

Late Maturation Arrest: Causes, Diagnosis, Treatment, Fertility Options and the Role of Unani Medicine

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Introduction: “Doctor, My Biopsy Says Late Maturation Arrest. Does This Mean I Can Never Produce Sperm?”

One of the more difficult diagnoses a man can receive during an infertility evaluation is:

“Maturation arrest.”

Some reports may specifically mention:

Late Maturation Arrest

When a patient reads these words, he may understandably become frightened.

Patients often ask me:

“Doctor, does this mean my testes have stopped working permanently?”

Another may ask:

“My sperm cells are developing but stopping before becoming mature sperm. Can treatment complete this process?”

And a man with azoospermia may ask:

“If my semen has no sperm, can sperm still be present somewhere inside the testicle?”

These are important questions.

The first point I explain is that **late maturation arrest is not a disorder of a man's general physical, emotional, intellectual, or sexual maturity.**



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It does not mean that the patient has mentally or physically developed late.

Instead, it is a highly specific condition involving:

spermatogenesis—the biological process through which sperm are produced inside the testes.

In maturation arrest, the early sperm-producing cells are present, but their development stops before they become fully mature spermatozoa.

When development proceeds relatively far and stops at the **spermatid stage**, with spermatids present but mature spermatozoa absent in the examined tissue, this pattern is generally described as:

Late Maturation Arrest – LMA

Modern reviews of non-obstructive azoospermia classify maturation arrest alongside other testicular histological patterns such as:

- Sertoli-cell-only syndrome,
- hypospermatogenesis,
- and more advanced or mixed patterns of spermatogenic failure.

I want patients to understand another equally important fact:

Late maturation arrest is serious, but it does not automatically prove that there is no mature sperm anywhere in the testes.

Sperm production may sometimes be **focal**, meaning that a small number of seminiferous tubules continue further through spermatogenesis even when most sampled areas show maturation arrest.

This biological variation is the reason why selected men with non-obstructive azoospermia may still have sperm found during **microdissection testicular sperm extraction—micro-TESE**.

Therefore, the diagnosis requires:

realistic counselling rather than immediate hopelessness—and accurate investigation rather than guaranteed promises.

What Is Spermatogenesis?

To understand maturation arrest, we must first understand how sperm normally develop.

Sperm are not produced instantly.

Inside the testes are microscopic structures known as:



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Seminiferous Tubules

Within these tubules, immature germ cells undergo a highly organized process involving:

- multiplication,
- chromosome division,
- differentiation,
- structural remodeling,
- and maturation.

In simplified terms, sperm development progresses through stages such as:

Spermatogonia

Early germ cells capable of dividing and maintaining sperm production.



Primary and Secondary Spermatocytes

Cells undergoing the specialized chromosome-reduction process called **meiosis**.



Spermatids

Immature haploid cells that have completed much of the genetic division process but do not yet look or function like mature sperm.



Spermatozoa

Fully differentiated sperm cells capable of further maturation in the epididymis.

If development stops at one of these stages, it can produce a pattern called:

Maturation Arrest

What Exactly Is Late Maturation Arrest?

Late maturation arrest means that sperm development reaches a relatively advanced stage but fails to complete the final transition into mature spermatozoa.

In histological terms, **spermatids are present but mature spermatozoa are absent in the affected seminiferous tubules**.

A simple way I explain this to patients is:



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“The sperm-production factory has started the process and reached a late stage, but the final product is not being completed normally.”

This is very different from a condition in which:

- there are no germ cells at all,
- or sperm development stops at a very early stage.

Early Maturation Arrest vs Late Maturation Arrest

This distinction can influence prognosis.

Early Maturation Arrest

Development stops relatively early, typically around the:

- spermatogonial,
- or spermatocyte

stage.

Mature spermatids are absent.

Late Maturation Arrest

Development progresses further, with:

- round or early spermatids

present, but:

- mature spermatozoa are absent in the affected tissue.

Earlier reproductive studies found that men with late maturation arrest generally had a better chance of finding mature sperm during testicular sperm retrieval than men with early maturation arrest.

This does **not** mean that sperm retrieval is guaranteed.

It means late arrest may represent a more advanced stage of residual spermatogenic potential.

Late Maturation Arrest Is Not Delayed Puberty

This is an important correction to many older online descriptions.

Late maturation arrest should **not** be defined as:



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- delayed height growth,
- late emotional maturity,
- delayed cognitive development,
- delayed social maturity,
- or merely delayed puberty.

Those are entirely different medical concepts.

A man with late maturation arrest may have completely normal:

- adult appearance,
- beard growth,
- penis development,
- libido,
- erections,
- ejaculation,
- intelligence,
- occupation,
- relationships,
- and testosterone levels.

The problem may become apparent only when he and his wife are unable to achieve pregnancy.

Is Late Maturation Arrest the Same as Delayed Sexual Development?

No.

Delayed sexual development may occur in conditions such as:

- hypogonadotropic hypogonadism,
- constitutional delay of puberty,
- pituitary disease,
- or testosterone deficiency.

Late maturation arrest, by contrast, refers specifically to:



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failure of germ cells inside the testes to complete sperm development.

A hormonal disorder may contribute to abnormal spermatogenesis in some patients, but the terms are not interchangeable.

How Does Late Maturation Arrest Usually Present?

Many patients have:

no obvious physical symptoms.

The most common clinical presentation is:

Infertility

A couple may be trying for pregnancy without success.

Semen analysis may show:

Azoospermia

No sperm detected in the ejaculate.

or occasionally:

Cryptozoospermia

Extremely rare sperm that become detectable only after careful centrifugation and examination.

Some men may have severe oligozoospermia rather than complete azoospermia.

Low Count, Poor Motility and Morphology Are Not “Symptoms” of Late Maturation Arrest

This distinction is important.

A patient's supplied description may say that the “symptoms” include:

- low sperm count,
- low motility,
- abnormal morphology.

These are not symptoms in the ordinary sense.

They are:

laboratory findings.

A patient cannot feel:



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- low sperm count,
- abnormal morphology,
- or reduced sperm motility.

He usually discovers them through semen analysis.

Sexual Function Can Be Completely Normal

A man with maturation arrest can have:

- normal libido,
- strong erections,
- normal intercourse,
- normal orgasm,
- and normal-looking semen.

Azoospermia or maturation arrest should therefore not be confused with:

- erectile dysfunction,
- premature ejaculation,
- reduced masculinity,
- or sexual weakness.

Male fertility and sexual performance are related aspects of reproductive health but are not the same thing.

Is Late Maturation Arrest a Form of Azoospermia?

Late maturation arrest is a **testicular histological pattern** most commonly encountered in men with:

Non-Obstructive Azoospermia – NOA

NOA means sperm are absent from the ejaculated semen because sperm production inside the testes is severely impaired rather than because sperm are simply blocked from exiting.

Current EAU guidance defines NOA as absence of sperm in the ejaculate after appropriate centrifugation and recommends confirmation on at least **two semen analyses**.



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Obstructive Azoospermia vs Maturation Arrest

This distinction is essential.

Obstructive Azoospermia

The testes may produce mature sperm normally, but:

- the epididymis,
- vas deferens,
- ejaculatory ducts,
- or another reproductive pathway

is blocked.

Non-Obstructive Azoospermia With Maturation Arrest

The difficulty lies primarily within:

sperm production itself.

The developing germ cells fail to complete maturation.

The treatments are therefore very different.

A man with obstruction may benefit from:

- reconstructive surgery,
- or sperm retrieval.

A man with maturation arrest needs evaluation of:

- testicular function,
- genetics,
- hormones,
- acquired testicular insults,
- and the likelihood of focal mature sperm remaining.

What Causes Late Maturation Arrest?

Maturation arrest is not one disease with one cause.

It can be:

- genetic,



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- acquired,
- endocrine-associated,
- environmental,
- treatment-related,
- or unexplained.

A 2025 etiological review of NOA emphasizes the biological diversity of maturation failure and other forms of defective spermatogenesis.

1. Genetic Causes

Genetic causes are particularly important in severe male infertility.

