

# Obstructive Azoospermia

**Causes, Diagnosis, Blockage of the Sperm Pathway, Microsurgical Reconstruction, Sperm Retrieval, ICSI and an Integrative Unani Approach**

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## Introduction

When a man receives a semen-analysis report showing **azoospermia**, the word can create enormous anxiety. Many patients immediately think:

**“My testes are not producing sperm, so biological fatherhood may be impossible.”**

That conclusion is not always correct.

Azoospermia simply means that sperm have not been identified in the ejaculated semen after appropriate laboratory assessment. The next and much more important question is:

## Why are sperm absent?

In some men, the testes are producing little or no sperm. This is generally called **non-obstructive azoospermia**.

In another important group of men, sperm production inside the testes may be relatively well preserved, but the sperm cannot reach the ejaculate because part of the reproductive duct system is absent, blocked, scarred or otherwise obstructed. This is called **Obstructive Azoospermia (OA)**.

Current European Association of Urology guidance defines obstructive azoospermia as absence of spermatozoa from the sediment of a centrifuged ejaculate because of an obstruction in the reproductive tract. OA accounts for approximately **20–40% of men**



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**with azoospermia** and is often associated with normal-sized testes and relatively normal reproductive hormones.

This distinction is extremely important because the prognosis, investigations and treatment of obstructive and non-obstructive azoospermia can be very different.

In obstructive azoospermia, the central problem may not be making sperm.

The problem may simply be:

**The sperm are being produced, but they cannot get out.**

For many appropriately selected men, this creates important opportunities for either **microsurgical reconstruction of the blocked reproductive tract** or **retrieval of sperm directly from the epididymis or testis for use with intracytoplasmic sperm injection (ICSI)**. Current EAU guidance strongly recommends reconstructive surgery for repairable vasal or epididymal obstruction in suitable couples and sperm-retrieval techniques when reconstruction is inappropriate, impossible or not preferred.

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### **What Is Obstructive Azoospermia?**

To understand obstructive azoospermia, imagine the male reproductive system as a production unit connected to a transport system.

The **testes produce sperm**.

From there, sperm normally travel through a series of microscopic and larger ducts:

testicular tubules → rete testis → efferent ducts → epididymis → vas deferens → ejaculatory ducts → urethra.

During ejaculation, sperm mix with fluid from the seminal vesicles, prostate and other glands to form semen.

If this transport system is blocked at any important point on both sides, sperm may continue to be produced inside the testes but fail to appear in the semen.

That is obstructive azoospermia.

The blockage can occur inside or near the testis, within the epididymis, along the vas deferens or at the ejaculatory ducts. EAU guidance divides important causes among intratesticular obstruction, epididymal obstruction, vasal obstruction and ejaculatory-duct obstruction.

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### **Azoospermia Must Be Confirmed Correctly**



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Before labeling a patient as azoospermic, laboratory accuracy is essential.

The World Health Organization's sixth edition laboratory manual remains the major international reference for standardized examination and processing of human semen. WHO emphasizes that semen analysis should use validated and standardized laboratory procedures because the clinical interpretation depends heavily upon the quality of the examination.

In a man who appears to have no sperm on routine examination, the laboratory may need to concentrate the sample and carefully examine the sediment for rare sperm.

The EAU recommends centrifugation at approximately **3,000 g for 15 minutes followed by careful microscopic examination of the pellet** when distinguishing absolute azoospermia from cryptozoospermia.

The WHO manual also cautions that detection of very rare sperm depends partly on centrifugation conditions and how much of the sediment is actually examined.

This matters because a patient with **cryptozoospermia**, in whom a few sperm can be found after extended examination, is not exactly the same as a patient with true azoospermia.

I therefore do not believe that an important diagnosis such as obstructive azoospermia should be based casually on one poorly documented semen report.

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### Repeat Semen Analysis

Semen parameters can vary, and laboratory processing can differ.

Current EAU guidance recommends **at least two consecutive semen analyses when the baseline semen analysis is abnormal.**

For azoospermia, repeat testing helps answer several questions:

Is sperm truly absent?

Were rare sperm overlooked?

Was the entire sample collected?

Is the semen volume unusually low?

Is the semen acidic?

Could there be retrograde ejaculation?

Was there a recent fever, illness or another temporary factor?

These details may change the entire diagnostic pathway.



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## Obstructive Azoospermia Versus Non-Obstructive Azoospermia

This is probably the most important distinction in an azoospermic patient.

In **obstructive azoospermia**, sperm production is often relatively preserved, but sperm transport is blocked.

In **non-obstructive azoospermia**, sperm production itself is severely impaired because of testicular failure, genetic disease, hormonal dysfunction or another spermatogenic disorder.

Typical OA findings include relatively normal testicular size, relatively normal FSH and sometimes enlargement or fullness of the epididymis. The EAU notes that OA frequently presents with normal-sized testes and normal reproductive hormones, although these findings are not perfect and mixed disorders can occur.

An important 2024 AUA/ASRM guideline analysis similarly explains that a combination of lower FSH and larger testes strongly favors obstruction, whereas elevated FSH and smaller testes favor impaired spermatogenesis; routine diagnostic testicular biopsy is therefore usually unnecessary solely to distinguish OA from NOA.

This means a good history, physical examination, semen profile and hormonal evaluation can often provide the answer without an unnecessary diagnostic operation.

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## Does Obstructive Azoospermia Affect Sexual Performance?

Usually, not directly.

A man with OA may have:

normal sexual desire, normal testosterone, normal erections, normal orgasm and apparently normal ejaculation.

The semen may even look completely normal to the naked eye.

Remember that sperm contribute only a small proportion of total semen volume. Most seminal fluid comes from the seminal vesicles and prostate.

Therefore, **a man cannot judge his sperm count from the appearance, thickness or amount of semen.**

This is one reason azoospermia is often discovered only during infertility evaluation.

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## Does Obstructive Azoospermia Mean the Testes Are Normal?



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Often sperm production is relatively preserved, but one should not assume that every patient with obstruction has perfectly normal testes.

Some men can have obstruction together with partial impairment of spermatogenesis.

The EAU specifically notes that smaller testes can occasionally occur in OA when concomitant testicular dysfunction exists.

This distinction matters because fertility counselling should reflect the individual patient rather than the diagnosis alone.

