

Cryptozoospermia

Extremely Low Sperm Count, Causes, Diagnosis, Genetic Evaluation, Treatment, ICSI and an Integrative Unani Approach

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Introduction: “Doctor, My Report Says No Sperm—But the Laboratory Later Found a Few”

One of the most important situations I encounter in male infertility is a man who has initially been told:

“There are no sperm in your semen.”

Naturally, he becomes frightened that he has azoospermia and may never be able to father a biological child.

But after the semen sample is processed more carefully, centrifuged and examined thoroughly, a few spermatozoa are discovered in the sediment.

This condition is called **cryptozoospermia**.

Cryptozoospermia represents an extremely severe reduction in sperm numbers. There may be so few sperm that none are seen during an ordinary initial microscopic examination, yet sperm can still be detected after appropriate laboratory processing and an intensive search.

This difference is medically very important because **cryptozoospermia is not the same as absolute azoospermia**.

The European Association of Urology currently recommends centrifugation and careful microscopic examination of the semen pellet when distinguishing azoospermia from cryptozoospermia. Its current male-infertility guideline specifically describes



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centrifugation at approximately 3,000 g for 15 minutes followed by thorough microscopic examination as a method for identifying sperm that could otherwise be missed.

Recent research reinforces how important this distinction is. In a 2025 retrospective study of men referred with an outside diagnosis of azoospermia, extended semen examination identified cryptozoospermia in **74 of 372 patients, or 19.9%**. A 2026 review consequently emphasizes that careful extended semen analysis can prevent some men with rare ejaculated sperm from being incorrectly classified as azoospermic.

For a patient, finding even a very small number of sperm may significantly change the diagnostic pathway, fertility-preservation plan and assisted-reproduction options.

What Is Cryptozoospermia?

The word can be understood simply:

“Crypto” means hidden.

“Zoo” refers to spermatozoa.

Cryptozoospermia therefore describes sperm that are present but extremely difficult to find.

In practical terms, spermatozoa are generally absent from the initial direct microscopic preparation but are detected after the semen sample has been concentrated—usually by centrifugation—and the sediment is examined carefully.

The WHO laboratory manual remains the international reference for standardized semen examination, while current European guidance specifically emphasizes careful assessment of very low sperm numbers so that rare sperm are not missed.

The sixth edition of the WHO semen manual also stresses that laboratories should continue assessing and reporting very low concentrations rather than stopping measurement at an arbitrary low threshold.

This is especially important in modern infertility treatment because **only a very small number of sperm may be required for intracytoplasmic sperm injection (ICSI)**.

Cryptozoospermia Is Not the Same as Azoospermia

Patients frequently confuse cryptozoospermia with azoospermia, but the distinction has major implications.



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Condition	Basic meaning
Normal/near-normal sperm concentration	Sperm are readily measurable in semen
Oligozoospermia	Sperm concentration is below the reference range
Severe oligozoospermia	Sperm concentration is extremely low; EAU commonly uses <5 million/mL as the severe range
Cryptozoospermia	Sperm are so rare that they may only be identified after centrifugation/extended microscopic search
Azoospermia	No sperm are identified in the ejaculate even after appropriate centrifugation and sediment examination

Current EAU guidance uses a sperm concentration below **16 million/mL** as the conventional oligozoospermia threshold and considers concentrations below **5 million/mL** particularly important because genetic abnormalities and significant testicular dysfunction become more common as sperm concentration falls.

Cryptozoospermia lies at the extreme end of this spectrum.

I often explain it to patients in simple language:

“Your sperm production is extremely low, but it is not necessarily zero.”

That distinction can be extremely important.

Does Cryptozoospermia Mean Complete Infertility?

No.

Cryptozoospermia indicates **severely impaired male fertility**, but it does not mean biological fatherhood is automatically impossible.

Natural conception becomes much more difficult because so few sperm are available to reach and fertilize an egg. However, fertility is influenced by much more than sperm concentration alone.

We also consider sperm motility, morphology and function, timing and frequency of intercourse, the female partner's age and ovarian reserve, fallopian-tube status and other reproductive factors.

The WHO emphasizes that infertility belongs clinically to the **couple's reproductive situation**, rather than being determined from one semen result alone. Its first global infertility-treatment guideline, issued in November 2025, recommends a person-



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centred diagnostic pathway that evaluates relevant male and female factors before treatment decisions are made.

For cryptozoospermia specifically, modern assisted reproductive technology—particularly ICSI—can provide a route to biological parenthood in many appropriately selected couples.

Why Can the Sperm Count Change From One Test to Another?

This is another source of enormous confusion.

A man may have one semen report showing a few sperm, another showing no sperm, and a third again showing rare sperm.

That does not necessarily mean that the laboratory made a mistake.

Sperm production can fluctuate, particularly when spermatogenesis is severely impaired.

The number of sperm appearing in the ejaculate may be affected by illness, fever, medications, hormones, exposure to heat or toxins, incomplete collection and normal biological variation.

Laboratory methods matter as well.

When only a handful of sperm exist, whether the laboratory examines the complete specimen carefully can determine whether the report says **cryptozoospermia or azoospermia**.

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

In severe cases, I consider this particularly important before assigning a permanent diagnosis.

Why Does Cryptozoospermia Occur?

Cryptozoospermia is not one disease with one cause.

It is a semen finding indicating extremely severe impairment of sperm production or, in some cases, sperm delivery.

The underlying causes overlap with those responsible for severe oligozoospermia and non-obstructive azoospermia.

Some men have an identifiable cause.



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In others, even after appropriate evaluation, no single explanation can be demonstrated.

Primary Testicular Spermatogenic Failure

The testes are responsible for sperm production.

