Y-Chromosome Microdeletions

Understanding AZFa, AZFb and AZFc Deletions, Severe Oligospermia, Azoospermia, Sperm Retrieval, ICSI and an Integrative Unani Approach

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When a man comes to me with **severe oligospermia or azoospermia**, simply prescribing a medicine to increase sperm count is not enough.

We first need to understand:

Why is sperm production so severely reduced?

Sometimes there is a hormonal problem.

Sometimes the testes themselves have been damaged.

Sometimes there is a history of undescended testes, varicocele, chemotherapy or anabolic-steroid use.

And in an important group of patients, the explanation is genetic.

One of the most important genetic causes of severe male infertility is a **Y-chromosome microdeletion**.

A patient may tell me:

“Doctor, my semen report shows zero sperm, and now the laboratory says I have an AZFc deletion. What does that mean?”

Another may ask:

“If part of my Y chromosome is missing, can treatment create sperm again?”

Another important question is:

“If sperm are found and we use ICSI, can this problem pass to my son?”

These questions deserve clear, scientifically accurate answers.

My first message to such patients is:

A Y-chromosome microdeletion is not the same as ordinary low sperm count. It is a genetic cause of impaired sperm production, and the exact deleted region—AZFa, AZFb or AZFc—can significantly influence both prognosis and fertility treatment.

Current European Association of Urology guidance identifies Y-chromosome microdeletions as one of the most important molecular genetic causes of severe

oligozoospermia and non-obstructive azoospermia. They are found most frequently in azoospermic men and become increasingly uncommon as sperm concentration rises.

At **Saira Health Care**, my approach is therefore not merely:

“Your sperm are low, take a sperm medicine.”

My approach is:

confirm the genetic diagnosis, determine exactly which region is deleted, understand whether sperm production is still possible, counsel the couple regarding inheritance, and select the most rational fertility pathway.

What Is the Y Chromosome?

Humans normally have 46 chromosomes arranged in 23 pairs.

One pair consists of the sex chromosomes.

Most males have:

46,XY

and most females have:

46,XX.

The Y chromosome plays an important role in male sexual development and contains genes essential for normal testicular function and sperm production.

A particularly important region is located on the long arm of the Y chromosome, called:

Yq.

Within this area are regions collectively called:

AZF — Azoospermia Factor

These regions contain genes involved in **spermatogenesis**, the process through which sperm are produced inside the testes.

Modern clinical classification divides the major AZF region into:

- **AZFa**
- **AZFb**
- **AZFc**

When important genetic material from one of these regions is missing, sperm production can be severely impaired.

Current EAU guidance recognizes these deletions as clinically important causes of severe spermatogenic failure.

What Is a Y-Chromosome Microdeletion?

A microdeletion means that a small section of DNA is missing.

The word “micro” does not mean the fertility effect is minor.

It means the missing chromosome segment is too small to be detected reliably by ordinary chromosome analysis or karyotyping.

A man may therefore have:

46,XY on a routine karyotype

while still having an important AZF microdeletion.

Specialized molecular genetic testing is needed to detect it.

Current EAA/EMQN best-practice guidance describes molecular testing—traditionally multiplex PCR followed by appropriate deletion-extension analysis—as the established diagnostic approach for classical AZF microdeletions.

Y-Chromosome Microdeletion Is Different From Klinefelter Syndrome

Both can cause severe male infertility, but they are different genetic conditions.

Klinefelter syndrome

Usually involves an entire additional X chromosome:

47,XXY.

Y-chromosome microdeletion

Usually involves a small missing part of the otherwise present Y chromosome.

A man with a Y microdeletion may therefore have a normal **46,XY karyotype**.

This distinction is important because:

- diagnosis is different,
- fertility prognosis is different,
- inheritance is different,
- sperm-retrieval expectations are different.

How Do Y-Chromosome Microdeletions Cause Infertility?

The deleted DNA contains genes important for sperm development.

When those genes are missing, spermatogenesis may become:

- severely reduced,
- arrested at a particular developmental stage,
- or almost completely absent.

The effect depends strongly on **which AZF region is deleted**.

This genotype–phenotype relationship is one of the most clinically useful aspects of male infertility genetics.

A complete AZFa deletion, for example, has a very different fertility prognosis from an isolated AZFc deletion.

That distinction can determine whether attempting surgical sperm retrieval is reasonable.

How Common Are Y-Chromosome Microdeletions?

Among infertile men, frequency depends strongly on the severity of sperm-production failure.

Current EAU guidance estimates Y microdeletions in approximately:

8–12% of men with azoospermia

and

3–7% of men with oligozoospermia.

They are extremely uncommon when sperm concentration exceeds approximately 5 million/mL.

The 2024 AUA/ASRM guideline cites similar estimates: approximately **8–12% among men with non-obstructive azoospermia** and **3–7% among men with severe oligospermia**.

These figures explain why genetic testing becomes more important as sperm concentration becomes extremely low.

Y-Chromosome Microdeletions in Indian Men

Indian studies have also documented AZF deletions as an important cause of severe male infertility.

One Indian study and meta-analysis found AZF deletions in approximately 10% of its combined azoospermic and oligozoospermic cohort, with **AZFc being the most frequently detected region**. Considerable variation was seen between Indian studies and populations.

This reinforces an important point:

Y-chromosome microdeletions are clinically relevant to Indian male-infertility practice and should not be regarded as an unusual problem seen only in Western populations.

Which Deletion Is Most Common?

Current European data indicate that among classical AZF microdeletions:

AZFc deletions are the most common, accounting for roughly 65–70%.

Deletions involving AZFb or combinations including AZFb represent another substantial group.

Complete AZFa deletions are much less common.

Frequency is important, but **prognosis is even more important**.

The different regions behave very differently.

AZFa Microdeletion

AZFa is located relatively proximally within the AZF region.

A **complete AZFa deletion** is generally associated with one of the most severe testicular patterns.

Histologically, it is strongly associated with:

Sertoli-cell-only syndrome.

This means the seminiferous tubules contain Sertoli supporting cells but lack the germ cells needed to produce sperm.

For the patient, the practical implication is extremely important:

complete AZFa deletion carries an exceptionally poor prognosis for surgical sperm retrieval.

Current EAU guidance recommends **not performing testicular sperm extraction** when a complete deletion involving AZFa is present.

The 2024 AUA/ASRM guideline likewise reports that sperm have not been recovered by micro-TESE in men with complete AZFa deletions.

Why Should Micro-TESE Usually Not Be Performed in Complete AZFa Deletion?

Micro-TESE is an invasive operation.

It should be performed when there is a realistic possibility that small areas of sperm production may remain.

In complete AZFa deletion, current evidence indicates that the sperm-producing germ-cell population is essentially absent.