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## Where Can the Blockage Occur?

There are several major levels of obstruction.

### Intratesticular Obstruction

Very small ducts within or immediately around the testis can become obstructed.

This is less common than epididymal obstruction.

When obstruction is truly intratesticular, reconstructing the microscopic internal drainage system is generally not practical, and direct testicular sperm retrieval may be required for ICSI. Current EAU guidance states that testicular sperm retrieval is the appropriate sperm-acquisition approach for intratesticular obstruction.

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### Epididymal Obstruction

The epididymis is a long, highly coiled structure attached to the back of each testicle.

Sperm leaving the testis enter the epididymis, where they undergo further maturation and are stored.

Obstruction in the epididymis can arise from previous infection, inflammation, trauma, scrotal surgery or congenital abnormalities.

EAU data indicate that epididymal obstruction represents a substantial proportion of obstructive cases and list previous epididymitis, trauma, surgery and congenital obstruction among recognized causes.

A clinician may sometimes feel an enlarged or firm epididymis during examination.

When the obstruction is surgically reconstructable and the couple's reproductive circumstances are suitable, **epididymovasostomy** can sometimes reconnect the epididymis directly to the vas deferens.

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## Obstruction of the Vas Deferens

The vas deferens is the muscular tube that carries sperm from the epididymis toward the ejaculatory ducts.

Obstruction may occur because of:

vasectomy, previous inguinal or scrotal surgery, accidental injury, congenital absence or developmental abnormality.

The EAU specifically identifies vasectomy, surgical injury—including injury associated with hernia repair or other scrotal surgery—and congenital unilateral or bilateral absence of the vas deferens among important causes.

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## Vasectomy and Obstructive Azoospermia

Vasectomy deliberately interrupts both vasa deferentia to prevent sperm from entering the ejaculate.

When a man later wishes to restore fertility, there are generally two broad strategies:

**microsurgical vasectomy reversal or sperm retrieval combined with IVF/ICSI.**

For appropriately selected couples, reconstruction can restore sperm to the ejaculate and potentially allow repeated attempts at natural conception without requiring IVF for each pregnancy.

The EAU reports weighted post-reversal patency rates of approximately **90–97%** and pregnancy rates around **52–73%**, although actual results depend on factors such as the interval since vasectomy, intraoperative findings, female partner age and fertility, and surgical expertise.

These figures should never be interpreted as guarantees for an individual couple.

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## Congenital Bilateral Absence of the Vas Deferens

Some men are born without both vas deferens. This condition is called:

**Congenital Bilateral Absence of the Vas Deferens (CBAVD).**

In these men, the testes may produce sperm reasonably well, but the sperm have no normal transport pathway into the ejaculate.

CBAVD is strongly associated with variants in the **CFTR gene**, the gene involved in cystic fibrosis.

The EAU estimates that CBAVD is present in around 1% of infertile men and up to approximately 6% of men with obstructive azoospermia.

Men with CBAVD frequently have low-volume, acidic semen, although physical examination of the vas deferens remains particularly important.

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### **Why CFTR Genetic Testing Is Important**

When one or both vasa deferentia are absent, CFTR testing is not an optional curiosity.

It can have important implications for the couple's future child.

The EAU recommends CFTR genetic testing in men with unilateral or bilateral absence of the vas deferens or seminal-vesicle agenesis.

If a CFTR-related abnormality is found in the male partner, testing the female partner becomes important before ICSI because if both partners carry clinically relevant CFTR variants, there may be a significant risk of cystic fibrosis or another CFTR-related disorder in the child.

Genetic counselling should therefore accompany treatment rather than testing being performed merely to complete a laboratory checklist.

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### **Kidney Abnormalities and Absence of the Vas Deferens**

Congenital abnormalities of the vas deferens can also be associated with renal developmental abnormalities.

This is especially relevant in congenital unilateral absence of the vas deferens and in some men with bilateral absence when CFTR abnormalities are not identified.

EAU guidance recommends abdominal ultrasound in men with unilateral or bilateral absent vas deferens without an identified CFTR mutation because renal abnormalities can coexist.

This is an example of why male infertility evaluation sometimes reveals information about health beyond sperm production alone.

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### **Ejaculatory Duct Obstruction**

The ejaculatory ducts are located deep within the prostate and represent the final portion of the sperm transport pathway before semen enters the urethra.

They may become obstructed because of:



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congenital cysts, inflammation, infection, trauma, previous surgery or other abnormalities.

Complete ejaculatory-duct obstruction often produces a characteristic semen pattern:

**very low semen volume + acidic semen + azoospermia**, especially when the vasa deferentia are present and testosterone is normal.

Current AUA/ASRM guidance states that transrectal ultrasound or pelvic MRI may be considered when semen findings suggest ejaculatory-duct obstruction, particularly when semen is azoospermic, acidic and below about 1.4 mL in volume with palpable vasa.

The EAU similarly recommends transrectal ultrasound when low seminal volume, acidic pH and severe oligozoospermia or azoospermia suggest complete or partial ejaculatory-duct obstruction.

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### Why Low Semen Volume Matters

Low-volume azoospermia creates a different diagnostic question from normal-volume azoospermia.

If semen volume is very low or absent, possible explanations include:

incomplete collection, retrograde ejaculation, androgen deficiency, congenital absence of seminal structures or ejaculatory-duct obstruction.

A man should therefore not automatically be classified as obstructed merely because semen volume is low.

EAU guidance advises looking for sperm in urine after ejaculation when semen volume is low or absent because sperm in post-ejaculatory urine may indicate **retrograde ejaculation rather than obstructive azoospermia**.

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### Retrograde Ejaculation Is Not Obstructive Azoospermia

In retrograde ejaculation, sperm-containing semen travels backward into the bladder rather than forward through the urethra.

The reproductive ducts may not actually be blocked.

A patient may experience orgasm with little or no external semen and assume that he has azoospermia.

Post-ejaculatory urine examination can help distinguish this situation.



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This differentiation is important because treatment and fertility options differ.

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### **Infection and Inflammation**

Previous infection of the epididymis or reproductive tract can produce inflammation followed by scarring and obstruction.

The patient may or may not remember a severe previous infection.

EAU guidance includes acute and chronic epididymitis among recognized causes of epididymal and ejaculatory-duct obstruction.

