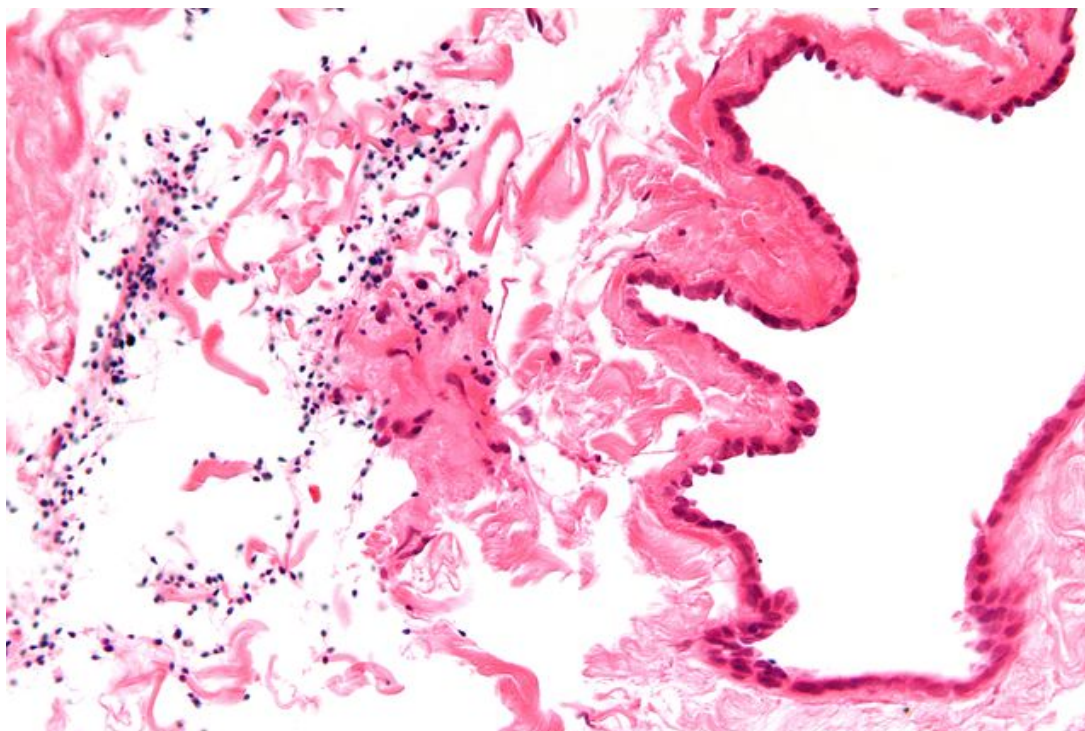


# Scrotal Mass, Congenital- & Acquired Hydrocele and Spermatocele

[See online here](#)

**Scrotal masses are embarrassing and seemingly exigent trouble for males. Benign scrotal lesions present as testicular masses that transilluminate as against solid testicular tumors which do not transilluminate. This article expounds about benign, relevant, common scrotal masses such as congenital and acquired hydrocele and spermatocele.**



## Hydrocele

### Definition

This is the pathological collection of fluid in the **tunica vaginalis** around the testes.

### Pathogenesis

Various mechanical theories have been expatiated to explain the existence of hydrocele. The significant relevant ones are summarized below:

Theory	Explanation
Excess production	Increased abnormal reactive fluid formation within the hydrocele sac as in secondary hydrocele.

Defective absorption	Decreased absorption of fluid leading to an imbalance in fluid dynamics with subsequent accumulation due to normal production rate.
Lymphatic dysfunction	Scrotal lymphatic drainage malfunction leads to secondary decreased fluid absorption and fluid accumulation as witnessed in filariasis.
Persistent communication	<b>Patent processus vaginalis</b> in communication with the peritoneal cavity leads to secondary fluid accumulation in the scrotum as in congenital hydrocele.

