

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

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Introduction: “Doctor, My Sperm Development Stops at an Early Stage. Is Biological Fatherhood Still Possible?”

When a man receives a report mentioning:

Early Maturation Arrest

the words can be frightening.

A patient may ask me:

“Doctor, does this mean my testes have stopped producing sperm completely?”

Another may say:

“My semen report shows zero sperm and my biopsy says early maturation arrest. Is there any treatment?”

Another may ask:

“Is Early Maturation Arrest the same as low sperm count?”

The first thing I explain is that **Early Maturation Arrest—often abbreviated EMA—is a very specific disorder of spermatogenesis**, the biological process by which sperm cells develop inside the testes.

It does **not** mean that the patient has:

- delayed physical maturity,



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- delayed emotional development,
- delayed intelligence,
- delayed sexual maturity,
- or simply low testosterone.

It refers specifically to the sperm-producing cells inside the seminiferous tubules.

In normal spermatogenesis, immature germ cells pass through several stages before becoming mature spermatozoa.

In **Early Maturation Arrest**, this process stops at an early developmental stage, commonly around the **spermatogonial or primary spermatocyte stage**, before spermatids and mature spermatozoa are produced in the affected tubules. Classic histological studies define early arrest as arrest at the spermatogonia/spermatocyte stage, whereas late arrest occurs at the spermatid stage.

This distinction is important because Early Maturation Arrest generally has a **less favorable sperm-retrieval prognosis than Late Maturation Arrest**, although it does not mean sperm retrieval is impossible in every patient.

In one major retrospective micro-TESE study, sperm retrieval occurred in approximately:

- **40% of men with Early Maturation Arrest**
- compared with approximately **78% of men with Late Maturation Arrest**.

These figures provide useful counselling information, but they are **not guarantees for an individual patient**.

Current European Association of Urology guidance emphasizes that no single pre-operative feature—including:

- FSH,
- testosterone,
- testicular volume,
- other hormones,
- or clinical findings

can reliably predict with certainty whether sperm will be found during surgical retrieval.

Therefore, when I counsel a man with Early Maturation Arrest at Saira Health Care, my approach is:



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Confirm the diagnosis, identify any reversible cause, investigate genetics and hormones properly, optimize reproductive health, use Unani medicine responsibly, and discuss micro-TESE/ICSI when that offers the appropriate fertility pathway.

What Is Spermatogenesis?

To understand Early Maturation Arrest, we first need to understand how sperm are normally produced.

Sperm develop inside microscopic tubes in the testes known as:

Seminiferous Tubules

The process is called:

Spermatogenesis

It involves several highly organized stages.

In simplified form:

1. Spermatogonia

These are the earliest germ cells.

They divide and provide the starting population for future sperm production.



2. Primary Spermatocytes

These cells begin a specialized type of chromosome division called:

Meiosis



3. Secondary Spermatocytes

These proceed rapidly through further meiotic division.



4. Spermatids

These cells now contain the correct haploid chromosome number but still do not look like mature sperm.



5. Spermatozoa



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Through a process called:

Spermiogenesis

spermatids develop:

- a sperm head,
- acrosome,
- midpiece,
- tail,
- and mature sperm structure.

When this developmental pathway is interrupted, different patterns of spermatogenic failure can occur.

What Exactly Is Early Maturation Arrest?

Early Maturation Arrest means that germ-cell development stops **before the spermatid stage**.

In many pathology classifications, the dominant arrest occurs at the:

Primary Spermatocyte Stage

This means early germ cells may be present, but the cells fail to successfully complete meiosis and progress into spermatids and mature sperm.

A 2025 etiological review of non-obstructive azoospermia describes maturation arrest as a histological pattern in which sperm development stops along the spermatogenic pathway, classified as early or late according to the stage of arrest.

I often explain it to patients in simple language:

“The sperm-making process has started, but it stops relatively early before the developing cells can become mature sperm.”

Early Maturation Arrest vs Late Maturation Arrest

These conditions are related but not identical.