Modern medicine has identified multiple genes necessary for:

- meiosis,
- chromosome pairing,
- germ-cell survival,
- DNA repair,
- and sperm differentiation.

Abnormalities involving these genes can interrupt spermatogenesis.

One important example is:

TEX11

TEX11 variants have been associated with:

- non-obstructive azoospermia,
- meiotic arrest,
- and maturation arrest.

Other genes associated with severe spermatogenic failure include members of the broader TEX gene family and other genes involved in meiosis and germ-cell differentiation.

Genetic understanding of male infertility continues to expand rapidly. A 2025 review described genetics as an increasingly important area of male-factor infertility diagnosis and counselling.



2. Chromosomal Abnormalities

Chromosomal disorders may interfere with normal sperm production.

The best-known example is:

Klinefelter Syndrome – usually 47,XXY

Other structural or numerical chromosome abnormalities may also impair spermatogenesis.

For men with severe spermatogenic failure, current AUA/ASRM guidance recommends appropriate genetic evaluation according to:

- sperm concentration,
- FSH,
- testicular size,
- and the overall clinical picture.

3. Y-Chromosome Microdeletions

The Y chromosome contains regions important for sperm production.

These include:

- AZFa,
- AZFb,
- AZFc.

Certain deletions can severely impair spermatogenesis.

This is clinically important because some genetic findings directly affect whether attempting sperm retrieval is reasonable.

For example, current EAU guidance recommends **not performing surgical sperm retrieval in men with complete AZFa or AZFb deletions because sperm retrieval is essentially unsuccessful.**

Therefore, genetic testing is not just academic information.

It can prevent unnecessary surgery.

4. Previous Testicular Insults



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Historical clinical studies found late maturation arrest to be associated more frequently than early maturation arrest with previous testicular insults such as:

- cryptorchidism,
- trauma,
- and other acquired testicular injuries.

This does not mean every LMA patient has an acquired cause.

But it tells us that the history matters.

5. Undescended Testes – Cryptorchidism

A testicle that remained outside the scrotum during childhood may develop abnormal germ-cell function.

The risk becomes particularly important when:

- both testes were affected,
- treatment occurred late,
- or testicular growth was impaired.

A history of cryptorchidism should always be discussed during evaluation of severe male infertility.

6. Varicocele

Varicocele can affect the testicular environment through:

- increased temperature,
- oxidative stress,
- altered circulation,
- and impaired testicular function.

Older studies reported that some men with maturation arrest had sperm appear in the ejaculate after varicocele repair, particularly when late rather than early maturation arrest was present.

However, I want to emphasize an important modern correction:

Current guidelines do not consider this evidence strong enough to promise that varicocele surgery will reverse NOA or maturation arrest.



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AUA/ASRM guidance states that men with clinical varicocele and NOA should be counselled that **definitive evidence supporting varicocele repair before ART is lacking**.

Therefore:

Varicocele + maturation arrest does not automatically mean surgery will restore sperm.

7. Hormonal Abnormalities

Spermatogenesis depends on the hypothalamic-pituitary-testicular axis.

Important hormones include:

- GnRH,
- FSH,
- LH,
- testosterone.

Severe deficiency of FSH and LH can prevent normal sperm production.

However, true histological late maturation arrest should not automatically be assumed to result from “low testosterone.”

Some patients have:

- normal testosterone,
- normal-sized testes,
- and relatively normal gonadotropins.

Others show clear endocrine abnormalities.

This variability is well documented in maturation-arrest cohorts.

Hypogonadotropic Hypogonadism Is Different

A man with **hypogonadotropic hypogonadism** may have severely impaired sperm production because his testes are not receiving adequate FSH and LH stimulation.

This can be a highly treatable cause of male infertility.

Such a patient may respond to:

- hCG,
- FSH,



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- or other specialist gonadotropin treatment.

But that should not be confused with claiming:

“Every late maturation arrest patient requires hormone replacement.”

The hormonal profile determines treatment.

8. Exogenous Testosterone and Anabolic Steroids

External testosterone and anabolic steroids can suppress:

- FSH,
- LH,
- intratesticular testosterone,
- and sperm production.

Men trying to father children should not use testosterone monotherapy as fertility treatment.

AUA/ASRM guidance explicitly states that testosterone monotherapy should **not** be prescribed to men interested in current or future fertility.

A complete medication and bodybuilding-supplement history is therefore essential.

9. Chemotherapy and Radiation

Cancer treatments can damage rapidly dividing germ cells.

Depending on:

- the drug,
- dose,
- radiation field,
- and individual testicular reserve,

spermatogenesis may recover or remain severely impaired.

Men facing gonadotoxic treatment should be offered fertility-preservation counselling whenever possible before treatment.

10. Environmental and Occupational Exposures



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Possible reproductive toxins include certain:

- pesticides,
- solvents,
- heavy metals,
- industrial chemicals,
- radiation,
- and severe chronic heat exposures.

The degree to which a particular exposure causes maturation arrest in an individual patient is often difficult to prove.

Still, occupational and environmental history is relevant in unexplained severe infertility.

11. Heat Exposure

Spermatogenesis is temperature-sensitive.

Men concerned about fertility should avoid unnecessary prolonged exposure to:

- very hot tubs,
- repeated high-temperature environments,
- and excessive testicular heating.

However:

normal day-to-day heat exposure should not be blamed automatically for maturation arrest.

Lifestyle advice must remain realistic.

12. Oxidative Stress and Germ-Cell Death

Modern research increasingly examines the role of:

- oxidative stress,
- apoptosis,
- mitochondrial dysfunction,
- inflammatory signalling,
- and testicular microenvironment abnormalities



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in non-obstructive azoospermia.

A 2026 review specifically examining apoptosis in NOA describes maturation arrest as one of the characteristic histological patterns associated with abnormal germ-cell survival and developmental failure.

These findings are scientifically important.

However:

they have not yet produced a proven tablet that reverses maturation arrest in every patient.

13. Idiopathic Maturation Arrest

In some men, even after appropriate evaluation, no definite cause is identified.

This is described as:

Idiopathic Maturation Arrest

“Idiopathic” means:

the cause cannot currently be identified with routine clinical testing.

It does not mean:

- imaginary,
- psychological,
- or untreatable.

As genetic testing improves, some cases currently labelled idiopathic may eventually receive a specific molecular diagnosis.

Focal vs Diffuse Maturation Arrest

This is one of the most important prognostic distinctions.

Diffuse Maturation Arrest

The same arrest pattern is present across essentially all sampled seminiferous tubules.

Focal or Mixed Maturation Arrest

Some areas show maturation arrest, while other small areas may have more advanced spermatogenesis.



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This matters because focal sperm production can allow successful sperm retrieval.

A large retrospective micro-TESE series found significantly better sperm retrieval in focal compared with diffuse maturation arrest.

However, biopsy samples cannot necessarily reveal every microscopic region of an entire testis.

This is one reason micro-TESE is used.

Symptoms of Late Maturation Arrest

The primary clinical manifestation is:

Male Infertility

Many patients otherwise feel completely healthy.

Possible associated findings include:

- azoospermia,
- cryptozoospermia,
- severe oligozoospermia,
- abnormal reproductive hormones,
- reduced testicular size in some patients,
- varicocele,
- or previous testicular disease.

But there may be:

- no pain,
- no swelling,
- no erectile problem,
- no ejaculation problem,
- and no visible physical abnormality.

Does Late Maturation Arrest Affect Libido?

Not necessarily.

Libido depends heavily on:



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- testosterone,
- psychological health,
- relationship factors,
- medications,
- and other health conditions.

If testosterone is normal, a man with maturation arrest can have completely normal sexual desire.

Does It Cause Erectile Dysfunction?

No direct relationship exists in many patients.

A man can have:

severe infertility + normal erections.

If erectile dysfunction also exists, it deserves its own evaluation.

Can Semen Look Normal?

Yes.

A man may ejaculate a completely normal-looking amount of semen even when:

no sperm are present.

Most semen volume comes from:

- seminal vesicles,
- prostate,
- and accessory glands,

not from sperm themselves.

Therefore, semen appearance cannot diagnose maturation arrest.