Subjecting the patient to surgery when the chance of finding sperm is effectively zero creates:

- surgical risk,
- financial cost,
- emotional burden,
- false hope.

This is one of the clearest examples of how **genetic testing can prevent unnecessary surgery**.

Partial AZFa Deletions

This requires a more careful distinction.

A **complete AZFa deletion** and a **partial AZFa deletion** are not necessarily biologically identical.

Recent genetic literature emphasizes that incomplete deletions can produce more variable phenotypes.

A newer 2026 review specifically stresses the importance of precisely defining deletion boundaries because partial AZFa and AZFb abnormalities may not behave in exactly the same way as classical complete deletions.

Therefore, the laboratory report should be interpreted by a genetics or male-infertility specialist rather than merely reading “AZFa” and assuming every deletion has the same prognosis.

AZFb Microdeletion

The AZFb region contains genes required for later stages of sperm development.

A **complete AZFb deletion** is typically associated with severe spermatogenic failure, often involving **maturation arrest**.

This means sperm development begins but fails to progress normally to mature spermatozoa.

Clinically, complete AZFb deletion has a very poor prognosis for sperm retrieval.

Current EAU guidance advises against surgical sperm retrieval when a **complete AZFb deletion** is present.

The AUA/ASRM guideline similarly reports no sperm retrieval in classical complete AZFb deletions.

AZFa+b, AZFb+c and Large Combined Deletions

Some patients have deletions extending across more than one AZF region.

For example:

- AZFa+b
- AZFb+c
- AZFa+b+c

When a deletion contains complete loss of AZFa or AZFb, the prognosis for sperm retrieval is generally extremely poor.

Current European guidance specifically recommends against TESE when complete deletions include the **AZFa and/or AZFb regions**.

Accurate laboratory characterization is therefore critical.

AZFc Microdeletion

AZFc is clinically very different.

It is the most common classical Y-chromosome microdeletion.

Most importantly:

AZFc deletion does not mean that sperm production is completely absent in every patient.

The phenotype ranges from:

- severe oligospermia,
- cryptozoospermia,
- to non-obstructive azoospermia.

Some affected men have sperm in their ejaculate.

Others have no sperm in the semen but retain small sperm-producing areas within the testes.

This is why isolated AZFc deletion has a much more favourable fertility prognosis than complete AZFa or AZFb deletion.

Sperm Retrieval in AZFc Deletion

Current EAU guidance reports that **testicular sperm may be found in approximately 50–75% of men with AZFc microdeletions** undergoing appropriate surgical retrieval.

A recent 2026 review integrating published evidence and new clinical data reported successful TESE in approximately **58.9%** of men with complete AZFc deletion, while confirming the essentially absent retrieval prognosis for classical complete AZFa and AZFb deletions.

The 2024 AUA/ASRM guideline similarly gives an approximate micro-TESE retrieval figure of around 50% in azoospermic men with isolated AZFc deletion.

These percentages are population averages—not guarantees.

But they demonstrate why distinguishing AZFc from AZFa or AZFb is so important.

AZFc Can Cause Severe Oligospermia Rather Than Azoospermia

Not every man with an AZFc deletion has zero sperm.

Some have:

- 1 million sperm/mL,

- 500,000 sperm/mL,
- or only rare sperm found after centrifugation.

This can create an important fertility-preservation opportunity.

If viable ejaculated sperm are available, **sperm cryopreservation should be considered**, because sperm concentration may decline over time in some affected men.

Freezing ejaculated sperm can potentially avoid or reduce the need for later testicular surgery.

Cryptozoospermia and AZFc Deletions

Cryptozoospermia means that sperm are not seen during routine examination but a very small number are identified after centrifuging the semen and carefully examining the pellet.

This distinction is clinically important.

A man initially told that his sperm count is “zero” may actually have rare ejaculated sperm.

In an AZFc deletion patient, identifying even a few viable sperm may influence:

- cryopreservation,
- ICSI planning,
- whether surgical sperm retrieval is necessary.

High-quality semen assessment therefore matters.

Partial AZFc Deletions

The AZFc region is genetically complex and contains multiple repeated sequences.

Not all deletions remove the entire AZFc region.

Partial deletions include patterns such as:

gr/gr,
b1/b3,
and
b2/b3.

The clinical significance of these partial deletions is more complicated than classical complete AZFc deletion.

What Is a gr/gr Deletion?

The **gr/gr deletion** removes approximately half of the AZFc gene content.

It does not behave like a complete AZFc deletion.

Current EAA/EMQN guidance describes gr/gr deletion as a **population-dependent risk factor for impaired sperm production** rather than an absolute cause of infertility in every carrier.

Some fertile men carry this partial deletion.

Its effect varies with:

- ethnic background,
- Y-chromosome haplogroup,
- other genetic factors.

Because of this complexity, routine gr/gr testing is not universally required and remains at the discretion of the diagnostic laboratory and treating specialist.

Why the Exact Deletion Matters

A report saying only:

“Y chromosome deletion positive”

is clinically inadequate.

I want to know:

Which region is deleted?

Is the deletion complete or partial?

Because:

- complete AZFa predicts essentially no sperm-retrieval potential,
- complete AZFb predicts essentially no retrieval potential,
- isolated complete AZFc may still allow ejaculated or surgically recovered sperm,
- partial deletions can have more variable outcomes.

The newest 2026 review emphasizes that distinguishing complete from partial AZFa and AZFb deletions is critical for predicting TESE outcome.

Who Should Be Tested for Y-Chromosome Microdeletions?

This recommendation has changed over time.

Older guidelines often used:

≤5 million sperm/mL

as a broad testing threshold.

Newer evidence shows that clinically significant deletions become much less common once sperm concentration rises above approximately 1 million/mL.

Current AUA/ASRM Recommendation

The **2024 AUA/ASRM guideline** recommends Y-chromosome microdeletion analysis in men with:

primary infertility plus azoospermia or sperm concentration ≤1 million/mL

when accompanied by:

- elevated FSH,
- testicular atrophy,
- or another diagnosis suggesting impaired sperm production.

This represents a refinement from the older ≤5-million threshold.

Current EAU Recommendation

The current European guideline takes a slightly broader approach.

It recommends:

performing Y-chromosome microdeletion testing when sperm concentration is ≤1 million/mL

and

considering testing when sperm concentration is below 5 million/mL.

This difference between major guidelines is useful to understand.

There is no need to pretend every international guideline uses exactly the same cutoff.

Clinical context remains important.

Why Has the Threshold Changed?

A large meta-analysis found that Y microdeletions were present in approximately:

5% of men with sperm concentration between 0 and 1 million/mL

but only around:

0.8% among men with concentrations greater than 1 million and up to 5 million/mL.