When spermatogenesis is severely impaired, very few sperm may mature sufficiently to appear in the ejaculate.

This can occur because of congenital, genetic, acquired or unexplained testicular dysfunction.

In these patients, the testicles may sometimes be small and FSH may be elevated because the pituitary gland is trying to stimulate poorly functioning seminiferous tubules.

The EAU recognizes severe oligozoospermia and azoospermia as conditions in which significant impairment of spermatogenesis and genetic abnormalities become increasingly likely.

Genetic Causes

Genetic evaluation is particularly important when sperm concentration is extremely low.

Potential genetic abnormalities include chromosome abnormalities and Y-chromosome microdeletions.

Chromosomal Abnormalities

The frequency of chromosomal abnormalities increases as spermatogenic failure becomes more severe.

The EAU notes that men with sperm concentrations below 5 million/mL have a substantially higher frequency of chromosomal abnormalities than the general male population. It currently recommends karyotype testing and genetic counselling in men with azoospermia or sperm concentrations below 5 million/mL.

The AUA/ASRM guideline is somewhat more selective: its 2024 amendment recommends karyotype testing in men with primary infertility and azoospermia or sperm concentration below 5 million/mL when findings such as elevated FSH, testicular atrophy or another diagnosis of impaired sperm production are present.

The exact testing strategy should therefore be individualized according to the clinical picture and local guideline practice.

Y-Chromosome Microdeletions

An important genetic cause of severe male infertility involves deletion of portions of the **AZF region of the Y chromosome**.

These regions contain genes involved in sperm production.

The EAU reports Y-chromosome microdeletions in approximately 8–12% of men with non-obstructive azoospermia and 3–7% of men with oligozoospermia overall, with the highest yield among men with extremely low sperm concentrations.

Current European guidance strongly recommends Y-chromosome microdeletion testing when sperm concentration is **1 million/mL or less** and advises considering it below 5 million/mL. The amended AUA/ASRM guideline similarly uses ≤ 1 million/mL in men with evidence of impaired sperm production as the main threshold.

This is highly relevant to cryptozoospermia because sperm numbers are commonly far below these thresholds.

Why the Type of Y-Chromosome Deletion Matters

Not all Y-chromosome microdeletions have the same prognosis.

Complete AZFa or AZFb deletions are associated with extremely poor prospects for finding sperm in the testis, and current EAU guidance advises against testicular sperm extraction in men with complete deletions involving AZFa or AZFb because successful sperm retrieval is essentially not expected.

In contrast, men with isolated **AZFc deletion** can show a wide spectrum ranging from severe oligozoospermia to azoospermia, and sperm may sometimes be identified in the ejaculate or retrieved surgically.

Genetic counselling is essential because a man with an AZFc deletion who fathers a son through ICSI will transmit the affected Y chromosome to that son.

This is why genetic testing is not merely an academic investigation. It can influence treatment, prognosis and counselling of the future family.

Klinefelter Syndrome and Other Chromosomal Conditions

Klinefelter syndrome—most commonly **47,XXY**—is one of the important chromosomal causes of severe impairment of sperm production.

Many affected men have azoospermia, but some mosaic or selected patients may have rare ejaculated sperm, and others may have focal sperm production in the testes.

AUA/ASRM guidance notes that microdissection testicular sperm extraction may identify sperm in approximately 50–60% of appropriately selected non-mosaic men with Klinefelter syndrome undergoing retrieval.

This is another reason why severe sperm deficiency deserves proper andrological and genetic assessment instead of being labelled simply “weak sperm.”

Varicocele

A **varicocele** is an enlargement of veins around the testicle.

It is common and does not cause infertility in every man, but clinically significant varicoceles are more common among infertile men and may impair spermatogenesis through mechanisms involving increased scrotal temperature, oxidative stress, hypoxia and other testicular effects.

Current EAU guidelines recommend treatment for infertile men who have:

a **clinically palpable varicocele**, abnormal semen parameters and otherwise unexplained infertility, particularly when the female partner has satisfactory ovarian reserve.

The decision becomes particularly individualized in cryptozoospermia because the couple must balance the possibility of improving spermatogenesis against the time required for improvement and the female partner's reproductive age.

A September 2026 review focusing specifically on cryptozoospermia reports that microsurgical varicocelectomy improved semen parameters in approximately half of selected cryptozoospermic men with palpable varicoceles in the observational literature and sometimes avoided the need for surgical sperm retrieval. The authors nevertheless emphasize careful patient selection because the evidence remains largely observational.

Hormonal Causes

Sperm production is controlled through the **hypothalamic-pituitary-testicular axis**.

Important hormones include GnRH, LH, FSH and testosterone.



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Severe abnormalities of this hormonal system can markedly suppress sperm production.

A patient with congenital or acquired **hypogonadotropic hypogonadism**, for example, may have extremely low sperm production because the testes are not receiving adequate gonadotropin stimulation.

This is clinically important because this type of infertility can sometimes be treated with appropriately selected gonadotropin therapy.

The EAU strongly recommends gonadotropin-based induction of spermatogenesis for men with congenital or acquired hypogonadotropic hypogonadism who wish to father children.

This is entirely different from a man whose testes are failing despite very high FSH.

The same semen report can therefore arise from very different diseases.

Testosterone and Anabolic Steroids

This is one of the most preventable causes of severe sperm suppression.

Some men take testosterone injections, gels or bodybuilding anabolic steroids because they believe that more testosterone will improve male fertility.

The opposite can happen.

External testosterone suppresses LH and FSH from the pituitary and can dramatically reduce the high intratesticular testosterone concentration required for normal sperm production.

The EAU therefore states clearly that **testosterone therapy is contraindicated as treatment for male infertility**. It also advises withdrawal of anabolic steroids in infertile men before considering appropriate fertility-restoring hormonal strategies.