Sexually transmitted infections can contribute to reproductive-tract damage in some circumstances, and WHO's 2025 infertility guideline emphasizes prevention and treatment of reproductive infections as part of infertility prevention.

Once dense fibrotic obstruction has formed, however, treating a past infection with antibiotics does not automatically reopen the blocked duct.

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### **Previous Surgery**

A careful surgical history is essential.

Obstructive azoospermia can develop after procedures involving the groin, scrotum or reproductive tract.

Relevant procedures can include:

inguinal hernia repair, orchidopexy for undescended testis, hydrocele surgery, epididymal surgery, vasectomy or other scrotal operations.

The EAU specifically identifies iatrogenic injury during hernia surgery, orchidopexy and hydrocelectomy among important historical clues to obstruction.

This is why I ask adult infertility patients about childhood surgery.

A procedure performed decades earlier may still be relevant.

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### **Trauma**

Traumatic injury to the scrotum, groin or pelvis can occasionally damage the reproductive ducts and cause obstruction.

The patient may continue to have normal testosterone and erections because hormone production is not necessarily affected.



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The problem may only become evident when pregnancy fails to occur.

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### **How I Evaluate a Patient With Suspected Obstructive Azoospermia**

When an azoospermic patient consults me, I do not consider the word **azoospermia** to be the final diagnosis.

It is the beginning of the diagnostic process.

My first responsibility is to determine whether the patient has:

true azoospermia, cryptozoospermia, obstructive azoospermia or non-obstructive azoospermia.

Only then should treatment be discussed.

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### **Medical and Reproductive History**

I want to know whether the man has previously fathered a pregnancy.

Previous natural fertility can be very informative.

For example, a man who fathered children before vasectomy and now has azoospermia has an obvious acquired obstructive explanation.

I also ask about:

childhood undescended testes, inguinal surgery, scrotal surgery, infections, epididymitis, trauma, sexually transmitted infections, vasectomy, ejaculation, testosterone or anabolic-steroid exposure and family history.

EAU guidance recommends comprehensive medical, reproductive and family history, lifestyle assessment, physical examination and semen analysis in every male presenting with fertility concerns.

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### **Physical Examination**

Examination is particularly valuable in suspected OA.

I assess the size and consistency of the testes, epididymides and the presence of both vas deferens.

Typical obstructive findings can include normal-sized testes, enlarged epididymides, epididymal or vasal nodules and absent or partially developed vas deferens.



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The physical examination can sometimes identify CBAVD before expensive investigations are performed.

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## Hormonal Tests

The main hormonal tests commonly include:

### FSH, LH and testosterone.

In pure obstructive azoospermia, these may be relatively normal because the testes are still producing sperm.

The EAU notes that FSH is commonly normal in OA, although a normal FSH does not completely exclude impaired spermatogenesis and mixed abnormalities can occur.

A very high FSH together with markedly small testes should therefore raise concern that the problem may not be purely obstructive.

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## Is Inhibin B Necessary?

Inhibin B reflects Sertoli-cell and spermatogenic activity, but current EAU guidance states that its diagnostic performance in this setting is not clearly superior to FSH and it has not become a routine essential test.

Not every test that can be measured needs to be ordered.

Good fertility care should be targeted rather than simply expensive.

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## Scrotal Ultrasound

Scrotal ultrasound can help assess:

testicular size and architecture, epididymal abnormalities and other scrotal pathology.

However, imaging should supplement rather than replace examination.

The investigation that becomes particularly important in suspected **distal obstruction** is transrectal ultrasound.

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## Transrectal Ultrasound and Pelvic MRI

When semen volume is low, semen is acidic and both vasa deferentia are palpable, I consider ejaculatory-duct obstruction.



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Transrectal ultrasound can identify:

dilated seminal vesicles, ejaculatory-duct abnormalities, midline cysts and related pathology.

Pelvic MRI may occasionally provide additional anatomical detail.

Current AUA/ASRM guidance specifically advises that TRUS or pelvic MRI should not routinely be ordered for every infertile man, but may be appropriate when the semen profile suggests ejaculatory-duct obstruction.

This is a useful principle:

**Choose the investigation because the clinical findings justify it—not because the technology is available.**

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### Is a Testicular Biopsy Required for Diagnosis?

Usually not.

A man should not routinely undergo an invasive testicular biopsy simply to determine whether his azoospermia is obstructive.

AUA/ASRM guidance advises against routine diagnostic biopsy because clinical findings, testicular size and hormonal results can usually distinguish obstruction from impaired sperm production.

The EAU similarly discourages biopsy that is purely diagnostic without simultaneous therapeutic sperm retrieval, since this can expose the patient to another unnecessary invasive procedure later.

If testicular tissue is obtained during an indicated sperm-retrieval procedure, however, relevant information can be obtained at the same time.

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### Genetic Testing in Obstructive Azoospermia

Genetic testing in OA differs from genetic evaluation of non-obstructive azoospermia.

The most important genetic issue in classical congenital obstruction is **CFTR testing when the vas deferens or seminal vesicles are congenitally absent or abnormal.**

By contrast, Y-chromosome microdeletion testing is particularly relevant to severe impairment of sperm production rather than straightforward mechanical obstruction.

This is another reason why differentiating OA from NOA before ordering genetic investigations is useful.



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## Treatment of Obstructive Azoospermia

There are two broad treatment pathways:

**restore the natural sperm pathway, or**  
**bypass the obstruction by retrieving sperm for ICSI.**

Neither approach is automatically best for every couple.

The decision depends on the type and location of obstruction, reconstructability, man's preferences, female partner's age and ovarian reserve, whether the couple wants more than one child, surgical expertise, cost and access to assisted reproductive technology.

EAU guidance therefore recommends both reconstruction and sperm retrieval according to the couple's circumstances rather than assuming that one strategy should always replace the other.

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## Microsurgical Reconstruction

When the reproductive tract can be repaired, microsurgery attempts to restore sperm to the ejaculate.

This has an important advantage:

if reconstruction succeeds, the couple may have the opportunity for natural conception and potentially more than one pregnancy without repeating IVF/ICSI.

However, restoration is not immediate in every case.

The woman's reproductive age and ovarian reserve therefore matter greatly.