This lower diagnostic yield led AUA/ASRM to focus routine testing more strongly on the ≤1-million group.

However, testing can still be reasonable at somewhat higher severe-oligospermia levels when the complete clinical picture suggests testicular spermatogenic failure.

Should Every Infertile Man Get This Test?

No.

Routine Y-microdeletion testing in a man with:

normal sperm concentration or mild isolated infertility

has very low diagnostic yield.

Genetic testing should be targeted according to:

- semen severity,
- FSH,
- testicular size,
- clinical evidence of sperm-production failure.

Appropriate testing reduces unnecessary expense while concentrating investigation where it provides meaningful information.

How Is the Test Performed?

Testing is generally performed on a blood sample.

DNA is extracted and specific markers within the Y chromosome are examined.

Modern laboratory diagnosis traditionally uses **multiplex PCR**, allowing several AZF markers to be evaluated simultaneously.

If a deletion is found, additional testing may define its boundaries more precisely.

The 2024 EAA/EMQN best-practice guideline continues to regard multiplex PCR with appropriate extension analysis as the standard molecular diagnostic approach for classical AZF deletions.

Why Laboratory Quality Matters

Y-microdeletion testing appears simple, but incorrect marker selection or interpretation can create false diagnoses.

The EAA/EMQN quality-control programme has shown that standardized testing markedly reduces diagnostic error. Their latest best-practice guidance also updated which markers should be used when defining deletion boundaries.

For patients, the practical message is:

this is a genetic diagnosis and should ideally be performed by a laboratory experienced in validated male-infertility genetic testing.

Can a Routine Karyotype Detect It?

Usually not.

A karyotype identifies large chromosome abnormalities.

A Y microdeletion can be much smaller.

Therefore:

normal 46,XY karyotype does not rule out an AZF deletion.

A man with severe non-obstructive azoospermia may appropriately need both:

- karyotype analysis,
- Y-chromosome microdeletion testing.

These tests answer different genetic questions.

Karyotype Versus Y-Microdeletion Testing

This distinction is very useful.

Karyotype may detect:

- Klinefelter syndrome,
- balanced translocations,
- large structural chromosome abnormalities.

Y-microdeletion testing detects:

- small missing regions within Yq,
- particularly AZFa, AZFb and AZFc.

One test does not substitute for the other.

What Does the Semen Analysis Usually Show?

The most common presentations are:

Non-obstructive azoospermia

No sperm are found in semen because sperm production itself is severely impaired.

Severe oligospermia

A very low sperm concentration remains.

Cryptozoospermia

Rare sperm become detectable only after intensive laboratory examination.

AZFc deletions are particularly capable of producing this broad spectrum.

Complete AZFa and AZFb deletions are usually associated with much more severe spermatogenic failure.

Y Microdeletion Causes Non-Obstructive, Not Ordinary Obstructive, Infertility

This distinction is important.

In **obstructive azoospermia**, sperm production is often relatively normal but sperm cannot reach the ejaculate.

In an AZF microdeletion, the primary problem is usually **sperm production inside the testes**.

Therefore, simply surgically opening a reproductive duct does not solve the genetic problem.

Hormone Findings

Some patients have elevated FSH because the testes are failing to produce sperm normally.

However:

FSH does not diagnose the microdeletion.

A patient may have:

- high FSH,
- normal testosterone,
- severe azoospermia.

Another may have a somewhat different endocrine profile.

Genetic testing is needed to establish the actual Y deletion.

Does a Y-Chromosome Microdeletion Cause Low Testosterone?

Not necessarily.

The deleted AZF genes primarily affect spermatogenesis.

Many affected men have normal androgen production and normal:

- beard growth,
- libido,
- erections,
- male appearance.

The condition can therefore severely impair fertility without producing obvious sexual dysfunction.

This is an important distinction for patients.

Y-Chromosome Microdeletion Does Not Mean Impotence

A man can have:

zero sperm

and simultaneously have:

- normal testosterone,
- strong libido,
- completely normal erections,
- normal ejaculation,
- normal orgasm.

Fertility and sexual performance are not the same thing.

I explain this because patients sometimes interpret a genetic infertility diagnosis as a statement about masculinity.

It is not.

Why the Diagnosis Is Particularly Important Before Micro-TESE

Among all available tests performed before surgical sperm retrieval in non-obstructive azoospermia, AZF analysis has unusually strong prognostic value.

If a man has complete AZFa or AZFb deletion, current evidence indicates that surgery is futile.

If he has isolated AZFc deletion, meaningful sperm-retrieval potential remains.

A 2026 review describes AZF screening as the most clinically useful genetic predictor available before TESE in this setting.

This is why genetic testing should ideally be completed **before** invasive sperm-retrieval surgery.

What Is Micro-TESE?

Micro-TESE stands for:

Microdissection Testicular Sperm Extraction.

It is primarily used in selected men with non-obstructive azoospermia.

Using an operating microscope, an experienced reproductive urologist identifies seminiferous tubules that appear more likely to contain residual sperm production.

These tissues are examined in the embryology laboratory for sperm.

When sperm are found, they can potentially be:

- used immediately for ICSI,
- or cryopreserved for future treatment.

Complete AZFa: Should Micro-TESE Be Attempted?

For a confirmed **complete AZFa deletion**, current evidence says no.

The likelihood of recovering sperm is effectively zero.

Both EAU and AUA/ASRM guidance advise against sperm-retrieval surgery in this setting.

Complete AZFb: Should Micro-TESE Be Attempted?

The same principle generally applies to a **confirmed complete AZFb deletion**.

Classical complete AZFb deletion produces maturation failure that is incompatible with successful mature sperm retrieval in currently available evidence.

Micro-TESE should therefore generally not be undertaken simply in hope that sperm might be found.

Again, partial deletions require specialist interpretation.

AZFc: Should Micro-TESE Be Considered?

Yes, when the patient has confirmed non-obstructive azoospermia and wishes to pursue biological fatherhood.

Sperm-retrieval rates in the literature are substantial enough to justify discussion.

Current European estimates are approximately **50–75%**, while a newer 2026 analysis reported around **59%**.

Actual success depends on:

- individual biology,
- surgical expertise,
- laboratory expertise,
- exact genetic pattern.

No responsible physician should guarantee sperm retrieval.

Does Age Determine AZFc Sperm Retrieval?

Age has been investigated as a potential predictor.

Recent 2026 clinical research examining men with isolated complete AZFc deletions undergoing micro-TESE found that sperm retrieval was not simply determined by whether the man was younger or older than 35 years.

This supports individualized counselling rather than assuming that a patient has lost all retrieval potential merely because he has crossed a specific birthday.

Sperm Cryopreservation in AZFc Deletion

If sperm are present in the ejaculate, I consider sperm freezing an important discussion.