A man with cryptozoospermia should always tell his fertility specialist about testosterone, gym injections and hormonal supplements.

Undescended Testes and Previous Testicular Disease

A history of undescended testis, particularly when bilateral or corrected late, can affect spermatogenic capacity.

Other potentially important historical factors include severe testicular trauma, torsion, orchitis, testicular surgery and certain childhood or adult diseases that damage testicular tissue.



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This is why a reproductive history should include events from childhood—not only recent sexual history.

Chemotherapy, Radiotherapy and Environmental Exposures

Cancer treatments can be gonadotoxic.

Chemotherapy and radiotherapy can damage sperm-producing cells, sometimes temporarily and sometimes permanently depending on drug, dose and treatment field.

Current EAU guidance strongly supports fertility preservation with sperm cryopreservation before gonadotoxic cancer treatment whenever possible.

Occupational and environmental exposures may also contribute to impaired spermatogenesis in some men, although determining cause and effect in an individual patient can be difficult.

Smoking, Obesity, Alcohol and Lifestyle

Lifestyle alone does not explain every case of cryptozoospermia, particularly severe genetically determined spermatogenic failure.

Nevertheless, lifestyle can add further stress to already compromised sperm production.

Current EAU evidence links obesity, inadequate physical activity, smoking and high alcohol intake with poorer sperm quality. It strongly recommends counselling infertile men about modifying these factors to improve their overall reproductive health and chances of conception.

WHO's 2025 global infertility guideline similarly recommends healthy diet, physical activity and tobacco cessation for people planning or attempting pregnancy.

Lifestyle optimization should therefore be viewed as part of treatment—but not as a substitute for investigating severe sperm deficiency.

Partial Obstruction

Not every severely reduced sperm concentration is caused entirely by poor sperm production.

Partial obstruction of the reproductive tract can sometimes produce very low sperm numbers.



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The possibility becomes particularly relevant when semen volume is low, pH is acidic or physical/imaging findings suggest obstruction.

Current EAU guidance recommends transrectal ultrasound when a man has low seminal volume, acidic pH and severe oligozoospermia or azoospermia and distal obstruction is suspected.

The treatment of partial obstruction is completely different from treatment of primary testicular failure, again demonstrating why diagnosis comes first.

Idiopathic Cryptozoospermia

Sometimes no clear cause is identified despite careful history, examination, hormonal investigation, imaging and genetic testing.

Such cases may be considered part of the spectrum of **idiopathic severe male-factor infertility**.

The term “idiopathic” does not mean that nothing is wrong.

It means that current clinical testing has not identified the precise mechanism.

The EAU notes that previously unexplained male infertility may involve factors that are still incompletely characterized, including oxidative stress, DNA damage, environmental endocrine disruption, genetic and epigenetic abnormalities.

How Cryptozoospermia Is Diagnosed

Correct diagnosis is one of the most important parts of management.

The 2026 review devoted specifically to cryptozoospermia emphasizes a principle I strongly agree with:

Accurate diagnosis must come before treatment.

A patient should not be sent directly for testicular surgery merely because one routine semen analysis reported “zero sperm.”

Semen Analysis

Semen analysis should be performed according to standardized WHO laboratory methodology.

WHO's sixth-edition manual is the current international reference for semen collection, examination and laboratory processing.



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If no sperm are seen initially, the specimen should undergo appropriate additional processing to determine whether rare sperm are present.

This can change the diagnosis from azoospermia to cryptozoospermia.

Repeat Testing Is Essential

One abnormal semen report should generally not be treated as the complete fertility diagnosis.

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

For cryptozoospermia, repeated carefully processed samples can be especially useful because the number of sperm released into individual ejaculates may fluctuate dramatically.

Detailed Medical and Reproductive History

When I assess a man with extremely low sperm numbers, I want to understand the complete story.

This includes puberty, previous fertility, duration of infertility, childhood testicular problems, infections, fever, surgery, undescended testes, testicular trauma, sexual function, ejaculation, medication use, testosterone or steroid exposure, cancer treatments, smoking, alcohol, occupational exposures and family history.

Current EAU guidelines strongly recommend a complete medical, reproductive and family history plus lifestyle assessment and physical examination for every man presenting with fertility problems or abnormal semen parameters.

Physical Examination

Clinical examination should evaluate the testes, epididymides, vas deferens, penis and scrotum.

Testicular volume is particularly informative.

Small testes together with elevated FSH may support a diagnosis of primary testicular spermatogenic failure.

A palpable varicocele may identify a potentially modifiable factor.



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Absent vas deferens raises another diagnostic pathway and can require CFTR genetic testing. Current European guidance recommends CFTR testing of affected men and their partners when structural absence of the vas deferens is present.

Hormonal Evaluation

Hormonal investigation is important in cryptozoospermia.

The EAU strongly recommends measurement of **total testosterone and FSH/LH in men with oligozoospermia and azoospermia.**

Additional tests may be selected according to the history—for example prolactin when hyperprolactinemia is suspected.

Hormonal results can help distinguish primary testicular failure from pituitary or hypothalamic disease.

They can also identify the relatively small group of men who may benefit substantially from specific endocrine treatment.

Scrotal Ultrasound

Scrotal ultrasound may provide information about testicular volume and structure and can identify lesions, features of testicular dysgenesis, possible obstruction and varicocele when clinical assessment is uncertain.

The EAU also notes that infertile men as a group have a higher risk of testicular cancer and suggests ultrasound as part of appropriately selected male-infertility evaluation.

Ultrasound does not replace physical examination or hormonal and genetic assessment.