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## Vasovasostomy

**Vasovasostomy** reconnects the two divided ends of the vas deferens.

It is commonly used after vasectomy.

Modern microsurgery uses magnification and very fine sutures to reconstruct the small internal lumen accurately.

Current EAU evidence reports post-vasectomy reversal patency of roughly **90–97%** and pregnancy rates of approximately **52–73%**, with sperm often returning to the ejaculate within several months.



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Again, pregnancy rates are lower than simple patency rates because pregnancy also depends upon the female partner and the overall couple fertility profile.

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### **Epididymovasostomy**

When the obstruction lies within the epididymis, the surgeon may need to connect the vas deferens directly to a healthy epididymal tubule.

This is known as **epididymovasostomy** or **vasoepididymostomy**.

It is technically more demanding than straightforward vasovasostomy.

Current EAU evidence reports approximate patency rates of **63–85%** and cumulative natural pregnancy rates of **21–45%** after epididymovasostomy, with substantial variation between patients and surgical series.

Return of sperm to the ejaculate may take months.

For that reason, female ovarian reserve and couple reproductive timing become essential considerations.

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### **Why the Female Partner's Age Matters**

Imagine two couples with exactly the same male obstruction.

In the first couple, the female partner is young and has good ovarian reserve.

Microsurgical reconstruction may provide reasonable time for natural conception.

In the second couple, the female partner is approaching the end of reproductive age or has significantly diminished ovarian reserve.

Waiting months after reconstruction may reduce overall reproductive opportunity.

Current EAU guidance therefore strongly recommends assessing the female partner's fertility status and ovarian reserve in parallel with the male investigation because it directly influences whether reconstruction or ART should be prioritized.

WHO's 2025 global infertility guideline likewise emphasizes patient-centred evaluation and progression through treatment according to the couple's findings, priorities and circumstances.

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### **Ejaculatory Duct Surgery**



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When the obstruction is located in the ejaculatory ducts, one traditional surgical option is **transurethral resection of the ejaculatory ducts (TURED)**.

The procedure opens the blocked ducts through the urethra.

It may be considered for selected inflammatory or cyst-associated obstruction.

The EAU reports natural pregnancy rates of approximately **20–25%** following TURED in published series, while also noting potential complications such as epididymitis, urinary infection, bleeding, blood in the semen and urinary reflux into the reproductive ducts.

Other specialist options can include treatment of obstructing cysts, seminal vesiculoscopy or selected endoscopic techniques depending on the anatomy.

Because these are specialized interventions, accurate imaging and experienced urological assessment are essential.

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### **When Reconstruction Is Not Possible**

Some obstructions cannot reasonably be reconstructed.

For example, large sections of both vas deferens may be absent after previous surgery.

CBAVD is congenital absence rather than a simple short blockage that can be reconnected.

In such cases, sperm retrieval combined with ICSI is usually the practical reproductive pathway.

The EAU recommends sperm retrieval using epididymal or testicular techniques when reconstruction is impossible or inappropriate.

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### **Sperm Retrieval in Obstructive Azoospermia**

Because sperm production is frequently preserved in OA, sperm can often be obtained from the epididymis or testis.

Common techniques include:

**MESA – Microsurgical Epididymal Sperm Aspiration**

**PESA – Percutaneous Epididymal Sperm Aspiration**

**TESA – Testicular Sperm Aspiration**

**TESE – Testicular Sperm Extraction**



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The appropriate method depends on anatomy, local expertise, whether reconstruction is also being performed, the intended number of ICSI cycles and laboratory practice.

Current EAU guidance supports epididymal or testicular retrieval and notes that, in OA, pregnancy outcomes after ICSI appear broadly comparable whether epididymal or testicular sperm are used, although the evidence quality is limited.

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## **MESA**

**Microsurgical Epididymal Sperm Aspiration** involves opening the epididymis under magnification and obtaining sperm-rich fluid from an appropriate epididymal tubule.

One advantage is that a large quantity of sperm can sometimes be collected in one procedure and cryopreserved for several future ICSI cycles.

EAU guidance notes that MESA can frequently provide enough sperm for multiple ICSI attempts.

MESA requires microsurgical expertise.

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## **PESA**

**Percutaneous Epididymal Sperm Aspiration** uses a needle introduced through the scrotal skin into the epididymis.

It is less invasive than open microsurgical epididymal retrieval.

It can be useful in selected men with obstruction, including CBAVD.

However, sperm quantity may be less predictable than with MESA, and repeated puncture can potentially produce epididymal scarring.

The choice should be individualized rather than simply selecting the least invasive procedure.

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## **TESA and TESE**

If epididymal sperm cannot be obtained or if the anatomy favors testicular retrieval, sperm can be retrieved directly from the testis.

**TESA** uses a needle aspiration technique.

**TESE** involves a small surgical testicular tissue biopsy from which sperm are isolated in the laboratory.



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Because spermatogenesis is usually preserved in pure OA, the situation is fundamentally different from non-obstructive azoospermia, where viable sperm may exist only in scattered microscopic areas.

That is why **micro-TESE is not automatically required for ordinary obstructive azoospermia.**

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### **Fresh Versus Frozen Sperm**

Patients sometimes assume that freshly retrieved sperm must produce better results than frozen sperm.

Current EAU evidence suggests that ICSI pregnancy outcomes in OA are broadly similar between fresh and frozen-thawed epididymal sperm, although the supporting studies are not of the highest evidence quality.

This makes sperm cryopreservation useful in many treatment plans.

It may prevent the man from undergoing repeat retrieval for every IVF cycle.

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### **Sperm Retrieval at the Time of Reconstruction**

When microsurgical reconstruction is being performed, sperm retrieval and cryopreservation can sometimes be done at the same operation.

This provides a backup in case:

reconstruction does not become patent, patency takes too long, or the couple later needs ICSI.

EAU guidance specifically supports intraoperative sperm retrieval and cryopreservation when reconstruction is impossible or as a backup in selected reconstructive procedures.

This strategy can be discussed before surgery rather than only after reconstruction fails.

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### **What Is ICSI?**

**Intracytoplasmic Sperm Injection** is an assisted reproductive technique in which an embryologist selects a single sperm and injects it directly into a mature egg.

This bypasses the need for millions of sperm to swim through the female reproductive tract and penetrate the egg naturally.