Early Maturation Arrest

The process stops around:

- spermatogonia,



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- or spermatocytes.

There are generally no spermatids or mature spermatozoa in the affected tubules.

Late Maturation Arrest

Development progresses further.

Spermatids are present, but the final development into mature spermatozoa fails.

Because development has progressed farther in Late Maturation Arrest, mature sperm are generally more likely to be found in small areas during sperm-retrieval procedures.

A classic clinical study found that men with Early Maturation Arrest had:

- higher FSH,
- lower testosterone,
- and a lower probability of finding mature sperm

than men with Late Maturation Arrest.

Does Early Maturation Arrest Mean There Is No Sperm Anywhere in the Testes?

Not necessarily.

This is one of the most important concepts in severe male infertility.

Spermatogenesis in non-obstructive azoospermia can be:

Patchy or focal

rather than identical throughout every seminiferous tubule.

Therefore, one region may show Early Maturation Arrest while another very small region may contain more advanced sperm development.

Current EAU guidance recognizes that sperm production in non-obstructive azoospermia can exist in small isolated foci and reports sperm retrieval in up to roughly half of men with NOA across various cohorts and techniques.

This is the biological basis for:

Microdissection Testicular Sperm Extraction – micro-TESE

which searches carefully for the tubules most likely to contain mature sperm.

Is Early Maturation Arrest the Same as Azoospermia?



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No.

They are connected but different terms.

Azoospermia

Means:

No sperm are found in the ejaculated semen after appropriate laboratory examination.

Early Maturation Arrest

Describes:

what the sperm-producing tissue looks like microscopically.

A man may have azoospermia because of:

- obstruction,
- Sertoli-cell-only syndrome,
- maturation arrest,
- severe hypospermatogenesis,
- hormonal disease,
- genetic disease,
- or other causes.

Therefore:

A zero-sperm report does not diagnose Early Maturation Arrest.

Obstructive vs Non-Obstructive Azoospermia

This distinction is critical.

Obstructive Azoospermia

The testes may be producing mature sperm, but sperm cannot reach the semen because of blockage in:

- epididymis,
- vas deferens,
- ejaculatory ducts,
- or another reproductive tract structure.



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Non-Obstructive Azoospermia – NOA

The primary problem is:

severely impaired sperm production inside the testes.

Early Maturation Arrest is generally considered a histological pattern within the spectrum of:

Non-Obstructive Azoospermia.

AUA/ASRM guidance recommends initially distinguishing obstruction from impaired sperm production using:

- semen volume,
- physical examination,
- and FSH

alongside the broader clinical picture.

Does Early Maturation Arrest Cause Symptoms?

Usually:

No obvious physical symptom is present.

Most patients discover the condition during investigation of infertility.

A man may have:

- normal sexual desire,
- normal erection,
- normal ejaculation,
- normal orgasm,
- normal-looking semen,
- normal body hair,
- normal voice,
- and completely normal daily physical functioning.

The most important clinical manifestation is:

difficulty achieving pregnancy.



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Laboratory Findings Are Not the Same as Symptoms

Patients are sometimes told that symptoms include:

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

These are more accurately described as:

semen-analysis findings

rather than symptoms.

In severe Early Maturation Arrest, the semen may show:

- azoospermia,
- or occasionally cryptozoospermia.

If mature sperm are absent, motility and morphology cannot meaningfully be assessed because there are no mature ejaculated sperm to examine.

Can Semen Look Completely Normal?

Yes.

This surprises many patients.

The majority of semen volume comes from:

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

Sperm make up only a small component of semen volume.

Therefore, a man with azoospermia can still ejaculate semen that appears:

- normal in quantity,
- normal in colour,
- normal in consistency.

You cannot diagnose maturation arrest by looking at semen.



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Does Early Maturation Arrest Affect Sexual Performance?

Not necessarily.

A man may have severe spermatogenic failure yet have:

- normal erection,
- normal libido,
- normal ejaculation.

Male infertility does **not** automatically mean sexual dysfunction.