Why?

Because sperm production in AZFc deletion may be extremely limited and can vary.

A sample containing usable sperm today does not guarantee that future samples will contain the same number.

Cryopreservation can preserve an opportunity for future ICSI.

ICSI and Y-Chromosome Microdeletion

ICSI—Intracytoplasmic Sperm Injection—is the principal assisted-reproductive technique used when sperm numbers are extremely low or sperm have been surgically retrieved.

One selected sperm is injected directly into a mature egg.

This bypasses many of the natural barriers that a severely reduced sperm population would otherwise struggle to overcome.

ICSI has therefore made biological fatherhood possible for some men with AZFc microdeletions who previously would have had essentially no reproductive option using their own sperm.

Can an AZF Deletion Be Passed to a Child?

This is one of the most important counselling points.

The Y chromosome passes:

from father to son.

A daughter normally receives her father's X chromosome rather than his Y chromosome.

Therefore, if a man with an AZFc deletion fathers a **son using his own sperm**, the son is expected to inherit the father's deleted Y chromosome.

Current EAU guidance explicitly states that **male offspring of men with AZF microdeletions will inherit the deletion**.

AUA/ASRM guidance likewise requires counselling regarding this transmission risk.

What Does This Mean for the Son?

The son may later experience impaired sperm production and male infertility.

However, the severity cannot necessarily be predicted precisely from the father's sperm count alone.

The inherited genetic deletion remains present.

The future male child may therefore need fertility counselling when he reaches an appropriate age.

This is why genetic counselling before ICSI is essential.

Does a Daughter Inherit the Y Deletion?

No.

A daughter does not inherit her father's Y chromosome.

She receives:

an X chromosome from her father

and therefore does not inherit the father's AZF deletion.

This is basic chromosome biology.

However, reproductive decisions involving embryo testing or selection are subject to ethical and legal requirements that differ between countries. Couples should discuss lawful options with a qualified genetics and assisted-reproduction team.

Genetic Counselling Is Not Optional in This Situation

When an identifiable genetic abnormality can be transmitted to offspring, the couple should understand:

- what the deletion means,
- what the sperm-retrieval prognosis is,
- how inheritance occurs,
- what uncertainties remain,
- what assisted-reproductive options exist.

Current EAU guidance strongly recommends genetic counselling before ART when a genetic abnormality is identified.

The goal of counselling is not to frighten the couple.

It is to allow an informed reproductive decision.

Does AZFc Deletion Affect ICSI Success?

The evidence is not completely uniform.

A systematic review and meta-analysis of AZFc-deleted men found poorer fertilization, clinical-pregnancy and live-birth outcomes compared with men without deletions in the included observational studies, although study quality and differences between patient groups limit how confidently these findings can be generalized.

European guideline reviews have also found evidence of reduced fertilization while acknowledging limitations in available studies.

Therefore, I do not tell patients:

“Once sperm are found, your IVF outcome will be exactly the same as everybody else's.”

Nor do I tell them pregnancy is unlikely.

The appropriate message is:

ICSI provides a genuine reproductive opportunity, but sperm retrieval is only the first stage and the final chance of live birth depends upon multiple male and female factors.

Testicular Sperm Versus Ejaculated Sperm in AZFc Deletion

If ejaculated sperm are available, they are often very useful and may avoid surgery.

Studies comparing testicular and ejaculated sperm in AZFc-deleted men have not established a clear live-birth advantage for automatically using testicular sperm when usable ejaculated sperm are already available.

Therefore:

finding an AZFc deletion does not automatically mean micro-TESE is necessary.

The reproductive team should first determine whether adequate viable ejaculated sperm are available.

Does the Deletion Become Worse Over Time?

The DNA deletion itself does not progressively expand in the ordinary sense.

However, sperm production can sometimes deteriorate over time in men with AZFc deletions.

A patient who initially has severe oligospermia may later become cryptozoospermic or azoospermic.

This is another reason sperm cryopreservation can be valuable when viable ejaculated sperm are identified.

Does Lifestyle Cause the Genetic Deletion?

No.

Smoking, alcohol, heat and diet do not cause an inherited or de novo classical AZF deletion after birth.

The genetic abnormality is already present.

However, additional lifestyle insults can potentially worsen the reproductive function of already compromised testes.

For example, smoking or anabolic steroids can further reduce sperm production in a man who already has limited spermatogenic capacity.

Therefore, optimizing lifestyle remains sensible even though it cannot repair the missing chromosome segment.

Can Varicocele Coexist With a Y Microdeletion?

Yes.

A genetic abnormality does not prevent a patient from having another fertility problem.

For example, a man may have:

- AZFc deletion,
- clinical varicocele,
- obesity,
- smoking exposure.

The physician needs to determine how much each factor may be contributing.

However, treating varicocele cannot recreate missing AZFc DNA.

Expectations regarding improvement need to remain realistic.

Can Hormonal Treatment Cure the Genetic Problem?

No.

Hormonal medicines cannot restore the deleted DNA.

This is especially important when patients are offered repeated:

- FSH injections,
- hCG,
- clomiphene,
- aromatase inhibitors

simply because sperm are absent.

These medicines have legitimate roles in specific endocrine disorders.

But a man with complete AZFa or AZFb deletion does not lack sperm because his pituitary is failing to provide enough stimulation.

His spermatogenic genetic machinery itself is severely disrupted.

Treatment must respect the biology.

Can Testosterone Help?

External testosterone is **not fertility treatment**.

In fact, testosterone injections or gels suppress LH and FSH and can reduce remaining sperm production.

Major male-infertility guidelines recommend against testosterone monotherapy in men seeking current or future fertility.

A Y-deletion patient should therefore never use testosterone as a "sperm booster."

If genuine testosterone deficiency also exists, endocrine treatment needs to be coordinated carefully with fertility goals.

Does High FSH Mean the Y Deletion Caused It?

High FSH is a marker of impaired testicular spermatogenesis.

An AZF deletion can therefore be associated with elevated FSH.

But elevated FSH itself does not prove that a Y microdeletion is present.

Many other forms of primary testicular failure also increase FSH.

The genetic test establishes the deletion.

Should Brothers or Male Relatives Be Tested?

Most classical AZF deletions identified in severely infertile men arise de novo or are transmitted through the paternal Y chromosome when the father is capable of reproduction.

Routine family screening is not automatically required in every family.

However, genetic counselling can determine whether testing of relevant male relatives makes sense based upon:

- reproductive history,
- the particular deletion,
- known paternal transmission.

A specialist genetic counsellor is useful for these questions.

Can a Fertile Father Have a Son With a Y Microdeletion?

Yes.

Some deletions can arise newly during formation of paternal sperm.