Genetic Testing

Because cryptozoospermia represents extremely severe sperm deficiency, genetic testing is commonly a major part of the work-up.

Depending on the clinical picture this may include:

Karyotype analysis and Y-chromosome microdeletion testing, together with genetic counselling.

When abnormalities of the vas deferens are present, **CFTR testing** may be required.

For me, the key message is that genetic testing is not performed because we expect every man to have a genetic disorder.

It is performed because the probability becomes sufficiently important at extremely low sperm counts that the results can affect treatment and reproductive counselling.

Should Sperm DNA Fragmentation Be Tested?

Sperm DNA fragmentation testing is sometimes discussed in severe male infertility.

However, it is not required routinely for every man with cryptozoospermia.

The EAU recommends considering SDF testing particularly in situations such as recurrent pregnancy loss, unexplained infertility or repeated failure of assisted reproduction.

The role of testicular sperm in men with high ejaculated sperm DNA fragmentation remains an evolving area, and the EAU considers its use case-by-case because high-quality randomized evidence is lacking.

The Female Partner Must Be Evaluated at the Same Time

This is extremely important.

Suppose a 28-year-old woman with excellent ovarian reserve has a partner with cryptozoospermia and a treatable clinical varicocele.

The couple may reasonably have time to consider male optimization.

Now consider a 40-year-old woman with significantly declining ovarian reserve.

Waiting many months in the hope of improving a semen parameter may not be the best reproductive strategy.

The EAU strongly recommends **parallel assessment of the female partner, including ovarian reserve**, because female reproductive factors can determine whether treatment should focus on correcting the male factor first or proceed more quickly to assisted reproduction.

This is why I always say:

We treat infertility as a couple's reproductive problem, even when a severe male factor has already been discovered.

Treatment of Cryptozoospermia



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There is no universal tablet that treats cryptozoospermia.

Treatment depends on the cause.

One man may have a palpable varicocele.

Another may have hypogonadotropic hypogonadism.

Another may be suppressing spermatogenesis with testosterone injections.

Another may have an AZFc microdeletion.

Another may have severe idiopathic spermatogenic failure.

These men should not all receive the same treatment.

Correct Reversible Causes First

Whenever possible, treatment should address a demonstrated reversible factor.

This can include discontinuing exogenous testosterone or anabolic steroids under medical supervision, treating clinically significant endocrine abnormalities, correcting hyperprolactinemia when present, treating selected clinical varicoceles and addressing relevant lifestyle or toxic exposures.

This cause-oriented strategy is consistent both with modern andrology and with the traditional Unani principle that I discuss later in this article.

Hormonal Treatment

Hormonal treatment is highly useful when there is a **specific hormonal deficiency**, especially hypogonadotropic hypogonadism.

In contrast, empiric hormonal treatment for men with normal hormonal signalling and severe primary testicular failure is much less predictable.

The EAU notes that FSH treatment may improve spermatogenesis in some men with idiopathic oligozoospermia and normal FSH, but its recommendation is weak and it does not support indiscriminate high-dose hormonal treatment.

The newest September 2026 review of cryptozoospermia similarly concludes that treatments such as selective estrogen-receptor modulators, aromatase inhibitors or gonadotropins may help **a minority of appropriately selected patients**, with benefit concentrated in certain hormonal profiles; the overall evidence remains largely observational.



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Therefore, hormonal therapy should be based on hormonal physiology—not merely on the desire to increase sperm count.

Never Use Testosterone as a Fertility Medicine

This point deserves its own heading.

Testosterone can suppress sperm production.

A patient with cryptozoospermia who begins testosterone injections without appropriate fertility guidance may progress to complete azoospermia.

Current EAU recommendations explicitly state:

Do not use testosterone therapy for the treatment of male infertility.

Patients planning parenthood should always tell their doctor before starting testosterone or anabolic hormonal treatment.

Treatment of Varicocele

When a clinically palpable varicocele is present together with abnormal semen parameters and otherwise unexplained infertility, repair can be appropriate.

Current European evidence indicates that varicocele repair can improve sperm concentration and pregnancy rates in appropriately selected infertile men.

In cryptozoospermia the decision requires particular thought because there are two competing priorities:

improving male reproductive potential and **not unnecessarily delaying conception.**

The age and ovarian reserve of the female partner are therefore essential to the decision.

Lifestyle Optimization

When I counsel a patient with cryptozoospermia, I explain that lifestyle modification cannot correct every genetic or severe testicular disorder.

But it makes little sense to expose an already compromised reproductive system to avoidable additional stress.

Evidence-based advice generally includes maintaining healthy body weight, regular physical activity, avoiding smoking, avoiding anabolic steroids and excessive alcohol,



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improving diet, controlling metabolic disease and minimizing unnecessary gonadal heat or toxin exposure.

The EAU strongly supports improving lifestyle factors in infertile men because obesity, smoking, low physical activity and high alcohol use are associated with poorer sperm quality.

WHO's 2025 infertility guideline likewise emphasizes healthy lifestyle and tobacco cessation as part of fertility promotion.

What About Antioxidants?

Oxidative stress is biologically relevant in male infertility.

However, the marketing of antioxidant supplements is substantially stronger than the certainty of clinical evidence.

Some randomized trials have shown improvements in semen parameters with specific antioxidant combinations, while other important trials have failed to demonstrate better pregnancy or live-birth outcomes.

The EAU therefore concludes that there are **no conclusive data supporting routine antioxidant treatment for idiopathic male infertility**, even though semen parameters may improve in some studies.

So I do not believe that every patient with cryptozoospermia should automatically receive a long combination of supplements.

Any supplementation should have a clinical rationale.

Sperm Cryopreservation

When usable sperm are found in the ejaculate, **sperm cryopreservation can be worth discussing**, particularly before an assisted-reproduction cycle.