How Is Late Maturation Arrest Diagnosed?

This is one of the most important sections because the diagnosis is often misunderstood.

A semen analysis alone cannot diagnose “late maturation arrest.”



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A semen analysis can show:

- azoospermia,
- cryptozoospermia,
- or severe sperm abnormalities.

It cannot tell us exactly which cell stage sperm development stopped at.

Histology Is What Defines Maturation Arrest

Late maturation arrest is fundamentally a:

histopathological diagnosis.

A pathologist examines testicular tissue under a microscope and identifies:

- spermatogonia,
- spermatocytes,
- spermatids,
- and whether mature spermatozoa are present.

When spermatids are present but mature spermatozoa are absent in the examined tubules, late maturation arrest may be reported.

Should Every Azoospermia Patient Have a Diagnostic Testicular Biopsy?

No.

This is an important change from older practice.

Current AUA/ASRM guidance states that **diagnostic testicular biopsy should not routinely be performed merely to distinguish obstructive from non-obstructive azoospermia.**

Current EAU guidance similarly states that a testicular biopsy before definitive TESE is not routinely recommended.

Therefore, a modern clinical approach usually involves:

- history,
- physical examination,
- semen testing,
- hormones,



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- genetics,
- imaging,

before surgical sperm retrieval.

Histology is commonly obtained in conjunction with a clinically indicated testicular procedure rather than performing surgery solely to put a label on the disease.

Step 1: Confirm Azoospermia Properly

If semen analysis shows no sperm, the first task is to establish whether:

true azoospermia is present.

Current EAU guidance recommends confirmation with at least **two consecutive semen analyses** when no sperm are found after centrifugation.

Careful laboratory examination is important because some men initially thought to have azoospermia actually have:

cryptozoospermia

with rare sperm detectable in the centrifuged pellet.

If sperm can be found in the ejaculate, cryopreservation may sometimes be valuable.

Step 2: Distinguish Obstructive From Non-Obstructive Azoospermia

Evaluation considers:

- testicular size,
- FSH,
- semen volume,
- reproductive anatomy,
- vas deferens,
- previous surgery,
- infection,
- and other findings.

This distinction changes treatment completely.



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Step 3: Hormonal Evaluation

Important tests often include:

- FSH,
- LH,
- morning testosterone.

Additional tests may include:

- prolactin,
- estradiol,
- thyroid tests,

according to the clinical situation.

No one FSH level proves or excludes maturation arrest.

Current EAU guidance notes that FSH and other hormonal values have inconsistent ability to predict whether sperm will be found during surgical retrieval.

Step 4: Testicular Examination

I assess:

- testicular size,
- consistency,
- varicocele,
- epididymis,
- vas deferens,
- secondary sexual characteristics.

Not every man with maturation arrest has small testes.

Older studies found that some men with uniform maturation arrest had relatively normal FSH and testicular volume.

Step 5: Scrotal Ultrasound

Current EAU guidance considers scrotal ultrasound an important part of comprehensive NOA evaluation.



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It may provide information about:

- testicular volume,
- internal structure,
- varicocele,
- masses,
- or other abnormalities.

Ultrasound cannot itself diagnose maturation arrest.

Step 6: Genetic Testing

Genetic assessment becomes particularly important in severe spermatogenic failure.

Depending on the clinical picture, investigations may include:

Karyotype

To identify chromosomal disorders.

Y-Chromosome Microdeletion Analysis

Especially in azoospermia or very severe oligozoospermia according to current AUA/ASRM criteria.

Expanded Genetic Testing

Selected patients with apparently unexplained NOA or characteristic histological findings may eventually benefit from more extensive gene panels.

Modern research continues to identify new infertility-related genes, but expanded sequencing is not yet a replacement for established clinical genetic testing in every patient.

Genetic Counselling

If a clinically significant genetic abnormality is identified, genetic counselling is important before assisted reproduction.

Current EAU guidance states that genetic counselling should be provided when transmissible genetic abnormalities are detected before ART.

This protects:

- the patient,



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- the partner,
- and future children.

Treatment of Late Maturation Arrest

There is currently:

no universally proven medicine that reliably converts late maturation arrest into normal spermatogenesis in every patient.

Treatment must therefore be individualized.

I broadly divide management into:

1. treating reversible causes,
2. correcting endocrine abnormalities,
3. removing harmful exposures,
4. managing significant varicocele selectively,
5. optimizing general reproductive health,
6. surgical sperm retrieval,
7. assisted reproductive treatment,
8. experimental approaches that remain investigational.

Treat Reversible Hormonal Causes

If a man has true hypogonadotropic hypogonadism, fertility-directed treatment may include:

- hCG,
- FSH,
- or related gonadotropin therapy.

This treatment can stimulate spermatogenesis in appropriately selected patients.

However, it should not be given simply because a biopsy says “late maturation arrest.”

The endocrine diagnosis must justify the treatment.

Do Not Use Testosterone as Fertility Treatment



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This point is extremely important.

External testosterone can suppress:

- FSH,
- LH,
- intratesticular testosterone,
- and sperm production.

AUA/ASRM guidance states:

Testosterone monotherapy should not be prescribed to men interested in current or future fertility.

Men using:

- bodybuilding steroids,
- testosterone injections,
- or testosterone gels

should tell their infertility physician.

Should Hormonal Medicines Be Given Before Micro-TESE?

Medicines sometimes used experimentally or off-label before sperm retrieval include:

- hCG,
- FSH,
- aromatase inhibitors,
- selective estrogen receptor modulators.

The objective is to optimize the hormonal environment and theoretically improve sperm production.

However:

Current evidence is limited.

AUA/ASRM states that patients with NOA should be told that data supporting pharmacological manipulation with gonadotropins, SERMs or aromatase inhibitors before surgical intervention are limited and of low quality.



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Current EAU guidance likewise states that there are no conclusive data demonstrating benefit from routine medical therapy before TESE in NOA.

A 2026 review continues to explore phenotype-based hormonal optimization, but this remains an evolving rather than universally established area of practice.

Therefore:

Hormonal treatment should be diagnosis-based, not automatic.

What About Varicocele Treatment?

If a clinically significant palpable varicocele is present, its possible contribution to infertility should be considered.

Older studies reported encouraging outcomes in some NOA patients with maturation arrest after varicocele repair, particularly late maturation arrest.

But current AUA/ASRM guidance says definitive evidence supporting varicocele repair before ART in men with NOA remains insufficient.

Therefore, a patient should not be promised:

“Varicocele surgery will complete sperm maturation.”

The decision needs:

- reproductive-urology assessment,
 - couple-level fertility planning,
 - and realistic counselling.
-

Microdissection Testicular Sperm Extraction – Micro-TESE

For men with non-obstructive azoospermia who want to attempt biological fatherhood using their own sperm, the most important surgical treatment is:

Micro-TESE

During micro-TESE, the surgeon uses an operating microscope to identify seminiferous tubules that appear more likely to contain active spermatogenesis.

Small areas are carefully examined in an attempt to retrieve viable sperm.

Current AUA/ASRM guidance recommends **micro-TESE for men with NOA undergoing sperm retrieval.**



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Current EAU guidance likewise identifies microdissection TESE as the preferred surgical sperm-retrieval strategy for NOA.

Can Sperm Be Found in Late Maturation Arrest?

Yes, in some patients.

This is one reason late maturation arrest may carry a better prognosis than early maturation arrest.

A frequently cited tertiary-centre study of 211 men with maturation arrest undergoing micro-TESE reported:

- overall sperm retrieval: approximately **52%**
- early maturation arrest: approximately **40%**
- late maturation arrest: approximately **78%**

and sperm retrieval was also higher in focal than diffuse maturation arrest.

These figures are clinically encouraging.

But they must be interpreted correctly.

The study was:

- retrospective,
- conducted at a specialized centre,
- and does not establish a guaranteed individual probability.

Current EAU guidance explicitly states that:

no definitive pre-operative predictor can guarantee successful sperm retrieval.

Therefore, I would never tell a patient:

“You have late maturation arrest, so your micro-TESE will definitely succeed.”