In addition, some partial Y-chromosome deletions can produce variable fertility.

Therefore, the absence of infertility in the patient's father does not exclude a Y-chromosome abnormality in the son.

How Do These Deletions Arise?

The Y chromosome contains many repeated and palindromic DNA sequences.

These repeated structures make the chromosome vulnerable to errors during recombination.

Segments that should align correctly can pair incorrectly.

The resulting chromosome may lose a section of DNA.

The AUA/ASRM guideline explains that the palindromic architecture of the Y chromosome contributes to these microdeletions through abnormal recombination events.

This is a biological chromosome event—not something caused by sexual activity, stress or a particular food.

Y-Chromosome Microdeletion Is Not a Sexually Transmitted Disease

The word “deletion” or “genetic” sometimes creates confusion.

This condition is:

- not an infection,
- not sexually transmitted,
- not caused by masturbation,
- not caused by frequent intercourse,
- not caused by poor hygiene.

It is a genetic abnormality affecting sperm production.

Y Microdeletion Does Not Cause Erectile Dysfunction Directly

Most men with Y microdeletions have normal male sexual development.

The penis and secondary sexual characteristics may be completely normal.

Libido, erections and ejaculation can also be normal.

The principal problem is usually:

spermatogenesis.

A patient may therefore have a normal married sexual life but remain infertile because very few or no sperm are being produced.

Psychological Impact

A genetic infertility diagnosis can be emotionally difficult.

A patient may think:

“Something is missing from my body.”

“Will I ever have a child?”

“Will I give infertility to my son?”

These concerns are understandable.

Infertility itself can cause:

- anxiety,
- sadness,
- guilt,
- relationship stress,
- loss of sexual confidence.

The 2025 WHO infertility guideline emphasizes the psychological and social impact of infertility and the importance of patient-centred counselling and support.

A genetic diagnosis should therefore be explained sensitively rather than handed to a patient as a laboratory report without counselling.

How I Evaluate a Patient With Suspected Y-Chromosome Microdeletion

When I see a man with:

- azoospermia,
- cryptozoospermia,
- or very severe oligospermia,

I begin with a complete male-infertility assessment.

I do not jump directly to genetic testing or fertility medicine.

Step 1: Confirm the Semen Abnormality

Azoospermia must be confirmed correctly.

The laboratory should examine the semen carefully, including centrifugation when appropriate, because very rare sperm may otherwise be missed.

Current EAU guidance recommends confirming non-obstructive azoospermia on **two consecutive semen analyses** when no sperm are found after appropriate centrifugation.

This distinction can completely change fertility treatment.

Step 2: Determine Obstructive Versus Non-Obstructive Azoospermia

Y-chromosome microdeletion testing is primarily relevant when the problem is impaired sperm production.

I assess:

- testicular size,
- FSH,
- semen volume,
- reproductive-tract examination,
- vas deferens,
- clinical history.

A man with obstruction has a different fertility pathway.

Step 3: Hormonal Evaluation

Current EAU guidance recommends evaluating:

FSH, LH and total testosterone

in men with oligozoospermia or azoospermia.

This helps distinguish different mechanisms of testicular failure.

Step 4: Karyotype

For severe sperm-production abnormalities, karyotype analysis may detect disorders such as:

- Klinefelter syndrome,
- structural chromosome abnormalities.

Current EAU guidance recommends standard karyotype assessment and genetic counselling for men with azoospermia and severe oligozoospermia below 5 million/mL.

AUA/ASRM uses a somewhat more phenotype-specific threshold.

Step 5: Y-Chromosome Microdeletion Testing

When sperm concentration is extremely low or azoospermia is present with signs of impaired sperm production, targeted AZF testing becomes appropriate.

I want the result to identify:

- AZFa,
- AZFb,
- AZFc,
- complete versus partial deletion where relevant.

Step 6: Couple-Based Fertility Assessment

Even when a major male genetic abnormality is identified, infertility treatment belongs to the **couple**.

The female partner's:

- age,
- ovarian reserve,
- egg quality,
- tubal and uterine health

influence whether micro-TESE and ICSI make sense and how urgently treatment should proceed.

The newest WHO infertility guideline emphasizes evidence-based progression through fertility treatment according to clinical findings and patient preferences.

Treatment of Y-Chromosome Microdeletion

The word “treatment” needs to be used correctly.

There are two separate questions:

Can we repair the missing DNA?

At present:

No.

Can we help the patient achieve biological fatherhood despite the deletion?

In selected patients:

Yes.

The reproductive pathway depends primarily upon the deletion type and whether sperm can be found.

Treatment Pathway for Complete AZFa Deletion

When a complete AZFa deletion is confirmed:

- sperm retrieval is not expected,
- micro-TESE should generally not be performed,
- genetic counselling is appropriate,
- reproductive alternatives should be discussed compassionately.

Current EAU and AUA/ASRM recommendations are particularly strong on this point.

Treatment Pathway for Complete AZFb Deletion

The same general principle applies.

Complete AZFb deletion is associated with spermatogenic maturation arrest and essentially absent mature-sperm retrieval in established evidence.

Invasive sperm-retrieval surgery is therefore generally not recommended.

Treatment Pathway for AZFc Deletion With Sperm in Semen

If viable sperm are present:

- repeat high-quality semen assessment may be useful,
- sperm cryopreservation should be considered,
- IVF/ICSI planning may be appropriate according to semen severity and female factors,
- genetic counselling is essential.

The patient should be informed that any son conceived using his sperm will inherit the deleted Y chromosome.

Treatment Pathway for AZFc Deletion With Azoospermia

If semen repeatedly confirms non-obstructive azoospermia:

- genetic counselling,
- reproductive-urology consultation,
- micro-TESE consideration,
- IVF/ICSI planning

may be appropriate.

Current data suggest sperm retrieval in a meaningful proportion of such patients.

The Unani Perspective on Y-Chromosome Microdeletions

As a physician trained in Unani medicine and focused on sexual disorders and infertility, I believe male fertility should be considered within the patient's complete health.

Classical Unani medicine discusses reduced sperm quantity and reproductive weakness through concepts such as:

Qillat-e-Haiwan-e-Manwiya,
Qillat-e-Mani,
and broader disorders of reproductive function.

Traditional assessment may include consideration of:

- **Mizaj** or constitutional temperament,
- nutrition,
- digestive health,
- sleep,

- physical activity,
- psychological wellbeing,
- sexual function,
- overall reproductive strength.

These principles can be useful for approaching the patient's health as a whole.

However, Y-chromosome microdeletion requires a very clear scientific distinction.

The missing chromosome material cannot be regenerated by an Unani formulation.

Why Y-Microdeletion Infertility Is Different From Idiopathic Oligospermia

This distinction is extremely important.