ICSI therefore made biological fatherhood possible for many men with obstructive azoospermia who previously would have required donor sperm.

Sperm obtained from the epididymis or testis can be used.

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### **IVF/ICSI Does Not Correct the Obstruction**

This distinction is important.

ICSI **bypasses** the obstruction.

It does not repair it.

If a man with bilateral obstruction has sperm retrieved for ICSI, he will normally remain azoospermic afterward unless the blockage is surgically corrected.

This difference matters when a couple is choosing between reconstruction and ART.

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### **Reconstruction or ICSI: Which Is Better?**

There is no universal answer.

The correct question is:

#### **Which strategy best fits this couple?**

Reconstruction may be attractive when obstruction is surgically correctable, the female partner has good ovarian reserve, the couple desires more than one child and both prefer the possibility of natural conception.

Sperm retrieval with ICSI may be more practical when the female partner has limited reproductive time, when reconstruction is impossible, when female-factor infertility already requires IVF, or when the couple prefers the faster ART pathway.

Current EAU recommendations explicitly incorporate these factors when deciding between reconstruction and sperm retrieval.

A good doctor should explain both pathways rather than presenting one as automatically superior.

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### **Does Obstructive Azoospermia Have a Good Prognosis?**

Compared with many forms of non-obstructive azoospermia, OA often provides a more favorable biological situation because sperm production is commonly preserved.

That does not mean pregnancy is guaranteed.



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The final outcome depends on:

the level of obstruction, sperm quality, reconstructive feasibility, female partner's age, ovarian reserve, egg quality, uterine factors, embryology laboratory expertise and other couple-specific considerations.

WHO's 2025 infertility guideline emphasizes that infertility care should be individualized and based on the findings of both partners rather than interpreting one isolated test as the couple's entire fertility prognosis.

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### **Obstructive Azoospermia and Natural Pregnancy**

Natural pregnancy is generally not possible while complete bilateral obstruction prevents sperm from entering the ejaculate.

The key exception is when the obstruction is successfully repaired.

If sperm subsequently return to the semen in adequate numbers and the female partner has no major fertility problem, natural pregnancy may become possible.

This is one of the principal reasons microsurgical reconstruction remains important despite the availability of ICSI.

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### **Does Medication Cure Obstructive Azoospermia?**

Usually not when a fixed mechanical blockage is present.

This is an extremely important point.

Hormonal medicines can help certain forms of non-obstructive infertility caused by hormone deficiency.

But if the testes are producing sperm normally and the vas deferens is physically blocked, increasing hormones generally does not reopen the duct.

Similarly, vitamins, antioxidants or sexual tonics cannot reconnect a vas deferens that is absent or surgically divided.

This is why the diagnosis must come before the prescription.

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### **Testosterone Should Not Be Used as a Fertility Treatment**

A man with obstructive azoospermia may have normal testosterone and normal sperm production.

Taking external testosterone in the hope of increasing “male strength” can actually suppress FSH and LH and reduce sperm production inside the testes.

Current EAU guidance strongly recommends **not using testosterone therapy for treatment of male infertility**.

This is particularly important in a man whose testes are currently producing sperm successfully despite a ductal blockage.

We should protect that sperm production, not suppress it.

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### **Obstructive Azoospermia and the Unani System of Medicine**

As a physician trained in the **Unani System of Medicine**, I believe obstructive azoospermia is an especially important condition in which traditional principles must be applied with clinical accuracy.

Unani medicine has always emphasized that treatment should depend on the **nature and cause of the disorder**, rather than prescribing the same remedy for every patient.

The Central Council for Research in Unani Medicine describes **Izala-i-Sabab**, or removal/correction of the causative factor, as a fundamental Unani principle. CCRUM also describes the principal therapeutic methods as **Ilaj-bil-Ghiza (dietotherapy)**, **Ilaj-bil-Tadbir (regimental therapy)**, **Ilaj-bil-Dawa (pharmacotherapy)** and **Ilaj-bil-Yad (surgical or procedural treatment)**.

This traditional cause-oriented principle is particularly relevant to obstructive azoospermia.

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### **Izala-i-Sabab: Treat the Actual Cause**

Suppose a man's vas deferens has been divided by vasectomy.

No diet can physically join the two cut ends.

Suppose another patient was born without both vas deferens.

No herbal medicine can create missing ducts.

Suppose another patient has an obstructing ejaculatory-duct cyst.

The cyst needs specific anatomical evaluation.

And if epididymal scarring has completely blocked the sperm pathway, restoring flow may require microsurgical reconstruction or bypassing the blockage through sperm retrieval.



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For me, this is a very practical modern application of **Izala-i-Sabab**:

**identify what is preventing the sperm from reaching the ejaculate and treat that mechanism appropriately.**

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### **Ilaj-bil-Yad and Structural Obstruction**

Official Unani literature recognizes **Ilaj-bil-Yad**, treatment through surgery or procedural intervention, as one of its therapeutic categories.

From a modern clinical perspective, a fixed reproductive-tract obstruction is precisely the kind of condition in which structural treatment may be required.

Today, that structural treatment should be performed using contemporary microsurgical urology or assisted reproductive techniques by appropriately trained specialists.

This may include vasovasostomy, epididymovasostomy, selected endoscopic treatment of ejaculatory-duct obstruction or sperm retrieval for ICSI.

I consider this much more consistent with rational Unani cause-oriented medicine than promising that an oral medicine alone can reopen every anatomical obstruction.

---

### **Ilaj-bil-Ghiza: Diet and General Reproductive Health**

**Ilaj-bil-Ghiza**, or dietotherapy, can still have an important supportive role.

Diet cannot reconnect a blocked vas deferens, but good nutritional and metabolic health can help preserve general reproductive health.

I pay attention to body weight, adequate nutrition, protein intake, vegetables, fruits, whole foods, appropriate healthy fats and management of metabolic disease according to the patient's individual situation.

WHO's 2025 infertility guideline likewise recommends healthy diet, appropriate physical activity and avoidance of tobacco as part of reproductive-health care for people planning pregnancy.

These measures support health but should not be misrepresented as mechanical treatment for an obstruction.