## Classification

Hydrocele has been variously classified in literature. The simplest segregation is as follows:

- Primary hydrocele
- Secondary hydrocele

These chronic, longstanding relatively asymptomatic hydroceles are not secondary to any other defined primary pathology of the testes or the scrotum. They are usually painless and subsequently commonly subjected to ignorance and delay in seeking medical attention. However; long-standing pressure atrophy of the testes has been documented and hence treatment is essential.

## Primary Hydrocele

Type	Explanation
<b>Congenital hydrocele</b>	Common cause of transilluminating scrotal swelling in infants due to incomplete obliteration of <b>processus vaginalis (PV)</b> . As a consequence, PV communicates with the peritoneal cavity. Hydrocele typically reduces upon lying supine as the fluid drains back slowly but surely into the peritoneal cavity. Bilateral inguino-scrotal swellings should caution the medical personnel against ascites and ascetic tuberculous peritonitis.
<b>Funicular hydrocele</b>	In this variety, the hydrocele fluid communicates with the peritoneum at the internal inguinal ring but no communion persists with the tunica vaginalis.
<b>Infantile hydrocele</b>	Tunica vaginalis and PV are enlarged till the internal inguinal ring. There exists no communication between the PV and the peritoneal cavity.
<b>Encysted hydrocele of cord</b>	Presence of a swelling; smooth and well-defined oval in nature can be appreciated in conjunction to the spermatic cord.

Other described hydrocele variants are as follows:

- **Hydrocele of the hernia sac:** Secondary to adhesions in the hernia sac; there is Loculated fluid collection present.
- **Bilocular hydrocele:** There is evidence of intercommunicating fluid collections on both sides of the neck of scrotum.
- **Hydrocele of canal of Nuck:** It is common **in females** around the round ligament and is always restricted to the inguinal canal.

## Acquired Hydrocele

Also known as “**secondary hydrocele**”; it is often ancillary to an underlying primary pathology.

Various causes of an acquired hydrocele can be tabulated as follows:

Cause	Examples
Tumors	Testicular tumors
Testicular torsion	
Trauma	Iatrogenic injury as in post-hernia repair hydrocele Traumatic injury to the scrotum or testes.
Seen in infants on peritoneal dialysis.	
Infection	Filariasis: It is the most prevalent cause of hydrocele in developing countries. Typically recurrent episodes of filarial epididymitis tantalize these
	Syphilis: Rather uncommon in the common man now; syphilis is witnessing an insurgency in its incidence secondary to increased immunocompromised population.
	Orchitis
	Acute or chronic epididymal-orchitis
	Tuberculosis of epididymis.

Secondary hydroceles usually subside upon treatment of the primary inciting pathology.

## Symptoms

The most common presentation is that of a chronic scrotal mass that is progressively increasing in size and painless. The mass may be of a differing size as in communicating hydrocephalus. They also present with a fluid like collection in the scrotum that transilluminates. Other relatively rare symptoms are summarized as follows:

- Difficulty walking
- Traction like sensation; progressive heaviness and a dull ache in the scrotum
- Infertility
- Difficulty in micturition
- Difficulty in intercourse.

## Diagnosis

Hydrocele is a clinical diagnosis. A simple history and clinical examination often suffice to reach the diagnosis.

Classic clinical examination tests described for primary hydrocele can be summarized as follows:

Test described	Findings in primary hydrocele
Transillumination	Positive
Fluctuation	Positive
Reducibility	Negative
Impulse on coughing	Absent in all except infantile hydrocele
Palpation of testes	Testis cannot be felt separate from the fluid except in funicular and encysted variety of hydrocele.

Hydrocele fluid aspiration is usually not advocated due to obvious reaccumulation and recurrence. Once in a while in a morbid, elderly patient; aspiration of hydrocele fluid may be attempted. Ultrasonography guidance is preferred. Post-operative analysis of hydrocele fluid reveals the following characteristics:

- Straw color
- Albumin and fibrinogen rich
- Does not on clot

- **Cholesterol** abounds in long-standing cases as mentioned in Filariasis.
- **Tyrosine** crystals may be present.