Conversely, a man may have erectile dysfunction with completely normal sperm production.

At Saira Health Care, because my focused practice includes both **sexual disorders and infertility**, I consider both areas separately rather than calling every male reproductive problem “sexual weakness.”

Causes of Early Maturation Arrest

There is no single universal cause.

Modern research indicates that Early Maturation Arrest may be associated with:

- genetic abnormalities,
- chromosomal abnormalities,
- Y-chromosome abnormalities,
- defects in meiosis,
- reproductive-hormone problems,
- cryptorchidism,
- acquired testicular injury,
- cancer treatment,
- toxins,
- medications,
- anabolic steroids,
- and unexplained factors.

Importantly, research suggests that **Early Maturation Arrest may have a stronger association with genetic abnormalities than Late Maturation Arrest.**



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A 2025 review summarizing a cohort of men with NOA reported that Early Maturation Arrest was more frequently associated with karyotype and Y-chromosome genetic abnormalities, whereas Late Maturation Arrest was more frequently associated with acquired testicular insults.

1. Genetic Causes

Spermatogenesis is controlled by hundreds of genes.

These genes regulate:

- germ-cell division,
- meiosis,
- chromosome pairing,
- DNA repair,
- cell survival,
- sperm differentiation,
- and interactions with Sertoli cells.

If a critical gene is defective, germ-cell development may stop.

Modern genetic research into male infertility is expanding rapidly, and a 2025 review emphasizes that many currently unexplained cases of severe male infertility may eventually be shown to have genetic causes.

Meiosis and Early Maturation Arrest

Meiosis is particularly important in Early Maturation Arrest.

During meiosis, germ cells must:

- pair chromosomes correctly,
- exchange genetic material,
- divide chromosomes accurately,
- and reduce the chromosome number by half.

If this process fails, the affected germ cells may undergo:

apoptosis—programmed cell death



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instead of progressing further.

This can result in arrest at the spermatocyte stage.

2. Y-Chromosome Microdeletions

The Y chromosome contains important regions involved in spermatogenesis:

- AZFa
- AZFb
- AZFc

Current EAU guidance notes that a **complete AZFb deletion is particularly associated with spermatogenic arrest.**

This has major treatment implications.

AZFa and AZFb Deletions: Why Genetic Testing Can Prevent Unnecessary Surgery

Current European guidance states that in men with complete:

- AZFa,
- AZFb,
- or deletions involving these regions,

the probability of sperm retrieval is essentially zero, and surgical sperm retrieval should not be attempted.

The amended 2024 AUA/ASRM guideline similarly reports that sperm have not been retrieved by micro-TESE in men with complete AZFa or AZFb-related deletions.

This is why genetic evaluation should come **before** blindly proceeding to surgery.

AZFc Is Different

AZFc deletion behaves differently.

Some men have:

- severe oligozoospermia,
- others have azoospermia.



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Current EAU evidence indicates that testicular sperm can be found in approximately **50–75%** of men with AZFc microdeletions, depending on the population and circumstances.

However, a male child conceived using sperm carrying an AZFc deletion will inherit that deletion and may also experience infertility.

Genetic counselling is therefore important.

3. Chromosomal Abnormalities

Numerical or structural chromosome abnormalities can interfere with sperm development.

A well-known example is:

Klinefelter Syndrome – usually 47,XXY

Other chromosomal translocations and rearrangements may also interfere with meiosis.

The 2024 AUA/ASRM guideline recommends **karyotype testing** in men with:

- primary infertility,
- azoospermia,
- or sperm concentration below 5 million/mL

when there is:

- elevated FSH,
- testicular atrophy,
- or evidence of impaired sperm production.

4. Y-Chromosome Testing Threshold: An Important 2024 Update

Older male-infertility recommendations commonly used a threshold of:

less than 5 million sperm/mL

for Y-chromosome microdeletion testing.

The amended AUA/ASRM guideline refined this threshold.