---

### **Ilaj-bil-Tadbir: Lifestyle and Regimental Care**

Unani medicine traditionally considers sleep, activity, rest, mental state and broader lifestyle when treating the patient as a whole. CCRUM describes this holistic approach as part of Unani clinical philosophy.

In an infertile patient, these principles can support:

healthy physical activity, adequate sleep, healthy weight, reduction of smoking and excessive alcohol, psychological well-being and overall metabolic health.

These factors are useful because the patient is more than his reproductive tract.

But I would not tell a man that lifestyle regulation alone will remove a complete bilateral duct obstruction.

---

### **Ilaj-bil-Dawa: Unani Pharmacotherapy**

Unani pharmacotherapy can be considered in a supportive, individualized manner when there are appropriate indications related to general health, constitutional factors or additional reproductive concerns.

However, scientific honesty is essential:

**there is currently no high-quality evidence showing that a Unani herbal medicine can reliably reopen a congenitally absent vas deferens, reverse dense post-surgical scarring or mechanically restore a completely obstructed ejaculatory pathway.**

That limitation should be explained openly.

A structural disease should not be treated as if it were simply “sperm weakness.”

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### **Where Unani Medicine May Be Most Useful**

In obstructive azoospermia, the potentially useful role of Unani medicine is primarily **supportive and integrative**.

It can focus on general health, nutrition, lifestyle, stress, metabolic health and other individualized concerns while the actual obstruction is evaluated and treated appropriately.

If an OA patient also has diabetes, obesity, poor nutrition, chronic stress or another treatable medical problem, these areas deserve attention.

But an anatomical obstruction requires anatomical thinking.

That is the key distinction.



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## Why I Avoid Making “100% Cure” Claims

Obstructive azoospermia can often be treated effectively from a reproductive point of view, but that does not justify promising a guaranteed cure.

Some obstructions are reconstructable.

Others are not.

Some reconstructions restore sperm but pregnancy still does not occur because of female or combined factors.

Some couples proceed directly to ICSI.

Others may need repeated ART cycles.

Responsible medicine should describe **options and probabilities**, not guarantees.

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## The Saira Health Care Approach to Obstructive Azoospermia

At **Saira Health Care**, my approach to an azoospermic patient begins with one principle:

### **First determine why sperm are absent.**

I do not consider it scientifically appropriate to prescribe infertility medicine for months before establishing whether the patient has an obstruction or a sperm-production problem.

The distinction directly changes treatment.

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## Confirming the Diagnosis

First, I review the semen reports carefully.

Was azoospermia confirmed?

Was the pellet examined after appropriate processing?

Were at least two samples assessed when necessary?

What was the semen volume?

What was the pH?

Is there any possibility of cryptozoospermia or retrograde ejaculation?

This protects the patient from being treated for a diagnosis he may not actually have.



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## Distinguishing Obstruction From Testicular Failure

Next, I combine the history, physical examination, testicular size and hormone profile.

Normal-sized testes and relatively normal FSH support obstruction, while markedly small testes and elevated FSH make severe spermatogenic impairment more likely.

But medicine is not always textbook-perfect, so mixed conditions must remain possible.

---

## Locating the Obstruction

I then ask:

Is the epididymis involved?

Are both vas deferens present?

Was there a vasectomy?

Was there previous inguinal or scrotal surgery?

Is semen unusually low in volume and acidic?

Is ejaculatory-duct obstruction possible?

When needed, targeted imaging such as TRUS can help locate distal obstruction.

---

## Protecting the Couple's Reproductive Time

Male treatment cannot be planned in isolation.

The female partner's age, ovarian reserve and other fertility factors need to be known.

If the female partner has good reproductive reserve, reconstructive surgery may provide time for natural conception.

If ovarian reserve is declining significantly, proceeding directly to sperm retrieval and ICSI may be more appropriate.

EAU guidance strongly supports this parallel couple assessment.

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## Genetic Assessment When Indicated

If one or both vasa deferentia are congenitally absent, CFTR testing becomes important.



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When a clinically important CFTR abnormality is found, partner testing and genetic counselling should be discussed before assisted reproduction.

This is part of protecting not only the present patient but also the future child.

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### **Choosing Reconstruction or Sperm Retrieval**

For a repairable vasal or epididymal obstruction, I believe the patient should understand the possibility of reconstructive microsurgery.

For unreconstructable obstruction, CBAVD, limited female ovarian reserve or couples who prefer ART, sperm retrieval with ICSI may be the better path.

The choice should be made after explanation rather than automatically.

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### **Integrating Unani Support Responsibly**

My Unani approach is then directed at the patient as a whole.

Diet, sleep, metabolic health, physical activity, stress and other individualized factors can be optimized.

Unani pharmacotherapy may be considered where clinically appropriate.

But if a mechanical blockage requires surgery or sperm retrieval, I believe it is my responsibility to explain that clearly rather than delaying definitive reproductive treatment.

---

### **Saira Health Care's Contribution to Sexual Disorders and Infertility**

At **Saira Health Care**, our focused work in sexual disorders and infertility involves helping patients differentiate between conditions that may appear similar to the patient but have completely different biological mechanisms.

For example:

azoospermia is not the same as low sperm count.

Obstructive azoospermia is not the same as non-obstructive azoospermia.

Anejaculation is not the same as azoospermia.

Retrograde ejaculation is not the same as ductal obstruction.

Low semen volume does not automatically mean low sperm production.



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And normal sexual performance does not guarantee normal fertility.

This differentiation is an important contribution of focused sexual and reproductive-health care.

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### **Obstructive Azoospermia and Sexual Confidence**

Azoospermia frequently affects a man's self-esteem.

Some patients tell me:

**“If there are no sperm in my semen, does that mean I am sexually weak?”**

No.

Sperm production, sperm transport, erection, libido and orgasm are different physiological functions.

A man with OA may have completely normal testosterone, normal sexual desire and normal erections.

His problem may simply be a blocked transport pathway.

I consider this explanation therapeutically important because unnecessary shame can itself damage the couple's sexual relationship.

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### **Psychological Effects of Infertility**

Infertility can produce:

anxiety, guilt, loss of confidence, relationship stress, social withdrawal and depressive symptoms.

WHO's 2025 infertility guideline explicitly recognizes the psychological burden associated with infertility and emphasizes access to psychosocial support as part of quality fertility care.

Counselling should therefore not be limited to telling the couple which laboratory test comes next.