The reason is simple.

A patient who has a few motile sperm today may produce no identifiable sperm in another sample.

Banking suitable sperm can therefore provide a backup.

Modern laboratory techniques can even cryopreserve very small numbers or individual sperm in specialized systems, although this requires experienced embryology laboratories. Reviews of sperm cryopreservation specifically recognize severe



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oligozoospermia and cryptozoospermia as situations in which preservation of very small sperm numbers can have clinical value.

A 2023 study of 197 cryptozoospermic men used repeated collection and cryopreservation of motile ejaculated sperm; ICSI was ultimately performed without surgical sperm retrieval in all cases in that center.

This does not mean every clinic or every patient will achieve the same result, but it demonstrates why careful sperm search and preservation can be valuable before deciding automatically on testicular surgery.

Can Natural Pregnancy Occur?

Natural pregnancy is generally difficult because the number of sperm reaching the female reproductive tract is exceptionally low.

However, I avoid telling patients that natural pregnancy is absolutely impossible merely because cryptozoospermia has been diagnosed.

Human fertility is probabilistic rather than absolute.

Nevertheless, when a couple has established infertility and persistent cryptozoospermia, waiting indefinitely for spontaneous conception can consume valuable reproductive time—particularly when the female partner is older or has reduced ovarian reserve.

This is where individualized fertility planning becomes important.

Is IUI Suitable?

Intrauterine insemination requires enough appropriately motile sperm after processing to create a reasonable chance of fertilization.

In true cryptozoospermia, the number is generally too low for IUI to be an efficient strategy.

Therefore, **ICSI rather than IUI is usually the assisted-reproduction technique considered when sperm numbers remain at the cryptozoospermic level.**

The exact decision should still incorporate female factors, repeated semen findings and the reproductive centre's laboratory expertise.

IVF Versus ICSI



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Conventional IVF places many sperm around each egg and relies upon a spermatozoon to penetrate the egg independently.

That becomes difficult when only a tiny number of sperm exist.

With **ICSI**, the embryologist selects an individual sperm and injects it directly into the oocyte.

That is why ICSI transformed reproductive options for severe male-factor infertility.

Modern reviews identify ICSI as the principal ART technique used for cryptozoospermia.

Ejaculated Sperm or Testicular Sperm for ICSI?

This is one of the most debated questions in cryptozoospermia.

The biological argument for testicular sperm is that sperm retrieved directly from the testis may have had less exposure to oxidative injury during passage through the male reproductive tract.

Some older observational studies and meta-analyses suggested better embryo, implantation or pregnancy outcomes using fresh testicular sperm. One 2018 meta-analysis involving 578 men and 761 ICSI cycles reported results favoring testicular sperm for several outcomes.

However, another meta-analysis had found no significant advantage, and the evidence has remained inconsistent.

This is why current guidance is more cautious.

The EAU states that **the advantage of testicular sperm over ejaculated sperm in men with cryptozoospermia has not been confirmed by large randomized studies.**

The newest 2026 review similarly emphasizes optimizing the male and recovering usable ejaculated sperm before automatically proceeding to surgical retrieval.

Therefore:

Cryptozoospermia does not automatically mean TESE or micro-TESE is required.

When Might Surgical Sperm Retrieval Be Considered?

Surgical sperm retrieval may still be appropriate in selected circumstances.

For example, the laboratory may be unable to obtain sufficient viable ejaculated sperm despite repeated attempts, the patient may fluctuate between cryptozoospermia and



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apparent azoospermia, or previous ART results may create a rationale for another sperm source.

Selected men with markedly elevated sperm DNA fragmentation and repeated ART failure are also sometimes considered for testicular sperm, but current EAU guidance regards this as a case-by-case or experimental strategy rather than established routine treatment.

The risks of surgery, the quality of the evidence and the availability of usable ejaculated sperm should all be discussed before proceeding.

Is Micro-TESE Necessary in Every Cryptozoospermic Man?

No.

Microdissection TESE is an important technique for **non-obstructive azoospermia**, where sperm must be searched for within testicular tissue.

But a cryptozoospermic man already has evidence that at least some sperm reach the ejaculate.

The newest 2026 review specifically argues against defaulting prematurely to surgical sperm retrieval and recommends accurate extended semen analysis and optimization first.

This distinction can spare an appropriate patient an invasive operation.

Cryptozoospermia Versus Non-Obstructive Azoospermia: Why the Difference Matters

If no sperm are present after appropriate centrifugation on repeated samples, the man may have azoospermia and needs to be classified further as obstructive or non-obstructive.

For non-obstructive azoospermia, current EAU guidelines recommend microdissection TESE as the preferred sperm-retrieval technique when surgical retrieval is pursued.

But if rare sperm can be found in the ejaculate, the patient's reproductive pathway may be different.

That is why laboratory accuracy can prevent unnecessary surgical treatment.

Can the Sperm Count Improve?



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Sometimes.

The possibility depends almost entirely on the cause.

A man whose spermatogenesis has been suppressed by exogenous testosterone may improve after appropriate withdrawal and fertility-directed treatment.

A man with hypogonadotropic hypogonadism may respond substantially to gonadotropins.

A selected man with a significant clinical varicocele may improve after repair.

A man with a fixed severe genetic defect may have much less potential for improvement.

And some men with idiopathic disease show variable responses.

No responsible doctor should promise that every cryptozoospermic patient can be converted to a normal sperm count.

Cryptozoospermia and the Unani System of Medicine

As a physician trained in the **Unani System of Medicine** and working with male infertility and sexual disorders, I find one traditional principle particularly relevant to cryptozoospermia:

Izala-i-Sabab — identifying and addressing the underlying cause

In practical terms, I do not believe that the correct Unani approach to cryptozoospermia is simply to prescribe one medicine labelled as a “sperm-count medicine.”

