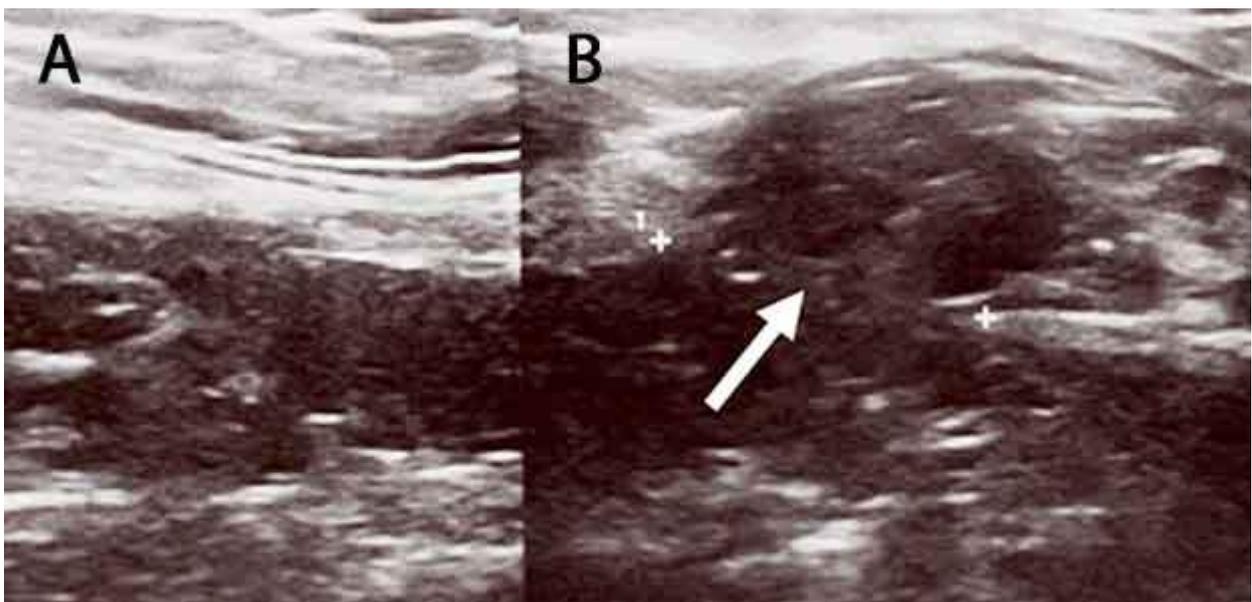


Figure 15. Ultrasound of a right direct inguinal hernia with the patient relaxed (A) and straining (B).

Ultrasound

Ultrasound is one of the most useful tools for investigating pain or swelling in the groin and scrotum (see figure 15).

It is used for investigating pain from musculoskeletal disorders of the inguinal region and adductor tendon, and plays a controversial role in the occult hernia and Gilmore's groin.

Other imaging such as X-ray and scans to detect conditions such as stress fractures and bony metastases may be required.

Ultrasound may assist in differentiating inguinal from femoral hernias and also between other groin lumps such as nodes or abscesses.

This examination may be more helpful when the patient's build makes examination and certainty more difficult, but do not rely solely on the ultrasound to make a diagnosis.

Ultrasound is valuable in the identification and diagnoses of nodes.

Aspiration cytology or core biopsy can be carried out with or without ultrasound control.

Core biopsy provides a more definitive answer while surgery may provide the definitive answer.

The type of cells found, for example melanoma or lymphoid cells, may provide a guide to the type of groin surgery required.

A melanoma will require a groin dissection with its attendant risks whereas only a smaller sample will guide adjuvant treatment for a lymphoma.

In many patients who complain of groin pain, a 'hernia' is found during surgery.

As discussed, some may well be a lipoma of the cord.¹⁵

These lipomas are anatomically normal structures that rarely cause symptoms or pain unless they are large.

They are difficult to differentiate from a hernia on ultrasound because the lipoma has the same characteristics as fatty omentum.

Thus, a hernia is not always found during surgery and the pre-operative symptoms may persist or even increase.¹⁶

Patients with groin pain and an 'ultrasound-diagnosed hernia' may have other causes for their pain.

Do not dismiss their concerns regarding the pain once a hernia is diagnosed on ultrasound despite one not being diagnosed clinically.

These patients may require an MRI of the spine or groin and an X-ray of the hip/s and pelvis to detect osteoarthritis or stress fractures.