Late Maturation Arrest Is Generally More Favorable Than Early Arrest

The biological reason is understandable.

In late maturation arrest:

- germ cells have progressed farther through spermatogenesis.



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This may mean that some tubules have nearly completed sperm production and that small focal areas may contain mature sperm.

Older clinical studies consistently found better sperm-retrieval outcomes in late compared with early maturation arrest.

This provides:

hope, not certainty.

What Happens If Sperm Are Found?

If viable mature sperm are retrieved, they can generally be:

- used fresh,
- or cryopreserved when appropriate,

and then used with:

ICSI – Intracytoplasmic Sperm Injection

During ICSI, an embryologist injects one selected sperm directly into an egg.

This bypasses many barriers that sperm would otherwise need to overcome naturally.

Does Finding Sperm Guarantee Pregnancy?

No.

Sperm retrieval is only the first step.

Successful pregnancy also depends on:

- sperm viability,
- egg quality,
- female age,
- ovarian reserve,
- fertilization,
- embryo development,
- uterine health,
- and implantation.

The female partner should therefore be evaluated in parallel.



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Current AUA/ASRM and EAU approaches emphasize couple-based fertility management rather than treating only the male report.

What If Rare Sperm Are Found in the Ejaculate?

This can be very important.

If repeated careful semen analysis identifies rare viable sperm, the fertility team may consider:

- sperm cryopreservation,
- repeated collection,
- and ART planning.

This can sometimes reduce reliance on surgical sperm retrieval.

Therefore, a patient labelled azoospermic should have an appropriately performed laboratory evaluation.

Is IVF Alone Enough?

For severe male-factor infertility such as NOA, conventional IVF generally requires viable sperm capable of fertilization.

When only a very small number of surgically retrieved sperm are available, treatment usually involves:

IVF with ICSI

rather than relying on conventional insemination of the egg.

Can Spermatids Be Used Instead of Mature Sperm?

Experimental techniques involving injection of immature spermatids have been studied.

A 2026 review describes **intracytoplasmic spermatid injection** as an area of ongoing research in NOA.

However:

This should not be presented as routine standard therapy equivalent to ICSI using mature spermatozoa.

Safety, effectiveness, laboratory expertise and regulatory considerations remain important.



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Stem-Cell Therapy: Is It Available?

Spermatogonial stem-cell transplantation is one of the most exciting research areas in male infertility.

A 2026 review describes spermatogonial stem cells as a potential future method for restoring spermatogenesis in selected forms of NOA.

However:

Stem-cell therapy is not an established routine clinical cure for late maturation arrest in 2026.

Patients should be cautious about clinics advertising:

- stem-cell injections,
- regenerative injections,
- or “testicular regeneration”

as proven fertility treatments.

Much of this field remains experimental.

Lifestyle Treatment

Lifestyle measures can support reproductive health.

I commonly advise:

- stopping smoking,
- avoiding anabolic steroids,
- maintaining healthy body weight,
- regular physical activity,
- controlling diabetes,
- adequate sleep,
- limiting excessive alcohol,
- avoiding recreational drugs,
- reducing unnecessary testicular heat,
- and following a balanced diet.



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These measures are important.

But:

Lifestyle treatment alone cannot reliably correct a serious genetic meiotic defect.

Therefore, lifestyle management should be described as:

supportive reproductive optimization

rather than a guaranteed cure.

Late Maturation Arrest in the Unani System of Medicine

As a physician trained in Unani medicine, I approach severe male infertility through a whole-person framework.

Traditional Unani medicine considers factors such as:

- **Mizaj – temperament**
- reproductive-organ function,
- nutrition,
- digestion,
- physical activity,
- sleep,
- psychological state,
- general vitality,
- and the classical humoral framework.

However, there is an important academic point:

Classical Unani medicine did not define “late maturation arrest” in the modern histological sense.

Classical physicians did not have:

- testicular histopathology,
- electron microscopy,
- hormone assays,
- Y-chromosome testing,
- or micro-TESE.



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Therefore, it would be scientifically incorrect to claim that a classical Unani disease name is exactly identical to:

“spermatids present, mature spermatozoa absent on testicular histology.”

Traditional Unani Concepts of Reduced Male Fertility

CCRUM's Standard Unani Treatment Guidelines describe conditions such as:

Qillat-i-Mani

and related concepts of reduced male reproductive capacity.

Traditional causes described include:

- general debility,
- inadequate nutrition,
- and abnormalities in the functional temperament of the reproductive organs.

These concepts can provide a traditional framework for supporting male fertility.

But Qillat-i-Mani should not simply be equated with histologically proven maturation arrest.

Mizaj and Individualized Fertility Treatment

One of the strengths of Unani medicine is that treatment is traditionally individualized rather than based only on the name of a disease.

In my practice, I consider:

- body constitution,
- digestion,
- sleep,
- physical activity,
- nutrition,
- metabolic health,
- psychological state,
- sexual function,
- semen analysis,
- hormones,



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- testicular history,
- and modern fertility investigations.

This is particularly important in maturation arrest because two men with the same biopsy wording may have very different:

- genetics,
- hormone profiles,
- testicular reserve,
- environmental exposures,
- and reproductive prognosis.

Akhlat and the Traditional Humoral Theory

Classical Unani medicine describes four traditional humors:

- **Dam**
- **Balgham**
- **Safra**
- **Sauda**

These concepts belong to the historical Unani model of physiology.

I explain to patients clearly:

They are not equivalent to FSH, LH, testosterone, chromosomes, spermatids, or modern testicular histology.

This distinction allows traditional Unani concepts to be discussed respectfully without misrepresenting modern science.

Asbab-e-Sitta Zarooriya and Male Reproductive Health

The classical Unani framework gives substantial importance to the essential determinants of health, often discussed as:

Asbab-e-Sitta Zarooriya

These broadly include:

- environment,



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- food and drink,
- physical activity and rest,
- psychological activity and rest,
- sleep and wakefulness,
- and physiological retention/elimination.

In modern male-infertility care, several of these areas remain highly relevant.

For example:

Nutrition

Poor nutrition can adversely affect general and reproductive health.

Physical Activity

Appropriate exercise supports:

- weight,
- metabolic health,
- and cardiovascular function.

Sleep

Sleep contributes to endocrine and general health.

Psychological Health

A diagnosis of azoospermia can cause:

- anxiety,
- depression,
- loss of confidence,
- marital stress,
- and fear about fatherhood.

Environment

Smoking, toxins, excessive heat and occupational exposures may affect sperm health.

Therefore, Unani lifestyle principles can contribute meaningfully to **whole-person fertility care**.



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Major Unani Therapeutic Approaches

Unani medicine traditionally uses several broad therapeutic modes.

These include:

Ilaj-bil-Ghiza

Dietotherapy

Ilaj-bit-Tadbir

Regimenal therapy

Ilaj-bid-Dawa

Pharmacotherapy

Ilaj-bil-Yad

Surgical treatment

This framework itself supports the idea that responsible Unani care is not limited to:

“herbal medicine only.”

When a surgical sperm-retrieval procedure is the scientifically appropriate fertility option, referral for surgery is compatible with responsible integrative care.

Ilaj-bil-Ghiza: Nutrition in Late Maturation Arrest

My nutritional approach may consider:

- adequate protein,
- vegetables,
- fruits,
- healthy fats,
- micronutrient adequacy,
- metabolic health,
- diabetes,
- obesity,
- processed foods,
- smoking,



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- and alcohol.

The objective is:

to support the best possible testicular environment.

But I do not tell patients:

“Eat this one food and spermatids will become spermatozoa.”

No food has been proven to reverse all forms of maturation arrest.

Ilaj-bit-Tadbir

Regimenal care may include:

- appropriate exercise,
- adequate sleep,
- stress reduction,
- healthy weight management,
- and minimizing harmful reproductive exposures.

Traditional procedures may also exist within Unani practice.

However:

No regimenal procedure should be advertised as proven to complete spermatogenesis in histologically confirmed late maturation arrest.

Ilaj-bid-Dawa: Individualized Unani Pharmacotherapy

This is the area in which Saira Health Care's male-infertility practice may incorporate selected traditional formulations.