Ultrasonography is a useful adjunct in the diagnostic armamentarium of hydrocele. It often subserves as the confirmatory authority and also conclusively rules out common differentials of inguinoscrotal swellings.

## Differential Diagnosis

A hydrocele is usually a simple straightforward clinical disease. Often, however; closely related differentials can mar the diagnosis. These differentials are listed as follows:

- Spermatocele
- Testicular tumor
- Hernia
- Epididymal cyst
- Scrotal edema

## Treatment

Hydrocele management is essentially surgical. It is relatively simple, definitive and curative. Various procedures have been described in the literature; all having withstood the test of time. They are as summarized below:

Surgical procedure	Explanation
<b>Jabouley's procedure</b>	Useful for moderate to large size hydroceles, it involves excision of excess sac and eversion of rest of the sac.
<b>Sharma and Jhavar's technique</b>	Minimal dissection technique of Sharma and Jhavar has a very low incidence of postoperative morbidity.
<b>Lord's plication</b>	Typically advocated for small hydroceles with clear serous fluid within. Sac wall is plicated to enhance fibrosis and subsequent obliteration.
<b>Evacuation and eversion</b>	Practiced for thin walled small hydroceles.
<b>Subtotal excision</b>	For chronic, large hydroceles with thick sac

## Sclerotherapy

Sclerotherapy is an available alternative to surgical intervention; it has inferior results and higher morbidity. About 15-20 ml of 6% **aqueous phenol** is used in adjunct with **lignocaine** for additional analgesic effects. Use of tetracycline as a sclerosing agent has fallen out of favor as the procedure incites considerable pain.

## Complications

A hydrocele is a fairly benign disease with definitive treatment options. Rare but well-described complications in literature can be summarized as follows:

- Pyocele
- Hematocele
- Infection
- Herniation of hydrocele sac
- Infertility
- Testicular atrophy
- Rupture

# Spermatocele

## Definition

Benign cystic accumulation of **barley water like fluid** containing spermatozoa and often is encountered at the superior aspect of the epididymis. This retention cyst is termed as "spermatocele". They are usually unilocular in nature.

Often paratesticular in location, these fluctuant nodular cysts are formed by obstruction of rete testis or epididymal passages, resulting in diverticuli with sperm containing fluid. It is often the presence of debris within the cyst that distinguishes spermatoceles from simple cyst of the epididymis.

## Pathogenesis

The exact etiopathogenetic mechanism remains elusive. Potential hypotheses proposed are tabulated as follows:

- Idiopathic, arise from the efferent ductules of epididymis secondary to distal obstruction or primary distension of the epididymis
- Occlusion by agglutinated germ cells
- Gestational **Diethylstilbestrol** exposure
- Inflammation, trauma and subsequent epididymal scarring leading to adhesions and formation of loculated collections containing spermatozoa.

## Classification

Spermatocele commonly arises from the head (caput) of the epididymis. Other potential locations for spermatocele help in topographical segregation as follows:

- Along the vas deferens
- Paratesticular in the scrotum.

## Symptoms

Spermatocele usually presents as an innocuous unilateral scrotal swelling. It is typically asymptomatic. Often located postero-superiorly; it occasionally leads to aching discomfort and heaviness. It is not uncommon to find spermatocele as an incidental examination finding.

## Diagnosis

Proper history taking and pertinent clinical examination usually suffice for small, classical, asymptomatic spermatocele situated on the postero-superior aspect. However, scrotal mass by itself many times leads to psychological discomfort, anxiety and mild scrotal pain. These patients often demand confirmatory investigations.

Investigations often used as adjuncts to the physical examination can be summarized as follows:

Investigation	Explanation
Fine Needle Aspiration and Cytology (FNAC)	Immotile spermatozoa appreciated

High resolution Ultrasonography(USG)	Often used as the confirmatory, non-invasive radio-imaging test of choice; it reveals the origin of these cystic lesions from the epididymis.
Color Doppler	Characteristic “ <b>falling snow</b> ” appearance is peculiar.
Histology	Histological examination reveals cuboidal epithelium enclosed in a fibromuscular wall.
Urine analysis	It helps in ruling out epididymitis.