A nuclear scan for bony metastases may be required and haematology or urine testing may be helpful or definitive.

In the absence of additional radiological or pathological findings, ask patient to return for follow up if the groin pain persists.

Ultrasound is the mainstay of investigating the scrotum.

This method has a role in differentiating solid masses from cystic hydrocoeles or epididymal cysts; identifying whether there is blood flow in the testis (particularly valuable in torsion of the testis where there is no blood flow and in epididymo-orchitis where the blood flow is increased); and is very accurate in diagnosing malignancy in the testis.

Management

Hernia

The introduction of laparoscopic surgery was a major advance and many surgical centres perform this exclusively.

Our clinic, however, routinely uses the open technique with local anaesthesia and sedation with a mesh reinforcement.

The vast majority of procedures performed by the author are as day cases.¹⁷

Opinion remains divided as to which method obtains the best result and is the most cost effective.

Some feel the local open technique is particularly advantageous in the elderly.¹⁸

The skill and experience of the surgeon is still a key factor.

Hernia repair has become safer but the incidence of chronic postoperative pain is still a major issue.

It has been noted that an open procedure can obtain excellent results with virtually a zero incidence of chronic pain.¹³

You can usually perform surgery for a small lipoma and other superficial lumps in the office under local anaesthesia but, if there is any doubt, theatre is preferred.

Indications for surgery

Previous studies suggested small asymptomatic hernias could be safely left alone without surgical treatment, and the results at three years confirmed this suggestion.¹⁸

However, a seven-year follow-up revealed hernias in these patients were growing and becoming symptomatic, and surgery was then performed in well over half of the patients.¹⁸

It might thus be concluded that surgery should be performed on most inguinal hernias.



Figure 16. A lymphocele that developed after groin dissection for a melanoma.

Table 3 summarises the treatment of groin conditions.

Table 3. Treatment of groin conditions		
Condition	Treatment	Considerations
Abscess	Drain.	Be aware a node may be enlarged and can be associated with a strangulated hernia.
Saphena varix	Treat varicose veins on merit.	
Lymph nodes	Diagnoses may be made by aspiration cytology or core biopsy with or without ultrasound guidance. Surgery involves a local excision for diagnosis or a curative groin dissection.	This is often complicated by the development of a lymphocele (see figure 16).
Varicocele	Ligation or embolisation.	These occasionally require surgery for pain or if related to infertility. This may be through the groin or a retroperitoneal approach to the testicular vein to ligate it.
Encysted hydrocele of the cord	Conservative, aspiration or surgical excision.	
The malignant testis	Orchidectomy is carried out through a groin incision.	A team approach using radiotherapy and chemotherapy has produced gratifying results.
Torsion of the testis	Emergency orchidopexy.	Correct both sides.
Epididymo-orchitis	Antibiotics.	
Epididymal cyst	Aspiration or excision.	
Hydrocele	Aspiration or excision.	
Torsion of hydatid cyst of Morgagni	Confirm with ultrasound and leave.	

The future

There are regular innovations in hernia surgery, including a vast array of meshes and the use of glue or absorbable staples to fix the mesh into position.

These are all aimed at reducing the risk of acute and chronic pain following surgery, reducing infection, time in hospital and recurrence rate.

Case study

Marge, 78, presents with a swelling in her left groin and a hernia is diagnosed.

After considering her age, medical condition, the easy reducibility of the hernia and her lack of other symptoms, her surgeon recommends conservative management and observation.

Three months later, Marge presents to the emergency department.

Her surgeon notes Marge is in severe pain and is pointing at her left groin.

On examination, the hernia is larger but reducible, and the area is tender. There is no rash noted.

The surgeon is puzzled but organises surgery and performs a repair with mesh reinforcement under local anaesthesia and light sedation.

There is no evidence of strangulation during surgery, which only deepens the puzzle.

Marge has significant postoperative pain requiring narcotics.

Two days later she develops a rash, which is diagnosed as shingles. She has a history of chicken pox as a child.



Shingles in the left groin.

Her recovery is then uneventful and the hernia repair is a success.

Shingles can often be diagnosed by the unilateral location of the pain, in a band distribution following the nerve.

Online resources

- **Mayo Clinic**
 - Testicular torsion
 - Groin pain (male)
- Cancer council of Australia - 'Understanding Testicular Cancer'
- Melbourne hernia clinic

Associate Professor Maurice Brygel, director of the Melbourne Hernia Clinic, Melbourne, Vic.

References available on request from howtotreat@adg.com.au