Y-chromosome microdeletion testing is now particularly recommended for appropriately selected men with:

- azoospermia,
- or sperm concentration **≤1 million/mL**



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when accompanied by:

- elevated FSH,
- testicular atrophy,
- or impaired sperm production.

This is an important modern update.

5. Specific Gene Mutations

Beyond conventional chromosome and Y-chromosome testing, researchers have identified many individual genes associated with:

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

Examples include genes involved in:

- synaptonemal-complex formation,
- DNA repair,
- chromosome recombination,
- and germ-cell differentiation.

However:

Expanded whole-exome or gene-panel testing is not yet required for every infertility patient.

It may become increasingly useful in selected men with unexplained NOA, especially when:

- conventional genetic testing is normal,
 - histology shows maturation arrest,
 - or there is a family history suggesting inherited disease.
-

6. Hormonal Disorders

Sperm development depends on normal hormonal communication between:

Hypothalamus → Pituitary → Testes

The most important reproductive hormones include:



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

FSH acts primarily through Sertoli cells to support spermatogenesis.

LH stimulates Leydig cells to produce testosterone.

Intratesticular testosterone concentrations are essential for sperm development.

Does High FSH Cause Early Maturation Arrest?

Not exactly.

High FSH is generally a **signal that the testes are not responding normally**, rather than the cause of the damage itself.

Interestingly, current EAU guidance notes that when spermatogonia are present and maturation arrest occurs at the spermatocyte or spermatid level, **FSH may remain within the normal range**.

Therefore:

Normal FSH does not rule out severe spermatogenic failure.

This is very important.

Can Low Hormones Cause Spermatogenic Failure?

Yes.

If the pituitary fails to produce adequate:

- FSH,
- LH,

the testes may not receive sufficient stimulation.

This condition is called:

Hypogonadotropic Hypogonadism

It is different from primary testicular maturation arrest and can be much more responsive to hormonal therapy.



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Current EAU guidance strongly recommends inducing spermatogenesis with:

- hCG,
- hMG,
- recombinant FSH,
- or purified FSH

in men with congenital or acquired hypogonadotropic hypogonadism who wish to conceive.

Therefore, identifying a genuine hormonal cause can dramatically change the prognosis.

7. Exogenous Testosterone and Anabolic Steroids

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

Men may take:

- testosterone injections,
- testosterone gels,
- bodybuilding steroids,
- anabolic-androgenic compounds.

These substances suppress:

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

The result can be:

- severe oligozoospermia,
- azoospermia,
- testicular shrinkage,
- and profound spermatogenic suppression.

Current EAU guidance states:

Do not use testosterone therapy to treat male infertility.



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AUA/ASRM guidance similarly states:

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

Can Sperm Production Recover After Anabolic Steroids?

Often it can, depending on:

- duration,
- dose,
- age,
- baseline testicular function,
- and individual biology.

Current EAU guidance recommends withdrawing anabolic steroids for **6–12 months** before considering selected fertility-directed hormonal treatment in appropriate infertile men.

However, steroid-induced sperm suppression should not automatically be labelled histological Early Maturation Arrest unless tissue examination actually demonstrates that pattern.

8. Undescended Testes – Cryptorchidism

A history of one or both testes failing to descend properly during childhood is an important male-infertility risk factor.

Prolonged exposure to higher abdominal or inguinal temperatures may impair germ-cell development.

The risk is particularly significant when:

- both testes were affected,
- surgery occurred late,
- or testicular development was poor.

9. Varicocele

A varicocele is an enlargement of veins around the testicle.



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Potential mechanisms affecting sperm production include:

- increased scrotal temperature,
- oxidative stress,
- altered testicular circulation,
- and metabolic disturbance.

Some older research has reported sperm appearing in selected men with maturation arrest following varicocele surgery.

However, this evidence requires caution.

Current AUA/ASRM guidance states that in men with:

Non-Obstructive Azoospermia + Clinical Varicocele

there is **no high-quality evidence proving that varicocele repair before ART reliably restores sufficient sperm production.**

In one reported series, enough motile sperm returned to the ejaculate to avoid surgical retrieval in only about **9.6%** of NOA patients after repair.