I consider factors such as:

- semen findings,
- hormone profile,
- testicular condition,
- previous biopsy findings,
- lifestyle,
- Mizaj,



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- general health,
- and associated sexual-health concerns.

The objective is to provide:

- individualized reproductive support,
- nutritional and general-health support,
- and treatment of reversible contributing factors where possible.

I do not believe every maturation-arrest patient should automatically receive the same package.

What Does Scientific Research Say About Unani Medicine and Spermatogenesis?

There is published Unani research on **male infertility and oligospermia**.

For example, a CCRUM-associated observational study evaluated a traditional formulation in men with oligospermia.

Another retrospective analysis involving 126 men with idiopathic oligospermia reported changes in:

- sperm concentration,
- motility,
- and other semen characteristics

with several Unani formulations.

These studies are relevant because they suggest that Unani male-fertility pharmacotherapy deserves continued scientific investigation.

However:

Oligospermia is not the same as histologically confirmed late maturation arrest.

A man with existing mature sperm in the ejaculate is biologically different from a man whose testes show spermatids but no mature spermatozoa.

Therefore, we cannot automatically say:

“A Unani medicine improved sperm count in oligospermia, therefore it is proven to reverse late maturation arrest.”

That would go beyond the evidence.



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Spermogenic Powder

Saira Health Care currently lists **Spermogenic Powder** as a Dr. Qasmi herbal formulation used within its male reproductive-health practice for semen and fertility concerns including:

- low sperm count,
- reduced sperm motility,
- and other semen-quality problems.

Within my approach, it may be incorporated as part of an individualized fertility programme when clinically appropriate.

However:

There are no high-quality product-specific controlled trials demonstrating that Spermogenic reliably reverses histologically proven late maturation arrest.

Therefore, I do not present it as a guaranteed cure.

Semen Gold Plus Capsule

The current Saira Health Care Pharmacy listing describes **Semen Gold Plus as an Ayurvedic supplement**, not a classical Unani medicine.

It is marketed for broader semen-quality and male-fertility concerns.

If prescribed within an integrative programme, it should therefore be labelled accurately as:

an Ayurvedic fertility-support formulation

rather than incorrectly calling it classical Unani pharmacotherapy.

Sperm Plus Capsule

Saira Health Care's current pharmacy page similarly describes **Sperm Plus as an Ayurvedic formulation** intended for male reproductive and sexual-health support.

Again:

Its inclusion in a male-fertility plan does not prove that the product specifically corrects maturation arrest.

Ativeerya Kit



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The current Saira Health Care Pharmacy page lists **Ativeerya Capsule and Pouch Kit** for male reproductive concerns including:

- low sperm count,
- asthenospermia,
- teratospermia,
- and sexual weakness.

The preparation contains multiple herbal and traditional ingredients.

If used, it should form part of:

an individualized fertility-support plan

rather than being presented as a proven histological treatment for maturation arrest.

Androphyt Capsule

Androphyt is a herbal male-fertility formulation containing extracts including:

- Withania somnifera,
- Mucuna pruriens,
- Asparagus racemosus,
- Tribulus terrestris,
- and other herbs.

Its manufacturer markets it for general male-infertility and semen-quality support.

However:

Evidence that a supplement improves ordinary semen parameters cannot automatically be interpreted as evidence that it restarts arrested spermatogenesis.

This distinction is crucial.

Why I Do Not Promise “Maturation Completion in 7–8 Months”

Earlier Saira Health Care material stated that maturation completion may occur over approximately seven or eight months.

I would now phrase this more carefully.

There is:



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no scientifically established universal seven- or eight-month treatment duration for late maturation arrest.

The outcome can depend on:

- genetics,
- stage of arrest,
- focal versus diffuse disease,
- hormones,
- previous testicular damage,
- varicocele,
- medications,
- treatment response,
- and individual biology.

Some patients may experience a change in semen findings after months of treatment.

Others may not.

Therefore, I do not believe a fixed timeline should be promised.

A Documented Saira Health Care Patient Journey

Saira Health Care has recently published an educational patient case involving:

- approximately **11 years of infertility**,
- azoospermia,
- a reported diagnosis of maturation arrest,
- and no sperm detected in earlier semen testing.

According to the published case, after approximately **six months of individualized treatment under Dr. Nizamuddin Qasmi**, a subsequent semen analysis reportedly detected sperm in the ejaculate.

This is understandably encouraging.

However, I consider the way we describe this case extremely important.

This is one patient journey—not a clinical trial and not a guaranteed outcome.

The Saira Health Care case itself appropriately states that:



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- different patients have different causes,
- treatment response varies,
- and the outcome should not be interpreted as proof that every azoospermia or maturation-arrest patient will produce sperm after six months.

That is the medically responsible way to publish success stories.

What Makes a Genuine Success Story Valuable?

A useful maturation-arrest case should ideally include:

- original semen analysis,
- repeat semen analysis,
- basis of maturation-arrest diagnosis,
- hormone profile,
- testicular findings,
- genetic evaluation where appropriate,
- treatment duration,
- follow-up semen report,
- and subsequent fertility outcome when available.

A statement such as:

“Patient cured in seven months”

without these details provides very little scientific information.

Does Sperm Appearing in Semen Mean Maturation Arrest Is Cured?

It is an encouraging finding, but the word:

“cure”

should be used cautiously.

If sperm become detectable after previous azoospermia, we need to know:

- concentration,
- motility,



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- morphology,
- whether sperm remain present on repeat testing,
- whether cryopreservation is advisable,
- and whether pregnancy occurs.

Finding sperm can represent a major positive change.

It does not automatically prove permanent normalization of spermatogenesis.

Cryopreservation When Sperm Appear

This is a practical issue worth discussing.

In a man with previous azoospermia or severe spermatogenic failure, sperm production may be intermittent.

If rare viable sperm become detectable, the fertility team may consider:

freezing sperm

when appropriate.

This can preserve reproductive options if sperm later disappear again.

The decision should be individualized according to:

- sperm number,
 - viability,
 - laboratory capability,
 - and the couple's fertility plan.
-

Dr. Nizamuddin Qasmi's Special Individualized Approach to Late Maturation Arrest

At Saira Health Care, I believe treatment should follow a structured pathway.

Step 1: Verify the Diagnosis

The first question is:

“How was late maturation arrest diagnosed?”

Was it based on:



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- testicular histopathology,
- previous TESE,
- micro-TESE,
- or merely an assumption from a semen report?

A semen report showing zero sperm does not by itself establish maturation arrest.

Step 2: Confirm the Semen Finding

If azoospermia is present, repeat semen analysis with careful pellet examination should be considered according to current guidelines.

The objective is to distinguish:

- true azoospermia,
 - from cryptozoospermia.
-

Step 3: Determine Whether the Problem Is Obstructive or Non-Obstructive

A patient with obstruction should not be treated as though he has maturation arrest.

I consider:

- testicular size,
 - FSH,
 - reproductive anatomy,
 - semen volume,
 - previous surgery,
 - and clinical history.
-

Step 4: Review the Histology Carefully

When histology is available, I want to know whether the pattern is:

- early maturation arrest,
- late maturation arrest,
- focal,



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- diffuse,
- mixed with Sertoli-cell-only areas,
- or mixed with hypospermatogenesis.

These distinctions matter.

Step 5: Evaluate Hormones

I assess:

- FSH,
- LH,
- testosterone,

and other hormones according to the patient's condition.

If genuine hypogonadotropic hypogonadism exists, it should be treated appropriately.

Step 6: Investigate Genetic Causes

In severe male infertility, I consider appropriate:

- karyotype,
- Y-chromosome testing,
- and genetic counselling.

If a specific inherited abnormality is suspected, broader genetic testing may sometimes be considered through appropriate specialists.

Step 7: Review Testicular History

I ask about:

- undescended testes,
- torsion,
- testicular injury,
- mumps orchitis,
- chemotherapy,



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- radiation,
- varicocele,
- prior infection,
- surgery,
- and childhood reproductive disease.