Consider two patients.

The first has:

8 million sperm/mL, normal genetic testing and no identifiable cause.

This could be described as idiopathic oligospermia.

The second has:

azoospermia and a complete AZFa deletion.

The biological causes are completely different.

Giving the same semen-enhancing medicine to both patients and expecting the same result would be scientifically inappropriate.

What Does Published Unani Research Actually Show?

There is published Unani research in **oligospermia**.

A CCRUM-associated retrospective analysis evaluated previous studies involving **126 men with idiopathic oligospermia** and reported improvements in selected semen parameters with different Unani formulations.

An observational study at the National Institute of Unani Medicine evaluated **Sufoof-e-Muallif** in 30 men with oligospermia and reported improvements in certain semen parameters.

These studies provide preliminary evidence supporting further investigation of traditional Unani approaches in selected forms of male infertility.

But there is an extremely important limitation.

These Studies Did Not Demonstrate Treatment of Y Microdeletions

The men in those studies had oligospermia.

They were not selected because they had:

- complete AZFa deletion,
- complete AZFb deletion,
- genetically proven AZFc deletion.

In fact, contemporary Unani oligospermia research protocols commonly exclude men with major genetic or organic testicular disorders precisely because these are different biological conditions.

Therefore, the evidence cannot responsibly be used to say:

“Unani medicine repairs Y-chromosome microdeletion.”

There is no evidence for that claim.

How Unani Medicine May Still Be Useful

An integrative role remains possible.

A man with AZFc deletion may also have:

- obesity,
- metabolic problems,
- nutritional deficiencies,
- digestive complaints,
- poor sleep,
- smoking exposure,
- sexual anxiety,
- other reproductive-health concerns.

Individualized Unani care can potentially support:

- general health,
- dietary and lifestyle regulation,

- metabolic wellbeing,
- associated sexual-health concerns,
- overall reproductive-health optimization.

But this is **supportive management around the genetic condition**, not genetic correction.

Lifestyle Still Matters

A patient sometimes says:

“If my infertility is genetic, why should I stop smoking or improve my weight?”

Because a genetic predisposition and additional reproductive stressors can coexist.

If remaining sperm production is already limited, protecting whatever testicular function remains becomes especially important.

I therefore still advise appropriate attention to:

- tobacco cessation,
- healthy body weight,
- physical activity,
- adequate nutrition,
- avoidance of anabolic steroids,
- avoidance of unnecessary testosterone,
- reasonable alcohol use,
- control of diabetes and metabolic disease.

The 2025 WHO infertility guideline emphasizes healthy diet, physical activity and tobacco cessation as part of fertility care.

These measures cannot restore deleted DNA.

But they can improve general health and help avoid adding preventable reproductive injury.

Antioxidants

Oxidative stress has been investigated extensively in male infertility.

However, patients with a confirmed Y deletion should understand that antioxidant treatment cannot replace the missing spermatogenesis genes.

At most, antioxidant or nutritional support might address additional reversible oxidative factors in selected patients.

It should not be sold as genetic therapy.

Testosterone and Unani "Sexual Strength" Medicines

Another important misconception is that increasing sexual power will increase sperm.

A man with AZF deletion may already have:

normal libido, normal erections and normal testosterone.

His infertility lies in sperm production.

Therefore, sexual tonics are not automatically fertility treatment.

Any Unani medicine should be chosen according to the actual clinical problem, not merely because the patient is male and infertile.

My Approach at Saira Health Care

When a patient comes to me with a positive Y-chromosome microdeletion report, I first want to see the **actual genetic report**.

I ask:

Which AZF region is deleted?

Then:

Is the deletion complete or partial?

Is the patient azoospermic, cryptozoospermic or severely oligospermic?

Has azoospermia been confirmed correctly?

What are FSH, LH and testosterone levels?

What is the testicular volume?

Has a karyotype been performed?

Are there any ejaculated sperm that can be frozen?

Is micro-TESE appropriate—or genetically futile?

What is the female partner's reproductive status?

That sequence creates a rational treatment pathway.

Special Treatment Planning by Dr. Nizamuddin Qasmi

My clinical work in **Sexual Disorders & Infertility** focuses on understanding the exact mechanism behind severe male-factor infertility.

In a patient with Y-chromosome microdeletion, individualized management may include:

- confirmation of semen abnormality,
- review of the genetic report,
- hormone assessment,
- testicular examination,
- karyotype review where appropriate,
- fertility-preservation counselling,
- sexual-health assessment,
- couple-based fertility planning,
- genetic counselling,
- referral for micro-TESE/ICSI when clinically appropriate.

Individualized Unani supportive management can be incorporated for general and reproductive wellbeing where suitable.

But I do not use Unani medicine to delay a clinically appropriate genetic or assisted-reproductive intervention.

What "Special Treatment" Means in a Genetic Infertility Disorder

For me, special treatment does not mean claiming that one medicine repairs the Y chromosome.

It means using the genetic diagnosis to avoid ineffective or unnecessary treatment.

Consider three patients:

Patient One

Complete AZFa deletion with azoospermia.

The correct plan is **not repeated sperm medicines followed by micro-TESE**.

Patient Two

AZFc deletion with 300,000 sperm/mL and occasional motile sperm.

The priority may include **sperm cryopreservation and ICSI planning**.

Patient Three

AZFc deletion with confirmed azoospermia.

He may be an appropriate candidate for **micro-TESE followed by ICSI**.

Those three patients all have Y-chromosome microdeletions, but their treatment pathways are very different.

That is individualized fertility medicine.

Saira Health Care's Contribution to Sexual Disorders and Infertility

At **Saira Health Care**, our work in sexual disorders and infertility focuses on moving patients away from vague descriptions such as:

“zero sperm,”
“weak sperm,”
“sexual weakness.”

A man with genetic azoospermia deserves to know **why** sperm are absent.

The diagnosis can prevent years of ineffective empirical treatment.

It can also protect a patient with complete AZFa or AZFb deletion from undergoing an invasive sperm-retrieval operation with essentially no realistic chance of success.

At the same time, it can give a patient with AZFc deletion appropriate hope because sperm retrieval may still be possible.

This is one of the most valuable contributions of modern male-infertility genetics.

When I Refer the Patient

Y-chromosome microdeletion infertility is ideally managed through collaboration.

Depending upon the case, appropriate professionals may include:

- reproductive urologist,

- clinical geneticist,
- genetic counsellor,
- IVF/ICSI specialist,
- embryology laboratory,
- endocrinologist where hormonal disease coexists.

Integrative medicine should connect these services—not separate the patient from them.

What Patients Should Avoid

I advise patients with a confirmed Y deletion to avoid several common mistakes.

Do not assume that all Y deletions have the same prognosis.