Cryptozoospermia can arise from completely different mechanisms.

One man may have a varicocele.

Another may have hormonal suppression.

Another may have severe oxidative or metabolic stress.

Another may have a genetic disorder.

Another may have primary testicular failure that is unlikely to respond substantially to medicines.

The treatment therefore needs to begin with understanding the patient.

Understanding Severe Low Sperm Count in the Unani Framework

Traditional Unani literature discusses reduced semen quantity and sperm-related reproductive weakness within concepts historically associated with **Qillat-e-Haiwanat-e-Manawiya** and broader reproductive weakness.

These traditional concepts developed long before modern microscopy, chromosomal testing, Y-microdeletion testing and ICSI existed.

For that reason, I believe we should not simply equate a classical Unani diagnosis with modern cryptozoospermia.

Modern semen analysis must establish the actual sperm abnormality first.

The Unani framework can then be used as an **individualized supportive approach**, particularly for modifiable constitutional, nutritional and lifestyle factors.

Ilaj-bil-Ghiza — Dietotherapy

Nutrition cannot repair every genetic abnormality or restore severely damaged seminiferous tubules.

Nevertheless, appropriate diet is an important component of general reproductive health.

My approach is to consider adequate protein, vegetables, fruits, appropriate nuts and seeds, healthy fats, micronutrient sufficiency, weight management and metabolic health according to the individual's needs.

A patient with obesity, diabetes or poor nutritional habits may benefit from correcting those problems regardless of whether a Unani medicine is prescribed.

This is consistent with both traditional Unani dietary principles and modern infertility guidance emphasizing healthy lifestyle. WHO's 2025 guideline specifically recommends healthy diet and physical activity for people planning or attempting pregnancy.

Ilaj-bil-Tadbir — Regimental and Lifestyle Management

The lifestyle component of Unani treatment can be particularly useful in creating a structured fertility plan.

This can include attention to physical activity, sleep, appropriate rest, weight, psychological stress, tobacco avoidance and healthy daily habits.

In a patient with severe male infertility, I view these measures as supportive rather than miraculous.

If a man has an AZF deletion, improving sleep will not remove that genetic deletion.

But if he also smokes heavily, is obese, sleeps poorly and regularly uses anabolic steroids, correcting those factors can remove avoidable additional stress on an already compromised reproductive system.

Ilaj-bil-Dawa — Unani Pharmacotherapy

Unani pharmacotherapy has traditionally used single and compound medicines for male reproductive concerns.

There is some preliminary clinical literature suggesting that selected Unani formulations may improve sperm concentration, motility or morphology in men with oligozoospermia.

For example, older CCRUM-published studies reported improvements in semen parameters with selected Unani formulations in men described as having oligospermia.

However, an important scientific limitation must be stated clearly:

These studies are not high-quality modern trials specifically in men with cryptozoospermia, and improvement in semen parameters is not the same as proven improvement in live-birth rate.

Therefore, I do not consider it scientifically correct to claim that a specific Unani medicine has been proven to cure cryptozoospermia.

Where I Believe Unani Medicine Can Be Most Useful

In appropriately selected patients, an individualized Unani approach can contribute to management of general health, metabolic balance, diet, sleep, stress and other modifiable factors.

It may also be used as a carefully monitored supportive therapeutic approach when no contraindication exists and when the treatment is compatible with modern fertility management.

The important principles are:

do not delay genetic testing when it is indicated; do not miss a treatable varicocele; do not prescribe testosterone to an infertile man; do not postpone ART indefinitely when the female partner's reproductive time is limited; and do not promise that herbs can reverse a fixed genetic or severe structural testicular disorder.

That is what I consider responsible integrative practice.



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Antioxidant and Herbal Treatment: Why More Is Not Always Better

A common mistake in male infertility is prescribing a very large number of antioxidant, vitamin and herbal products simultaneously.

This has several problems.

It becomes impossible to know what is helping.

Costs increase.

Some products can interact with medicines.

More importantly, the strongest modern guideline evidence does not show that routine antioxidant therapy reliably increases live birth in all men with idiopathic infertility.

Therefore, I prefer a targeted approach.

The patient should receive treatment because there is a reasonable clinical rationale—not simply because a product is marketed for sperm health.

The Saira Health Care Approach to Cryptozoospermia

At **Saira Health Care**, I believe a man with cryptozoospermia should not be treated simply as “a patient with low sperm count.”

His condition deserves a complete reproductive evaluation.

My clinical objective is to answer several questions.

First: Is this truly cryptozoospermia, or has azoospermia been incorrectly diagnosed?

Second: Is there a reversible or treatable cause?

Third: Does the patient need genetic evaluation?

Fourth: Can ejaculated sperm be identified and preserved?

Fifth: Is there sufficient time to attempt improvement, considering the female partner's age and ovarian reserve?

Sixth: Should the couple proceed to ICSI?

Seventh: Is surgical sperm retrieval actually necessary?

This approach is increasingly consistent with modern evidence. The September 2026 review on cryptozoospermia concludes that extended semen analysis, appropriate hormonal or surgical optimization in selected patients and recovery of usable ejaculated sperm can sometimes avoid unnecessary testicular sperm retrieval.



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My Step-by-Step Integrative Clinical Philosophy

When a patient comes to me with this condition, I begin by confirming the laboratory diagnosis through appropriately performed semen analysis.

I then evaluate the medical and reproductive history, testicular examination, varicocele status, hormone profile and potential genetic indications.

Lifestyle and medication factors are corrected wherever realistically possible.