Step 8: Review Medicines and Hormonal Products

I specifically ask about:

- testosterone,
- anabolic steroids,
- bodybuilding injections,
- fertility hormones,
- chemotherapy,
- and other potentially gonadotoxic drugs.

A hidden medication cause can completely change management.

Step 9: Correct Reversible Lifestyle Factors

I address:

- smoking,
- obesity,
- uncontrolled diabetes,
- heavy alcohol use,
- poor sleep,
- inactivity,
- recreational drugs,
- extreme testicular heat,
- and nutritional deficiency.

This is where Unani lifestyle principles can be particularly useful.



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Step 10: Individualized Unani Support

Where clinically appropriate, I may incorporate:

- Ilaj-bil-Ghiza,
- Ilaj-bit-Tadbir,
- and selected Ilaj-bid-Dawa

with the objective of supporting:

- general reproductive health,
- nutrition,
- testicular environment,
- semen quality if sperm are present,
- and overall health.

Products such as:

- Spermogenic,
- and other selected fertility-support formulations

may be considered according to the patient rather than automatically given as a universal package.

Step 11: Monitor Objectively

Treatment should be followed with objective evidence.

Depending on the case, this may include:

- repeat semen analysis,
- hormones,
- clinical assessment,
- and fertility progress.

I do not judge treatment success only by:

energy, libido, or semen thickness.

The relevant reproductive findings must be documented.



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Step 12: Do Not Delay Micro-TESE Indefinitely

This is extremely important.

If a patient has confirmed NOA and wishes to pursue biological fatherhood, and there is no clearly reversible cause responding to treatment, he should not spend years taking multiple empirical medicines simply because:

“Maybe the sperm will appear next month.”

Current guidelines support micro-TESE as the principal sperm-retrieval procedure in appropriately selected NOA patients.

A reproductive-urology consultation should therefore be discussed when appropriate.

Step 13: Coordinate With the IVF/ICSI Team

Timing matters.

If micro-TESE is planned, coordination may involve:

- sperm retrieval,
- cryopreservation,
- female-partner ovarian stimulation,
- IVF,
- and ICSI.

The best strategy varies between couples.

Step 14: Evaluate the Female Partner

A man's infertility cannot be treated without understanding his partner's fertility.

Important female factors include:

- age,
- ovarian reserve,
- ovulation,
- fallopian tubes,
- uterus,



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- and previous fertility history.

A 28-year-old partner with excellent ovarian reserve gives us a different time horizon from a 39-year-old woman with rapidly declining reserve.

Therefore:

Treatment must focus on the couple's chance of pregnancy—not only the man's biopsy terminology.

Can Natural Pregnancy Occur?

If mature sperm remain completely absent from the ejaculate, natural conception cannot occur.

However, if treatment or spontaneous variation results in viable sperm appearing in semen, natural pregnancy may theoretically become possible depending on:

- sperm concentration,
- motility,
- morphology,
- female-partner fertility,
- and other factors.

With extremely low sperm numbers, IVF/ICSI may still provide a more realistic option.

Can Late Maturation Arrest Be Completely Reversed?

Sometimes sperm may become detectable or be successfully retrieved.

But:

No universal guarantee can be made.

A patient with:

- an acquired reversible factor

may have a better possibility of improvement than someone with:

- a severe genetic defect affecting meiosis or spermiogenesis.

Therefore, the clinically meaningful question is:

“What is causing my maturation arrest?”



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not merely:

“Which medicine cures it?”

Is Late Maturation Arrest Better Than Sertoli-Cell-Only Syndrome?

As a histological pattern, late maturation arrest means that germ cells have progressed farther through spermatogenesis than in Sertoli-cell-only syndrome, where germ cells are absent from the affected tubules.

This can be relatively more encouraging.

However, testicular histology may be:

- focal,
- mixed,
- and variable across the testis.

Current EAU guidance notes that hypospermatogenesis is generally associated with the most favorable sperm-retrieval prognosis, while maturation arrest and Sertoli-cell-only patterns have more variable outcomes.

Is Late Maturation Arrest Better Than Early Maturation Arrest?

Generally, the available evidence suggests:

yes, from the standpoint of sperm-retrieval probability.

Late arrest represents a more advanced stage of germ-cell development.

Older micro-TESE data have shown substantially better sperm retrieval than early arrest.

But it is still a severe male-infertility condition.

Can FSH Predict Whether Micro-TESE Will Work?

Not reliably enough to make the decision alone.

A very high FSH suggests impaired spermatogenic tissue.

But sperm production can sometimes remain in small areas even when FSH is elevated.

Current EAU guidance states that:

- FSH,



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- LH,
- inhibin B,
- AMH,
- testicular volume,
- and other proposed markers

do not provide definitive individual prediction of sperm retrieval.

Therefore:

High FSH should not automatically be translated into “micro-TESE cannot work.”

Can Testicular Size Predict Success?

Not reliably by itself.

Some patients with maturation arrest have relatively normal-sized testes.

Others have reduced testicular volume.

Current evidence does not support using testicular volume alone to decide whether sperm retrieval should be attempted.

Psychological Impact of Late Maturation Arrest

A diagnosis involving:

- azoospermia,
- biopsy abnormalities,
- and uncertain biological fatherhood

can be emotionally difficult.

Men may experience:

- anxiety,
- depression,
- shame,
- loss of confidence,
- relationship stress,



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- fear of social judgment,
- and concern about masculinity.

I want to emphasize:

Male infertility does not define masculinity.

A man's sperm-production disorder does not determine:

- his worth,
- sexuality,
- strength,
- relationship quality,
- or identity.

Couples often benefit from:

- open communication,
- realistic counselling,
- and psychological support.

Success Should Not Be Defined Only as “Natural Pregnancy”

For a patient with late maturation arrest, successful medical care may mean different things.

Success may mean:

Rare sperm appear in the ejaculate and can be frozen.

Or:

Micro-TESE successfully retrieves viable sperm.

Or:

ICSI results in fertilization and pregnancy.

Or:

A reversible hormonal disorder is identified and treated.

Or:

Genetic testing prevents an unnecessary operation.

Or:



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A couple receives an accurate prognosis and avoids years of ineffective treatment.

All of these can represent high-quality infertility care.

Why I Avoid “100% Cure” Claims

Maturation arrest is biologically heterogeneous.

Therefore, statements such as:

“100% cure for maturation arrest.”

“Sperm guaranteed in seven months.”

“IVF definitely successful after treatment.”

cannot responsibly be made.

No doctor can guarantee:

- sperm retrieval,
- fertilization,
- embryo development,
- pregnancy,
- or live birth.

The role of a physician is to provide:

the best possible diagnosis, treatment and realistic chance—not a manufactured guarantee.

Common Myths About Late Maturation Arrest

Myth 1: Late maturation arrest means delayed mental or physical maturity.

Fact: It refers specifically to arrested sperm development inside the testes.

Myth 2: It is diagnosed by low sperm count alone.

Fact: Late maturation arrest is a histological diagnosis involving spermatids without mature spermatozoa in the examined tissue.

Myth 3: Zero sperm in semen means there cannot be sperm in the testes.



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Fact: Sperm production may be focal, which is why micro-TESE can find sperm in selected NOA patients.

Myth 4: Late maturation arrest means permanent sterility in every patient.

Fact: Some men have mature sperm retrieved or later detected in the ejaculate.

Myth 5: Late maturation arrest guarantees successful micro-TESE.

Fact: It may carry a better prognosis than early arrest, but retrieval is never guaranteed.

Myth 6: FSH must be normal in maturation arrest.

Fact: Hormonal profiles vary substantially between patients.

Myth 7: Normal-sized testes mean obstruction rather than maturation arrest.

Fact: Some men with maturation arrest can have relatively normal testicular volume.

Myth 8: Testosterone injections improve sperm maturation.

Fact: External testosterone can suppress sperm production and should not be used as fertility treatment.

Myth 9: Every patient should receive hormones before micro-TESE.

Fact: Current evidence for routine hormonal manipulation before sperm retrieval in NOA remains limited.

Myth 10: Varicocele surgery cures maturation arrest.