Do not undergo micro-TESE before clarifying whether the deletion is complete AZFa or AZFb.

Do not take testosterone as a fertility medicine.

Do not spend years taking changing supplements when genetic counselling or ART is already indicated.

Do not assume that azoospermia with AZFc means there is absolutely no chance of finding testicular sperm.

Do not accept anyone's guarantee that micro-TESE will succeed.

And do not believe claims that herbal treatment can restore deleted chromosome material.

Frequently Asked Questions

What is a Y-chromosome microdeletion?

It is the loss of a small segment of genetic material from the Y chromosome, usually involving regions important for sperm production.

What does AZF mean?

AZF means **Azoospermia Factor**.

The clinically important regions are:

AZFa, AZFb and AZFc.

What does AZFa deletion mean?

Complete AZFa deletion is associated with severe sperm-production failure, typically Sertoli-cell-only syndrome.

Surgical sperm retrieval is not recommended because mature sperm are essentially not found.

What does AZFb deletion mean?

Complete AZFb deletion generally causes severe maturation arrest of spermatogenesis.

Current evidence indicates essentially no useful sperm-retrieval potential in complete classical AZFb deletion.

What does AZFc deletion mean?

AZFc deletion produces a more variable fertility pattern.

Men may have:

- azoospermia,
- cryptozoospermia,
- severe oligospermia.

Testicular sperm can be recovered in a meaningful proportion of azoospermic men.

Which deletion is most common?

AZFc is the most common classical Y-chromosome microdeletion, accounting for approximately two-thirds of clinically detected complete AZF deletions.

How common are Y microdeletions in azoospermia?

They are found in roughly **8–12% of men with non-obstructive azoospermia** in major guideline datasets.

Can they cause low sperm count without azoospermia?

Yes.

AZFc deletion in particular may produce severe oligospermia rather than complete azoospermia.

Who should have the test?

Current AUA/ASRM guidance recommends testing men with primary infertility and azoospermia or sperm concentration **≤1 million/mL** when findings suggest impaired sperm production.

EAU recommends testing at **≤1 million/mL** and considering testing below **5 million/mL**.

Does every man with 4 million sperm/mL need testing?

Not necessarily.

Diagnostic yield between 1 and 5 million/mL is much lower than at ≤1 million/mL.

The decision should consider FSH, testicular size and the broader clinical picture.

Can a normal karyotype rule it out?

No.

A Y microdeletion is generally too small to be detected by routine karyotype.

A man may have:

46,XY

and still have an AZF deletion.

How is it diagnosed?

Molecular genetic testing, commonly using validated multiplex-PCR techniques, is used to detect clinically relevant missing AZF markers.

Does Y microdeletion cause erectile dysfunction?

Not usually directly.

Many affected men have normal testosterone, libido, erections and ejaculation but severe sperm-production failure.

Does it cause low testosterone?

It can coexist with testicular dysfunction, but many Y-deletion patients have adequate testosterone.

Hormonal status must be measured rather than assumed.

Can the missing DNA be restored with treatment?

No current medicine can restore the deleted Y-chromosome segment throughout the patient's cells.

Can Unani medicine repair the deletion?

No.

There is no scientific evidence that Unani medicine, herbal medicine, supplements or hormonal therapy can replace the missing Y-chromosome DNA.

Can Unani medicine still be useful?

Yes, potentially as supportive and individualized care for broader reproductive health, nutrition, metabolic health, lifestyle and associated sexual-health concerns.

It should not replace genetic counselling or appropriate ART.

Can AZFa patients have micro-TESE?

For a **complete AZFa deletion**, current guidelines recommend against TESE because useful sperm retrieval is essentially absent.

Can AZFb patients have micro-TESE?

Complete AZFb deletion likewise has an exceptionally poor sperm-retrieval prognosis, and surgery is generally not recommended.

Can AZFc patients have micro-TESE?

Yes, when azoospermia is confirmed and biological fertility is desired.

Current estimates suggest sperm may be retrieved in roughly **50–75%** of appropriately selected patients, with newer 2026 evidence placing overall success near 59%.

Does that mean there is a 59% chance I will have a baby?

No.

Sperm retrieval is only the first step.

The sperm must then successfully fertilize an egg through ICSI, produce an embryo, implant and result in a live birth.

Female reproductive factors also strongly influence the final outcome.

If sperm are already present in semen, do I need micro-TESE?

Not necessarily.

Usable ejaculated sperm may be cryopreserved and used for ICSI.

Surgical sperm retrieval should not automatically be performed when suitable ejaculated sperm are available.

Should I freeze sperm if I have AZFc deletion?

If viable ejaculated sperm are present, sperm cryopreservation is worth discussing because sperm production may be very limited and can change with time.

Can my son inherit my AZFc deletion?

Yes.

A biological son conceived using sperm carrying the deleted Y chromosome will inherit that Y chromosome and therefore the deletion.

Will my daughter inherit it?

No.

A daughter receives her father's X chromosome rather than his Y chromosome.

Will my son definitely be infertile?

He will inherit the deletion, but the exact severity of future spermatogenic impairment cannot always be predicted solely from the father's phenotype.

Genetic counselling is therefore important.

Can diet cure the deletion?

No.

A healthy diet may support general reproductive health but cannot replace missing DNA.

Can antioxidants create sperm in complete AZFa deletion?

There is no credible evidence that antioxidants can overcome complete loss of an AZFa region that is essential for germ-cell survival.

Can FSH injections help complete AZFa or AZFb deletion?

There is no evidence that routine hormonal stimulation restores spermatogenesis when critical AZF genetic material required for sperm development is completely absent.

Should testosterone be used?

Not as fertility treatment.

External testosterone can suppress remaining sperm production.

If clinically significant testosterone deficiency exists, fertility goals should be discussed before treatment is started or modified.

Is the condition caused by masturbation?

No.

Masturbation does not delete Y-chromosome DNA and does not cause this genetic disorder.

Is it caused by frequent sex?

No.

Is it caused by an infection?

No.

It is a genetic abnormality, although infections can independently affect male fertility.

Is it caused by smoking?

Smoking does not cause the underlying AZF deletion.

However, smoking may add further reproductive stress and should be stopped as part of general fertility care.

Can varicocele surgery cure the genetic problem?

No.

A clinically important varicocele may coexist and may deserve separate treatment in selected men, but surgery cannot replace missing Y-chromosome DNA.

A Message From Dr. Nizamuddin Qasmi

When a patient comes to me with:

“Sperm count zero”

I do not want the conversation to end there.

I ask:

Why is it zero?

If a Y-chromosome microdeletion is found, the next question is:

Which deletion?

That one question can completely change fertility counselling.