If a treatable clinical varicocele or endocrine abnormality exists, that can be addressed according to the patient's reproductive circumstances.

Individualized Unani supportive treatment may then be incorporated when appropriate, with periodic objective monitoring rather than assuming improvement.

Meanwhile, the female partner should be evaluated in parallel.

If usable sperm are repeatedly found, sperm cryopreservation can be discussed.

And when the probability of spontaneous pregnancy is very low or reproductive time is limited, the couple should be counselled appropriately regarding ICSI rather than spending years moving from one empirical medicine to another.

Why Monitoring Is Essential

Male fertility treatment should be measured objectively.

A patient should not simply be told:

“Your body is stronger now, so the sperm must be better.”

The semen needs to be tested.

Hormonal abnormalities need to be followed where relevant.

If therapy is being attempted to improve spermatogenesis, sufficient biological time should generally be allowed because sperm development takes months rather than days.

But monitoring should also have a purpose.

If repeated objective testing shows no meaningful improvement and the couple's fertility window is becoming shorter, the treatment strategy needs to be reconsidered.

The Importance of Preserving Rare Sperm



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One of the most practical messages for a man with cryptozoospermia is:

When usable sperm are found, do not automatically assume they will be equally easy to find next month.

In an appropriate fertility centre, cryopreservation can provide insurance against a future sample containing no suitable sperm.

The decision depends on sperm viability, laboratory capability, ART plans and cost, but it is worth discussing early rather than waiting until the day of egg retrieval.

Psychological Impact of Cryptozoospermia

Severe male-factor infertility can have a profound emotional effect.

A man may begin believing:

“I am not a complete man.”

That conclusion is incorrect.

Sperm count does not measure masculinity.

It does not measure erectile ability.

It does not measure sexual desire.

It does not determine the quality of a husband or partner.

WHO's current global infertility guidance emphasizes the significant psychological consequences of infertility, including anxiety, depression, social isolation and stigma, and calls for ongoing access to psychosocial support.

At Saira Health Care, I believe counselling becomes particularly important when the patient begins avoiding sexual intimacy or feeling ashamed because of his semen report.

Cryptozoospermia and Sexual Function

Cryptozoospermia itself does not necessarily cause erectile dysfunction, premature ejaculation or low libido.

A man can have a normal erection, normal sexual desire and normal ejaculation but still have extremely few sperm.

However, fertility-related anxiety can secondarily create sexual problems.

Once intercourse becomes focused entirely on ovulation dates, semen reports and pregnancy, some men develop performance anxiety, erectile difficulty or ejaculatory problems.

Therefore, sexual health should not be ignored during fertility treatment.

Does Cryptozoospermia Affect the Child?

Cryptozoospermia itself is a semen finding rather than a disease that automatically passes to a child.

However, **certain genetic causes of cryptozoospermia can be inherited.**

The clearest example is an AZFc Y-chromosome microdeletion.

If a sperm carrying that Y chromosome is used to conceive a boy, the deletion will also be transmitted to the son. Current EAU guidance specifically requires counselling about this inheritance pattern.

Genetic counselling before ART is therefore essential when a genetic abnormality has been identified.

Can Cryptozoospermia Turn Into Azoospermia?

It can appear that way on subsequent semen samples because sperm output can fluctuate around extremely low levels.

A man may have rare detectable sperm on one occasion and no detectable sperm on another.

This is another reason why repeated high-quality semen analysis and sperm preservation can be valuable.

A single “azoospermia” report in someone previously shown to have cryptozoospermia should be interpreted in the context of how the sample was processed and whether the sediment was thoroughly examined.

Can Cryptozoospermia Become Oligozoospermia?

Yes, in selected patients the sperm concentration may improve sufficiently that sperm become readily measurable.

The September 2026 review highlights that hormonal therapy in selected normogonadotropic men and microsurgical varicocelectomy in selected men with palpable varicoceles can sometimes increase ejaculated sperm availability.

But improvement cannot be guaranteed.

The probability depends strongly on the underlying cause.

Can Cryptozoospermia Be Permanently Cured?

There is no universal answer.

A reversible hormonal suppression may be correctable.

Steroid-associated suppression may recover.

A clinically significant varicocele may be treatable.

But severe genetic spermatogenic failure may not be curable with current medicine.

Therefore, I prefer to discuss **cause-specific treatment and reproductive options** rather than promise a “permanent cure.”

The final goal is not merely to make the laboratory number larger.

For a couple seeking pregnancy, the meaningful outcome is helping them achieve the best realistic chance of a healthy pregnancy and birth.

Frequently Asked Questions

Is cryptozoospermia the same as azoospermia?

No. In cryptozoospermia, rare sperm can still be found after appropriate processing and intensive examination. In true azoospermia, no sperm are identified even after appropriate centrifugation and sediment examination.

Can a cryptozoospermic man become a biological father?

Yes, biological fatherhood may be possible. Depending on sperm availability and the couple's overall fertility, ICSI using ejaculated or selectively retrieved sperm can provide reproductive options.

Is cryptozoospermia worse than severe oligozoospermia?

It represents an even more extreme reduction in ejaculated sperm numbers. Sperm may be too rare to quantify reliably on routine examination.

Should semen analysis be repeated?



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Yes. Current EAU guidance recommends at least two consecutive semen analyses when the first is abnormal. In cryptozoospermia, careful pellet examination is particularly important.

Do I need genetic testing?

Because sperm numbers are extremely low, genetic testing is frequently appropriate. Karyotype and Y-chromosome microdeletion testing are particularly important according to sperm concentration and other clinical findings.

Can varicocele cause cryptozoospermia?

A clinically significant varicocele can contribute to severe impairment of sperm production in selected men. Current evidence supports treating infertile men with a palpable varicocele and abnormal semen analysis when otherwise appropriate.