Fact: Older studies are encouraging in selected men, but current guidelines consider evidence in NOA insufficient for a universal recommendation.

Myth 11: Herbal supplements are proven to restart arrested spermatogenesis.



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Fact: Current Unani and herbal evidence is much stronger for general male-infertility and semen-parameter support than specifically for histologically confirmed maturation arrest.

Myth 12: Stem-cell therapy can currently cure maturation arrest.

Fact: Spermatogonial stem-cell approaches remain experimental in 2026.

Frequently Asked Questions

What does late maturation arrest mean?

It means developing germ cells reach the spermatid stage but fail to produce normal mature spermatozoa in the examined testicular tissue.

Does late maturation arrest mean azoospermia?

It frequently occurs in men with non-obstructive azoospermia, although some patients may occasionally have rare sperm in the ejaculate.

Is late maturation arrest better than early maturation arrest?

Generally, yes in terms of sperm-retrieval potential.

Late arrest represents more advanced sperm development, and retrospective studies have found better micro-TESE retrieval than early arrest.

Can sperm be found with micro-TESE?

Yes, in some patients.

One major retrospective maturation-arrest series reported particularly encouraging retrieval in late arrest, but current guidelines emphasize that individual success cannot be guaranteed.

Can late maturation arrest be treated with hormones?

Only in selected patients.

If an underlying endocrine abnormality exists, hormone treatment can be appropriate.



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Routine hormone treatment for every NOA patient before micro-TESE is not supported by strong evidence.

Can testosterone treatment help?

External testosterone should not be used as fertility therapy.

It can suppress spermatogenesis.

Can varicocele treatment help?

Possibly in selected patients with a clinically significant varicocele, but evidence specifically for NOA and maturation arrest remains uncertain.

Can Unani medicine help?

Unani medicine can provide a valuable individualized supportive approach addressing:

- nutrition,
- Mizaj,
- lifestyle,
- sleep,
- metabolic health,
- general reproductive health,
- and selected traditional pharmacotherapy.

However, there is currently insufficient high-quality evidence to claim that Unani pharmacotherapy alone reliably reverses histologically confirmed late maturation arrest in every patient.

Is Spermogenic used?

Spermogenic is used within Saira Health Care's broader male-fertility practice and may be incorporated into selected individualized treatment plans.

It should not be regarded as a universally proven cure for maturation arrest.



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Are Semen Gold Plus and Sperm Plus Unani medicines?

Current Saira Health Care Pharmacy pages describe these as **Ayurvedic formulations**, so they should be labelled accurately.

How long does treatment take?

There is no scientifically established universal duration.

Sperm production takes months, but patients should not be promised guaranteed maturation completion in a fixed seven- or eight-month period.

Has Saira Health Care seen a patient improve?

Saira Health Care has published an individual patient journey involving azoospermia and maturation arrest in which sperm reportedly became detectable after approximately six months of individualized treatment.

This should be interpreted as one documented patient experience and not a guaranteed outcome for others.

If sperm appear after treatment, what should I do?

Discuss:

- repeat semen analysis,
- sperm count,
- motility,
- morphology,
- cryopreservation,
- and the couple's fertility plan

with the treating fertility team.

Does finding sperm guarantee pregnancy?

No.

Pregnancy depends on both male and female reproductive factors.



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Is stem-cell treatment available?

Stem-cell approaches remain experimental rather than routine standard care in 2026.

When Should a Man Seek Specialist Male-Fertility Evaluation?

Professional evaluation is especially important when:

- repeated semen analyses show azoospermia,
 - a biopsy or micro-TESE report mentions maturation arrest,
 - sperm concentration is extremely low,
 - testes are unusually small,
 - FSH is elevated,
 - varicocele is present,
 - undescended testes occurred in childhood,
 - chemotherapy or radiation was received,
 - testosterone or anabolic steroids have been used,
 - previous testicular injury occurred,
 - or the couple has experienced prolonged infertility.
-

Dr. Nizamuddin Qasmi and Saira Health Care

I am **Dr. Nizamuddin Qasmi**, Founder and Chief Physician of **Saira Health Care**, with focused clinical practice in:

Sexual Disorders & Infertility

My professional education and training listed for this clinical work include:

- **BUMS – Hamdard University, Delhi**
- **MD**
- **CGO**
- **Certificate in Infertility – MGBIMS, Delhi**
- **Certificate in Urology – London, UK**



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- **Masters in Male Infertility – MasterHealthPro (HealthPro)**
- **Integrated Sexual and Reproductive Health – ISRH, UNFPA**

Saira Health Care's official physician profile publicly lists my BUMS, MD, CGO, Certificate in Infertility and Certificate in Urology – London, UK, and describes my focused clinical work in sexual disorders and infertility.

Saira Health Care's current professional educational material also lists the **Masters in Male Infertility – MasterHealthPro (HealthPro)** and **Integrated Sexual and Reproductive Health – ISRH, UNFPA** within my professional profile.

This combination of Unani medicine, infertility education, urological training and male-fertility focus is particularly relevant to maturation arrest because the condition requires understanding of:

- spermatogenesis,
- azoospermia,
- reproductive hormones,
- genetics,
- testicular disease,
- semen analysis,
- sexual health,
- micro-TESE,
- IVF/ICSI,
- and couple-based fertility planning.

Saira Health Care's Contribution to Sexual Disorders and Infertility

At Saira Health Care, one of the areas I consider especially important is educating men about severe infertility without either:

removing hope

or

creating false hope.

A patient may be told:

“Zero sperm means you can never become a father.”



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That is not always correct.

Another patient may be told:

“Take this medicine for seven months and sperm are guaranteed.”

That is also not scientifically responsible.

Saira Health Care describes its broader approach as patient-centered and focused on sexual disorders and infertility, combining individualized Unani principles, lifestyle guidance and contemporary diagnostic understanding.

The centre also publishes educational material and patient journeys intended to raise awareness about:

- azoospermia,
- maturation arrest,
- low sperm count,
- motility problems,
- abnormal morphology,
- varicocele,
- and other reproductive-health problems.

For me, this educational role is an important part of treatment.

My Integrative Philosophy

I do not believe patients should be forced to choose between:

“Unani medicine OR modern reproductive medicine.”

The correct treatment depends on the diagnosis.

If the patient has nutritional and lifestyle problems

Unani dietotherapy and lifestyle management can be particularly valuable.

If hypogonadotropic hypogonadism is present

Cause-specific hormonal treatment is necessary.

If exogenous testosterone is suppressing fertility

The androgen exposure must be addressed.

If a serious genetic abnormality is present



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Genetic counselling becomes essential.

If a clinical varicocele may be contributing

A reproductive-urology assessment may be useful.

If viable sperm appear in semen

They may potentially be preserved and used.

If confirmed NOA persists

Micro-TESE and ICSI should be discussed when appropriate.

If an individualized Unani formulation is being used

It should complement—not replace—appropriate fertility investigations and reproductive treatment.

That is the form of integrative care I believe is most useful.

Latest Scientific Perspective in 2026

Modern understanding of maturation arrest and NOA is evolving rapidly.

A **2025 etiological review** describes maturation arrest as part of a spectrum of defective spermatogenesis and highlights the growing understanding of genetic and cellular causes of NOA.

A **2025 review of male-infertility genetics** emphasizes that genetic testing is becoming increasingly important as more causes of severe spermatogenic failure are discovered.

A **June 2026 review** describes apoptosis, oxidative stress and abnormal cellular signalling as active areas of research in maturation arrest and other forms of NOA.

A **May 2026 review** describes spermatogonial stem-cell transplantation as a promising future regenerative approach, while it remains experimental rather than established standard treatment.

Current EAU guidance continues to recommend:

- confirmation of NOA,
- comprehensive hormonal and genetic assessment,
- appropriate counselling,
- and surgical sperm retrieval for appropriate ART candidates,

while emphasizing that no pre-operative marker can reliably guarantee sperm retrieval.



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Current AUA/ASRM guidance recommends **micro-TESE** for men with NOA undergoing surgical sperm retrieval and cautions that pharmacological manipulation before surgery remains supported by limited evidence.