If the answer is:

complete AZFa,
I would not want the patient spending years changing sperm medicines or undergoing a micro-TESE that current evidence says will not retrieve sperm.

If the answer is:

complete AZFb,
the same caution applies.

But if the answer is:

AZFc,
the discussion is very different.

We look carefully for rare sperm in semen.

We discuss freezing them if present.

And if azoospermia is confirmed, micro-TESE may still offer a meaningful possibility of finding sperm for ICSI.

This is why genetic diagnosis matters.

What I Tell Patients About Hope

A genetic diagnosis should not create either false hope or unnecessary hopelessness.

In complete AZFa or AZFb deletion, it is compassionate to be clear that modern evidence does not support surgical sperm retrieval.

Continuing ineffective treatment for years can be emotionally and financially damaging.

But AZFc deletion is different.

Sperm production may survive in small areas of the testes.

Modern micro-TESE and ICSI have therefore allowed some affected men to achieve biological fatherhood.

The most professional medical approach is to understand which situation the patient actually has.

Latest Medical Understanding

Several recent developments are especially important.

Testing has become more targeted.

The **2024 AUA/ASRM guideline** now focuses routine Y-microdeletion testing particularly on men with sperm concentrations **≤1 million/mL** and evidence of impaired sperm production, because deletions are much less common between 1 and 5 million/mL.

Laboratory standards have improved.

The updated **EAA/EMQN best-practice recommendations**, published in 2024, refined molecular testing and deletion-boundary analysis to improve the accuracy of AZF diagnosis.

Complete and partial deletions must be distinguished.

A 2026 review reinforced that complete AZFa and AZFb deletions have essentially absent TESE success, whereas incomplete forms can have more variable phenotypes.

AZFc remains the major surgically relevant deletion.

The same 2026 evidence found sperm retrieval of approximately **58.9%** in complete AZFc deletions, supporting reproductive-urology assessment rather than automatic hopelessness.

Genetic counselling remains fundamental.

A son conceived from the affected father's sperm inherits the deleted Y chromosome, so treatment is not simply about finding sperm—it also involves informed reproductive decision-making.

Conclusion

Y-Chromosome Microdeletions are an important genetic cause of severe male infertility, especially non-obstructive azoospermia and severe oligospermia.

The clinically important regions are:

AZFa, AZFb and AZFc.

The exact genetic diagnosis has major consequences.

Complete AZFa deletion is associated with severe germ-cell loss and essentially no realistic sperm-retrieval potential.

Complete AZFb deletion is generally associated with profound maturation arrest and similarly poor sperm-retrieval prospects.

AZFc deletion has a much more variable phenotype. Some men have severe oligospermia, while others have azoospermia but retain focal sperm production within the testes.

Current guidelines report successful testicular sperm retrieval in approximately **50–75% of appropriately selected AZFc patients**, with newer 2026 evidence reporting an overall rate near 59%.

Genetic testing should be appropriately targeted.

The **2024 AUA/ASRM guideline** recommends testing particularly in azoospermic men and men with sperm concentration ≤1 million/mL when clinical findings indicate impaired sperm production. The current EAU guideline recommends testing at ≤1 million/mL and considering it below 5 million/mL.

The diagnosis should ideally be established **before surgical sperm retrieval**, because genetic findings can predict when micro-TESE is appropriate and when surgery would be futile.

The inheritance implications are equally important.

A male child conceived using sperm from a father with an AZF microdeletion will inherit the affected Y chromosome. Genetic counselling should therefore form part of reproductive planning.

From the **Unani perspective**, male fertility can be approached holistically through consideration of Mizaj, nutrition, digestion, lifestyle, metabolic health, sleep, psychological wellbeing and associated sexual concerns.

Published Unani clinical work has reported improvement in selected semen parameters in some men with idiopathic oligospermia.

However, those findings cannot be extrapolated to genetically proven Y-chromosome microdeletions.

No current Unani medicine, herbal product, supplement, hormone or conventional drug can restore a deleted AZF region.

For this reason, at **Saira Health Care**, my approach is integrative but firmly diagnosis-led:

confirm the semen abnormality, identify the precise genetic deletion, determine whether sperm retrieval is biologically realistic, preserve ejaculated sperm when available, provide genetic counselling, use micro-TESE and ICSI where appropriate, optimize the patient's overall reproductive health, and integrate Unani supportive care without delaying evidence-based genetic and fertility treatment.

The most important message I give patients is:

Do not treat every “zero sperm” report in the same way.

In Y-chromosome infertility, knowing whether the deletion is **AZFa, AZFb or AZFc** can be more important than trying one fertility medicine after another.

Precise diagnosis protects the patient from ineffective treatment, unnecessary surgery and false promises—and, in selected AZFc patients, it can identify a genuine pathway toward biological fatherhood.

About the Author

Dr. Nizamuddin Qasmi

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Qualifications & Professional Training

BUMS — Hamdard University, Delhi
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Masters in Male Infertility — MasterHealthPro (HealthPro)
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Dr. Nizamuddin Qasmi's clinical work at **Saira Health Care** focuses on sexual disorders, male reproductive health and infertility.

His approach to severe male-factor infertility emphasizes identifying genetic, hormonal, anatomical and testicular causes rather than treating every abnormal semen report as generalized sexual weakness.

In men with suspected or confirmed Y-chromosome microdeletions, appropriate contemporary evaluation—including semen confirmation, hormonal assessment, karyotype and AZF analysis, genetic counselling, sperm-preservation planning and referral for micro-TESE/ICSI where appropriate—is incorporated into individualized fertility planning.

Where clinically suitable, principles of Unani medicine may be used supportively to address the patient's broader reproductive and general health without replacing genetic or assisted-reproductive treatment.

Medical Disclaimer

This article is intended for health education and general public awareness. It does not establish an individual genetic diagnosis and does not replace consultation with an appropriately qualified reproductive urologist, clinical geneticist, genetic counsellor, fertility specialist or other healthcare professional.

Y-chromosome microdeletions are genetic abnormalities.

No herbal, Unani, nutritional, hormonal or conventional medicine has been shown to restore a completely deleted AZF region.

Men with complete AZFa or AZFb deletions should receive specialist counselling before undergoing invasive sperm-retrieval procedures because current evidence indicates essentially absent useful sperm-retrieval potential.

Men with AZFc deletions may have residual sperm production and should receive individualized counselling regarding semen cryopreservation, micro-TESE and IVF/ICSI.

Couples considering ART with sperm from a man carrying an AZF deletion should receive appropriate genetic counselling because male offspring can inherit the deleted Y chromosome.

Patients should not begin testosterone, fertility hormones, prescription medicines, supplements or herbal/Unani fertility formulations solely on the basis of azoospermia or severe oligospermia without appropriate investigation.