The emotional impact deserves attention too.

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### **Can Obstructive Azoospermia Come Back After Surgery?**

Yes, recurrence or late failure can occur.

After epididymovasostomy, late failure rates vary substantially between published series. After vasectomy reversal, late failure is less common but still possible.

EAU data report heterogeneous late failure after epididymovasostomy and less frequent late failure after vasovasostomy.

This is one reason sperm cryopreservation can sometimes be discussed when sperm return to the ejaculate after reconstruction.

---

### How Soon Do Sperm Return After Reconstruction?

Timing depends on the procedure.

Following vasectomy reversal, sperm may return within a few months.

EAU guidance reports an average time to patency of approximately **1.7–4.3 months** after vasovasostomy.

After epididymovasostomy, recanalization can take longer; systematic-review data cited by the EAU indicate approximately **2.8–6.6 months on average**, with broader ranges reported clinically.

Patients should therefore know that surgery does not necessarily produce sperm in the ejaculate the next week.

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### Follow-Up After Reconstruction

Semen analysis is used to determine whether sperm have returned.

The schedule depends upon the procedure and surgeon.

If sperm appear, concentration, motility and overall quality are monitored.

If no sperm return within an appropriate period, persistent or recurrent obstruction may need to be considered.

For couples with limited reproductive time, the plan should already include what will happen if reconstruction does not succeed.

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### Can a Man With CBAVD Have a Biological Child?

Often, yes.

Although the vas deferens cannot usually be reconstructed because it is congenitally absent, sperm production can be preserved.



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Sperm can often be obtained from the epididymis or testis using methods such as MESA, PESA, TESA or TESE and then used for ICSI.

The important additional issue is CFTR genetic counselling.

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### **Is IUI Useful in Obstructive Azoospermia?**

Not while complete azoospermia remains.

Intrauterine insemination requires sperm in a processed semen specimen.

If no sperm can reach the ejaculate because of complete obstruction, there is nothing useful to prepare for standard IUI.

The usual reproductive options are therefore:

restore sperm to the ejaculate through reconstruction, or retrieve sperm surgically for IVF/ICSI.

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### **Can ICSI Be Done With Very Few Retrieved Sperm?**

Yes.

ICSI requires one viable sperm for each mature egg being injected.

That is precisely why the procedure is so valuable for severe male-factor infertility.

The number and quality of retrieved sperm still matter for practical embryology, but millions of sperm are not required as they would be for conventional fertilization.

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### **Does the Source of Sperm Matter in OA?**

Current EAU evidence suggests that, in men with obstructive azoospermia, pregnancy and miscarriage outcomes with ICSI do not appear to differ substantially according to whether sperm are obtained from the epididymis or testis. Fresh versus frozen-thawed epididymal sperm also appears broadly comparable, though evidence quality is limited.

This allows the sperm-retrieval strategy to be tailored to anatomy, surgeon experience and the couple's treatment plan.

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### **Common Mistakes I Encourage Patients to Avoid**

Several mistakes can delay effective treatment.



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A man should not assume that one azoospermia report proves complete absence of sperm production.

He should not begin testosterone because he believes it will increase sperm.

He should not spend years taking empirical fertility tonics without establishing whether both vas deferens are physically blocked.

He should not assume that normal erections mean normal fertility.

Conversely, he should not assume azoospermia means impotence.

Couples should also avoid investigating the man for years without simultaneously considering the female partner's fertility.

Above all, a mechanical reproductive-tract obstruction should not be treated indefinitely as if it were merely nutritional weakness.

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## **Frequently Asked Questions About Obstructive Azoospermia**

### **What does obstructive azoospermia mean?**

It means sperm are absent from the ejaculated semen because the reproductive tract is blocked or missing at some point, while sperm production in the testes may remain relatively preserved.

### **Is obstructive azoospermia different from non-obstructive azoospermia?**

Yes. OA primarily involves sperm transport. NOA primarily involves severe impairment of sperm production. The investigations and treatment can therefore be very different.

### **Can a man with obstructive azoospermia have normal testosterone?**

Yes. Normal FSH, testosterone and testicular size are common in pure OA because the testes may continue functioning normally.

### **Can a man with OA have normal erections?**

Yes. Obstruction does not normally prevent erections or sexual desire.

### **Can semen look normal even if there are no sperm?**

Yes. Most semen volume comes from glands such as the seminal vesicles and prostate, not from sperm themselves.

### **Does azoospermia need to be confirmed?**

Yes. High-quality semen analysis and repeat testing are important. WHO standardized laboratory methods should be followed, and the semen pellet should be carefully examined when differentiating azoospermia from cryptozoospermia.

### **What causes obstructive azoospermia?**

Important causes include vasectomy, congenital absence of the vas deferens, epididymal obstruction after infection, previous inguinal or scrotal surgery, trauma and ejaculatory-duct obstruction.

### **Can a childhood hernia operation cause obstruction?**

Yes. Iatrogenic vasal injury following inguinal surgery is a recognized cause of acquired obstruction.

### **Is CFTR testing necessary?**

It is particularly important when one or both vas deferens or seminal vesicles are congenitally absent or abnormal. Partner testing and genetic counselling may then also be appropriate.

### **Can obstructive azoospermia be treated surgically?**

Yes, some forms can. Microsurgical vasovasostomy or epididymovasostomy can restore sperm flow in appropriately selected cases.

### **Can pregnancy occur naturally after surgery?**

Yes, when reconstruction successfully restores sperm and female fertility is adequate. Published pregnancy rates vary considerably with the type of obstruction and procedure.

### **What if reconstruction is impossible?**

Sperm may often be retrieved from the epididymis or testis and used for IVF/ICSI.

### **Is micro-TESE required for obstructive azoospermia?**

Usually not as the default approach. Micro-TESE is principally associated with sperm retrieval in non-obstructive azoospermia, where sperm production may occur only in focal areas. In OA, simpler epididymal or testicular retrieval techniques are often sufficient depending on anatomy.

### **Can medication open the blockage?**

A fixed anatomical obstruction generally cannot be corrected by oral medication alone.

### **Can testosterone improve OA?**



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No. Testosterone does not open the obstruction and can suppress sperm production. It should not be used as a treatment for male infertility.