## Differential Diagnosis

Differential diagnoses for spermatocele are listed as follows:

- Hydrocele
- Varicocele
- Epididymal cyst
- Inguinal hernia

## Treatment

Various treatment strategies can be summarized as follows:

Treatment plan	Explanation
Observation with masterly inactivity	Incidental, small, asymptomatic spermatoceles can be successfully observed
Medical management	Oral analgesics suffice for patients with vague scrotal pain. Some patients require antibiotics for associated epididymitis.
Sclerotherapy	Less effective alternative to definitive surgical management; it is used mainly for males without desire for future conception. Sclerosing agents induce chemical inflammation and fibrosis of the cyst walls with subsequent obliteration of the cyst. Various agents used are Sodium tetradecyl sulfate (STD), phenol, tetracycline and fibrin glue.
Surgical management	<b>Spermatocelectomy</b> is the primary surgical intervention. It is typically performed through the trans-scrotal approach. Family completion is a pre-requisite for this procedure.
<b>SPAS( Spermatocele aspiration)</b>	It is wrought with a high recurrence rate.

## Hematocele

Intrascrotal collection of blood around the testes is termed as “**Hematocele**”. It often develops as an iatrogenic complication of surgical intervention on the scrotum.

Occasional scrotal trauma can manifest as hematocele. Pain and history of precedent trauma to the scrotum help in diagnosis. Ultrasonography is the first and last investigation deemed necessary in diagnosis. Increased **echogenicity** with internal **septae** is characteristic.

## Summary

Though potentially disturbing for males; benign scrotal masses often have definitive treatment available and good prognosis post-treatment. The most importunate fact is differentiation from malignant tumors. Majority of benign scrotal masses transilluminate. Ultrasonography often rules out testicular tumors.

Hydrocele is culmination of abnormal fluid accumulation in the tunica vaginalis surrounding the testes. It has a benign natural course. Surgical treatment is definitive,

curative and relatively free of morbidity, complications and relapses.

Congenital hydrocele is secondary to persistent patent processus vaginalis with communication with the peritoneal cavity.

Acquired hydrocele is secondary to an underlying primary pathology. Timely treatment of the primary inciting factor often leads to regression of the secondary hydrocele.

Spermatocele is a benign retention cyst containing spermatozoa at the postero-superior aspect of the head of the epididymis.

While small asymptomatic spermatoceles can be expertly observed; spermatocelectomy in rest of the cases is a definitive treatment option. Family completion is a pre-requisite for the same.

Hematocele is blood accumulation in the scrotum outside the testes. It is often secondary to trauma or iatrogenic insult to the scrotum and its contents.

## References

Montgomery JS, Bloom DA. The diagnosis and management of scrotal masses. Med Clin North Am. 2011 Jan; 95(1):235-44.

Karl A, Seitz M, Tritschler S, Clevert D, Gratzke C, Stief C. Scrotal masses. MMW Fortschr Med. 2007 Apr 26; 149(17):44-8; quiz 49.

Patil V, Shetty SM, Das S. Common and Uncommon Presentation of Fluid within the Scrotal Spaces. Ultrasound Int Open. 2015 Nov; 1(2):E34-40

Campbell's Textbook of Urology.

Kristiansen VB, Kjems E, Sørensen C, Søndergaard JO. Hydrocele in children: indication for operation and surgical technique. Acta Chir Belg. 1989 Jul-Aug; 89(4):221-3.

Kliesch S. Hydrocele, spermatocele, and vasectomy: management of complications. Urologe A. 2014 May;53(5):671-5.

**Legal Note:** Unless otherwise stated, all rights reserved by Lecturio GmbH. For further legal regulations see our [legal information page](#).

Notes