Therefore, despite exciting research:

micro-TESE with ICSI remains the principal established fertility pathway for many men with persistent NOA when viable sperm can be retrieved.

My Final Message to Patients With Late Maturation Arrest

If your report says:

“Late Maturation Arrest”

please understand what this actually means.

It does **not** mean that you are physically immature.

It does **not** mean that you are sexually weak.

It does **not** mean that your testicles contain absolutely no germ cells.

It means that:

sperm development has progressed to an advanced stage but has failed to complete normally in the tissue examined.

The right questions are:

Was my diagnosis confirmed by histology?

Do I have true azoospermia or rare sperm in the ejaculate?

Is the maturation arrest focal or diffuse?

What are my FSH, LH and testosterone levels?

Are my testes normal in size?

Do I have a varicocele?

Do I need karyotype or Y-chromosome testing?

Could another genetic abnormality be responsible?

Have I used testosterone, steroids, chemotherapy or other gonadotoxic medicines?

Was there a childhood undescended testis or previous testicular injury?

Could a reversible hormonal problem exist?



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Would micro-TESE be appropriate?

If sperm are found, should they be cryopreserved?

How is my wife's fertility?

These questions provide a much stronger foundation for treatment than simply asking:

“Which medicine completes sperm maturation?”

At Saira Health Care, my objective is to offer:

hope supported by diagnosis, treatment supported by evidence, and Unani care used responsibly and individually.

Conclusion

Late Maturation Arrest is a specific disorder of **spermatogenesis**, not a condition of delayed general physical or mental maturation.

Normal sperm development progresses through:

- spermatogonia,
- spermatocytes,
- spermatids,
- and mature spermatozoa.

In late maturation arrest:

spermatids are present, but mature spermatozoa are absent in the affected testicular tissue.

It is commonly associated with severe impairment of spermatogenesis and may occur in men with:

- non-obstructive azoospermia,
- cryptozoospermia,
- or severe male infertility.

Possible causes include:

- genetic defects,
- chromosomal abnormalities,
- Y-chromosome abnormalities,



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- previous testicular injury,
- cryptorchidism,
- varicocele,
- hormonal disease,
- gonadotoxic treatments,
- testosterone or anabolic steroids,
- environmental factors,
- and unexplained biological causes.

Diagnosis requires careful male-infertility assessment.

A semen analysis can identify azoospermia but **cannot by itself diagnose late maturation arrest**.

The histological pattern is identified when testicular tissue is examined.

However, current guidelines do not recommend routine diagnostic testicular biopsy simply to distinguish obstructive from non-obstructive azoospermia.

Evaluation may include:

- repeated semen analysis,
- clinical examination,
- FSH,
- LH,
- testosterone,
- scrotal ultrasound,
- karyotype,
- Y-chromosome testing,
- and other genetic evaluation when appropriate.

Late maturation arrest generally has a more favorable sperm-retrieval outlook than early maturation arrest.

A major retrospective micro-TESE series reported sperm retrieval in approximately **78% of men with late maturation arrest**, compared with approximately 40% in early arrest.

However:



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this figure is not a personal success guarantee.

Current EAU guidance states that no definitive individual predictor of successful sperm retrieval has been established.

For appropriate men with persistent NOA, **micro-TESE** is currently the principal surgical sperm-retrieval method, with retrieved sperm used through **ICSI** when viable sperm are found.

Hormonal treatment may be useful when a genuine endocrine abnormality exists, but evidence for routine empirical hormonal treatment before micro-TESE remains limited.

Stem-cell and regenerative therapies are scientifically promising but remain experimental in 2026.

The **Unani system of medicine** can provide a meaningful supportive framework through:

- Mizaj-based individualized assessment,
- Ilaj-bil-Ghiza,
- Ilaj-bit-Tadbir,
- Ilaj-bid-Dawa,
- nutrition,
- lifestyle,
- metabolic-health optimization,
- sleep,
- psychological support,
- and selected male-fertility pharmacotherapy.

CCRUM research has reported encouraging observations with Unani treatment in conditions such as **oligospermia**, but such evidence cannot automatically be extended to histologically proven late maturation arrest.

At Saira Health Care, formulations such as **Spermogenic** and selected other male-fertility medicines may be incorporated into individualized treatment programmes under Dr. Nizamuddin Qasmi's supervision.

Semen Gold Plus and Sperm Plus are currently presented by Saira Health Care Pharmacy as **Ayurvedic formulations**, while Ativeerya and Androphyt are broader herbal fertility-support preparations.

None should be presented as a scientifically guaranteed cure for late maturation arrest.



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Saira Health Care has published an individual patient journey in which a man with long-standing infertility, azoospermia and reported maturation arrest later had sperm detected in the semen after approximately six months of individualized treatment under Dr. Nizamuddin Qasmi.

This result is encouraging, but it should remain what it is:

an individual patient outcome—not a universal cure rate.

My treatment philosophy at Saira Health Care can therefore be summarized as:

Confirm the diagnosis.

Distinguish maturation arrest from obstruction.

Determine whether the arrest is early or late, focal or diffuse.

Evaluate hormones and testicular health.

Investigate genetic causes where appropriate.

Stop fertility-suppressing testosterone or steroids.

Correct reversible factors.

Use Unani medicine rationally and individually.

Monitor semen findings objectively.

Preserve rare sperm when appropriate.

Do not delay micro-TESE indefinitely when it is the appropriate fertility option.

Evaluate both partners.

And never replace realistic counselling with guaranteed claims.

For a patient who has received the words:

“Late Maturation Arrest”

my central message is:

Sperm development has stopped at a late stage—but this diagnosis does not automatically close every pathway to biological fatherhood.

The most important next step is:

accurate diagnosis, individualized treatment, realistic prognosis, and appropriate fertility planning.



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About the Author

Dr. Nizamuddin Qasmi

Founder & Chief Physician, Saira Health Care
Focused Practice in Sexual Disorders & Infertility

Professional Education & 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 official physician profile describes Dr. Nizamuddin Qasmi's focused clinical work in sexual disorders and infertility and publicly lists BUMS, MD, CGO, Certificate in Infertility and Certificate in Urology – London, UK.

Saira Health Care's current published educational material also lists his **Masters in Male Infertility – MasterHealthPro (HealthPro)** and **Integrated Sexual and Reproductive Health – ISRH, UNFPA** training.

His clinical approach combines individualized Unani assessment with contemporary understanding of:

- semen analysis,
- male infertility,
- testicular function,
- reproductive hormones,
- genetics,
- sexual health,
- lifestyle,
- sperm retrieval,
- and assisted reproduction.



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Medical Disclaimer

This article is intended for general medical education and male reproductive-health awareness.

It is not a substitute for:

- individual consultation,
- semen analysis,
- physical examination,
- hormone testing,
- genetic assessment,
- testicular histopathology,
- reproductive-urology consultation,
- or personalized infertility treatment.

A diagnosis of **late maturation arrest should not be made solely from a semen report.**

Men with azoospermia should receive an appropriate diagnostic evaluation to distinguish obstructive from non-obstructive causes.

Do not independently start or stop:

- testosterone,
- anabolic steroids,
- FSH,
- hCG,
- aromatase inhibitors,
- SERMs,
- Unani medicines,
- Ayurvedic medicines,
- fertility supplements,
- or other prescription treatments.

External testosterone may suppress spermatogenesis and is not appropriate as fertility treatment for men seeking current or future fatherhood.



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Spermogenic, Semen Gold Plus, Sperm Plus, Ativeerya, Androphyt or any other traditional or nutritional formulation should not be interpreted as a guaranteed treatment for histologically confirmed maturation arrest.

Men with persistent non-obstructive azoospermia who wish to pursue biological fatherhood should receive appropriate counselling regarding **micro-TESE and IVF/ICSI** when indicated.

Emerging treatments such as spermatogonial stem-cell transplantation remain experimental and should not be advertised as established cures.

Where genetic abnormalities are identified, appropriate genetic counselling should be obtained before assisted reproduction.

The outcome of one Saira Health Care patient or any other individual success story does not predict the outcome of every patient.



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