### **Can Unani medicine help?**

Unani medicine can provide **individualized supportive care** through cause-oriented assessment, diet, lifestyle, general health and appropriately selected pharmacotherapy. However, a complete anatomical blockage, absent vas deferens or dense surgical scar usually requires microsurgical correction or sperm retrieval rather than expecting herbal medicine to physically reopen the duct.

### **Can a man with CBAVD become a biological father?**

Often, yes. Sperm may be retrieved from the epididymis or testis and used with ICSI, but CFTR genetic counselling is particularly important.

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### **A Message to My Patients**

When a man comes to me and says:

**“Doctor, my report says azoospermia. Does this mean my testes have stopped producing sperm?”**

My answer is:

**Not necessarily.**

First, we need to determine whether the problem is production or transport.

If your testes are producing sperm but the pathway is blocked, that is a very different clinical situation from severe testicular failure.

Another patient may ask:

**“Can medicine make the sperm come out?”**

My answer depends on the cause.

If the problem is hormonal, medicine may sometimes be extremely useful.

But if the vas deferens is physically absent, cut or completely scarred, medication cannot manufacture a new anatomical tube.

And when another patient says:

**“If I need sperm retrieval, does that mean there is no hope?”**

I explain that the purpose of sperm retrieval is exactly the opposite.



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In many men with obstructive azoospermia, sperm are still being produced. The reproductive team is simply obtaining them from behind the blockage so they can be used with ICSI.

Understanding the mechanism removes much unnecessary fear.

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## **Dr. Nizamuddin Qasmi and Saira Health Care**

### **Dr. Nizamuddin Qasmi**

**Founder & Chief Physician, Saira Health Care**

**Focused Practice in Sexual Disorders & Infertility**

### **Professional Qualifications and Training**

**BUMS – Hamdard University, Delhi**

**MD**

**CGO**

**Certificate in Infertility – MGBIMS, Delhi**

**Certificate in Urology – London, UK**

**Masters in Male Infertility – MasterHealthPro (HealthPro)**

**Integrated Sexual and Reproductive Health – ISRH, UNFPA**

At **Saira Health Care**, my focused clinical approach to male infertility is based on understanding the actual mechanism behind the semen abnormality.

For obstructive azoospermia, this means distinguishing obstruction from testicular sperm-production failure, assessing possible congenital and acquired causes, identifying genetic issues such as CFTR abnormalities when relevant, evaluating the couple's fertility together and helping the patient understand whether reconstruction, sperm retrieval/ICSI or an individualized combination of approaches is appropriate.

The Unani component of care is used responsibly to support general health, nutrition, lifestyle and individualized clinical needs rather than making unrealistic claims that oral medicines alone can reverse every structural obstruction.

When specialist microsurgery, genetic counselling, IVF/ICSI or advanced reproductive laboratory treatment is required, timely referral and coordination are an essential part of comprehensive infertility care.

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## **Conclusion**

**Obstructive azoospermia is a form of severe male infertility in which sperm are absent from the ejaculate because their transport pathway is blocked or**



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**congenitally absent, even though sperm production inside the testes may remain relatively preserved.**

It accounts for approximately **20–40% of azoospermia cases** and commonly presents with normal-sized testes and relatively normal reproductive hormones.

The first priority is accurate diagnosis.

Azoospermia should be confirmed with properly performed semen analysis, including careful examination for rare sperm so cryptozoospermia is not missed. History, physical examination, semen volume and pH, hormone levels and targeted imaging can then help distinguish obstruction from severe impairment of spermatogenesis.

The location and cause of obstruction matter.

Important causes include previous vasectomy, epididymal scarring after infection, congenital absence of the vas deferens, surgical injury and ejaculatory-duct obstruction. In men with absent vas deferens or seminal-vesicle agenesis, CFTR testing and appropriate genetic counselling are particularly important.

Treatment is highly individualized.

When obstruction is reconstructable and the female partner has good ovarian reserve, **microsurgical vasovasostomy or epididymovasostomy** may restore sperm to the ejaculate and provide an opportunity for natural conception. When reconstruction is impossible, undesirable or poorly suited to the couple's reproductive timing, **MESA, PESA, TESA or TESE followed by ICSI** can bypass the obstruction.

The female partner should be evaluated at the same time because her age, ovarian reserve and other fertility factors can completely change the preferred strategy. This couple-centred approach is supported both by current EAU recommendations and WHO's 2025 global infertility guideline.

From the **Unani perspective**, the principle of **Izala-i-Sabab—identifying and addressing the causative factor—is especially relevant**. CCRUM recognizes dietotherapy, regimental therapy, pharmacotherapy and surgical/procedural therapy as components of the Unani therapeutic framework.

In obstructive azoospermia, however, responsible integration requires understanding an important limitation:

**A complete mechanical blockage or congenitally absent reproductive duct cannot be reliably reopened by diet or herbal medicine alone.**

Unani care can meaningfully support the patient's overall reproductive health, diet, lifestyle and well-being, while modern microsurgery or assisted reproduction addresses the anatomical problem where required.



At **Saira Health Care**, my central message to patients is therefore:

**Azoospermia does not always mean that sperm are not being produced. If the sperm pathway is blocked, modern investigation can often identify the level of obstruction, and appropriately selected reconstruction or sperm retrieval with ICSI may provide a realistic route toward biological fatherhood.**

The most important first step is not to panic and not to begin random treatment.

It is to determine:

**Is the sperm-production factory failing—or is the road simply blocked?**

Once we know that answer, treatment becomes far more rational.

**For more information:**

<https://www.sairahealthcare.com/>

**Book an appointment:**

<https://www.sairahealthcare.com/Appointment.aspx>

**Saira Health Care Pharmacy:**

<https://pharmacy.sairahealthcare.com/>

**Medical Disclaimer:** This article is intended for general medical education and patient awareness. It does not replace individualized examination, semen analysis, hormonal assessment, genetic counselling, urological evaluation or fertility treatment.

Obstructive azoospermia has several causes, and the appropriate management differs substantially between patients. Do not begin testosterone, fertility hormones, supplements, herbal products or Unani medicines solely on the basis of an online article. Microsurgical reconstruction, sperm retrieval and assisted reproduction should be performed by appropriately trained specialists, and no treatment can guarantee pregnancy or live birth.



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