Can testosterone increase my sperm count?

No. External testosterone can suppress sperm production and should not be used to treat male infertility.

Is ICSI generally needed?

When persistent cryptozoospermia leaves only a very small number of usable sperm, ICSI is generally the principal ART option because one selected sperm can be injected into each mature oocyte.

Do I automatically need TESE?

No. Current evidence does not support routine surgical sperm retrieval for every cryptozoospermic man. Efforts to identify and preserve usable ejaculated sperm can avoid surgery in some patients.

Is testicular sperm better than ejaculated sperm?

The evidence remains conflicting. Older meta-analyses suggested possible advantages of testicular sperm, but current EAU guidance states that superiority has not been confirmed in large randomized trials. Treatment should therefore be individualized rather than routinely selecting testicular sperm.

Should sperm be frozen when it is found?

It can be useful to discuss cryopreservation because sperm numbers may fluctuate and a later ejaculate may contain no usable sperm. Modern specialized freezing methods can preserve very small numbers of sperm.

Can antioxidants cure cryptozoospermia?

There is no good evidence that antioxidants cure cryptozoospermia. Current EAU guidance does not recommend routine antioxidant treatment for idiopathic male infertility because evidence for meaningful fertility outcomes remains inconclusive.

Can Unani medicine help?

Unani medicine may play a valuable **individualized supportive role**, particularly in diet, lifestyle, metabolic health, stress management and appropriately selected pharmacotherapy. Older Unani studies have reported improvements in semen parameters in oligospermia, but strong clinical evidence specifically demonstrating a cure for cryptozoospermia is not currently available.

A Message to My Patients

When a man comes to me and says:

“Doctor, only one or two sperm were found. Is there any hope?”

I explain that the report is serious, but the next step is not hopelessness.

The next step is **accurate diagnosis**.

We need to determine whether the sample was examined properly.

We need to repeat the test.

We need to assess the testes.

We need to look at hormones.

We need to decide whether genetic testing is required.

We need to identify a varicocele or another correctable factor.

We need to ask whether any usable sperm should be frozen.

And we need to evaluate the female partner at the same time.

Only after this can we decide whether there is reasonable opportunity to improve natural sperm production or whether the couple should proceed to ICSI.

I also tell my patients:

Do not judge your masculinity from the sperm-count column of a laboratory report.

Cryptozoospermia is a reproductive medical condition. It is not a measure of sexual strength, character or worth.



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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

Saira Health Care's current published materials list these qualifications and describe Dr. Nizamuddin Qasmi's focused clinical work in sexual disorders and infertility.

At **Saira Health Care**, the approach to severe male-factor infertility is intended to combine careful reproductive assessment, patient education, appropriate modern investigation, fertility planning and individualized Unani supportive care, with timely referral for genetic counselling, urology/andrology, embryology or assisted reproductive treatment where required.

The aim should never be merely to prescribe a medicine to “increase sperm.”

The goal is to identify the mechanism, preserve every realistic reproductive opportunity and help the couple choose treatment at the right time.

Conclusion

Cryptozoospermia is an extremely severe form of male-factor infertility in which sperm are present in the ejaculate but may only be found after centrifugation and meticulous microscopic examination.

It must be distinguished carefully from azoospermia because that distinction can prevent incorrect diagnosis and unnecessary surgical sperm retrieval.

The most recent evidence makes this particularly clear. In one modern series, extended semen examination reclassified almost one in five men referred as azoospermic, and a September 2026 review emphasizes that accurate diagnosis and attempts to recover usable ejaculated sperm should precede default surgical retrieval.

Evaluation should include repeated high-quality semen analysis, medical and reproductive history, examination, hormonal testing and appropriately selected imaging



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and genetic investigations. Because chromosomal abnormalities and Y-chromosome microdeletions become more common as sperm concentration becomes extremely low, genetic evaluation is particularly important in this group.

Treatment must be **cause-specific**.

Reversible hormonal suppression should be corrected.

Testosterone and anabolic steroid exposure should be addressed.

A clinically significant varicocele may be treated in appropriately selected infertile men.

Lifestyle factors should be optimized.

Usable ejaculated sperm may be cryopreserved.

And when sperm numbers remain extremely low, ICSI is often the most practical reproductive technique.

The choice between ejaculated and surgically retrieved testicular sperm remains controversial; current guideline evidence does not support routine TESE for every cryptozoospermic man.

From the **Unani perspective**, individualized attention to causative factors, diet, lifestyle, general health and appropriate pharmacotherapy can make a useful supportive contribution. Preliminary Unani literature has reported semen-parameter improvements in oligospermia, but current evidence does not establish a specific Unani formulation as a proven cure for cryptozoospermia.

At **Saira Health Care**, my preferred approach is therefore neither to give false reassurance nor to create unnecessary fear.

A diagnosis of cryptozoospermia means:

sperm production is severely impaired—but sperm are still being found.

That finding deserves careful investigation, thoughtful preservation of reproductive options and a treatment plan that brings together modern andrology, assisted reproduction and responsible individualized Unani supportive care.

For more information:

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

Book an appointment:

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

Saira Health Care Pharmacy:

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Medical Disclaimer: This article is intended for general medical education and patient awareness. Cryptozoospermia requires individualized evaluation by an appropriately qualified fertility/andrology professional. A semen report alone cannot determine the chance of pregnancy. Patients should not begin or discontinue testosterone, anabolic steroids, hormonal fertility medicines, supplements, herbal products or Unani formulations without appropriate professional assessment. Genetic findings can have implications for future children and should be accompanied by appropriate genetic counselling. No treatment can guarantee restoration of sperm production, pregnancy or live birth.



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