Therefore:

Varicocele repair should not be promised as a cure for Early Maturation Arrest.

10. Testicular Trauma and Torsion

Major testicular injury can damage:

- germ cells,
- blood vessels,
- seminiferous tubules.

Severe or prolonged testicular torsion can similarly impair the sperm-producing tissue.

The extent depends on:

- severity,
- whether one or both testes are affected,
- and how quickly treatment occurred.

11. Orchitis



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Severe inflammation of the testis can damage sperm-producing tissue.

Examples include:

- mumps orchitis,
- severe bacterial epididymo-orchitis,
- other inflammatory disorders.

The relationship between a previous infection and later histological maturation arrest varies among patients.

12. Chemotherapy and Radiation

Cancer therapies can damage rapidly dividing germ cells.

The effect may be:

- temporary,
- prolonged,
- or permanent.

Young men facing gonadotoxic treatment should be counselled regarding:

sperm cryopreservation before treatment

whenever possible.

AUA/ASRM guidance emphasizes fertility preservation before gonadotoxic therapy.

13. Environmental and Occupational Factors

Research has examined potential reproductive effects of:

- pesticides,
- heavy metals,
- solvents,
- industrial chemicals,
- ionizing radiation,
- endocrine-disrupting chemicals,
- and chronic excessive heat.



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Such exposures may affect spermatogenesis.

However, in an individual patient it can be difficult to prove that one environmental exposure directly caused Early Maturation Arrest.

A detailed occupational history remains useful.

14. Smoking

Smoking is associated with poorer male reproductive health and increased oxidative stress.

Stopping tobacco is strongly advisable in infertility treatment.

However, smoking should not be promoted as the sole explanation for histologically proven severe maturation arrest without investigating more serious causes.

15. Obesity and Metabolic Health

Obesity may affect:

- testosterone,
- estrogen balance,
- inflammation,
- oxidative stress,
- and reproductive health.

Weight management is therefore useful in male infertility.

Again:

weight reduction supports fertility health but cannot repair every genetic or meiotic cause of Early Maturation Arrest.

16. Idiopathic Early Maturation Arrest

In some patients, no definite cause is found.

This is described as:

Idiopathic Early Maturation Arrest

This means:

Current routine testing has not identified the cause.



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It does not mean the disease is psychological or imaginary.

Modern genetics increasingly suggests that some cases currently labelled idiopathic may eventually receive a molecular diagnosis.

Diagnosis of Early Maturation Arrest

The diagnosis requires more than semen analysis.

A careful modern evaluation usually follows several steps.

Step 1: Confirm Azoospermia or Severe Sperm Deficiency

A semen analysis should be performed according to standardized laboratory methods.

If the first semen analysis is abnormal, the March 2026 NICE guideline recommends repeat confirmation. When gross sperm deficiency such as azoospermia is present, the repeat examination may be undertaken promptly rather than waiting several months.

WHO's November 2025 global infertility guideline similarly emphasizes standardized semen analysis as a core component of male fertility evaluation.

Azoospermia Must Include Pellet Examination

True azoospermia means no sperm are detected even after appropriately concentrating and examining the semen sample.

This distinction helps identify:

Cryptozoospermia

where rare sperm become visible only after centrifugation.

Finding even rare sperm can significantly change fertility planning.

Step 2: Differentiate Obstructive From Non-Obstructive Azoospermia

This requires:

- history,
- semen volume,
- testicular examination,



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- epididymal examination,
- vas deferens assessment,
- FSH,
- and selected imaging.

The purpose is to determine:

Are sperm being made but blocked—or is production itself impaired?

Step 3: Hormonal Testing

Common tests include:

- FSH,
- LH,
- morning testosterone.

Additional tests may include:

- prolactin,
- estradiol,
- thyroid function

when appropriate.

AUA/ASRM recommends FSH and testosterone evaluation in infertile men with:

- azoospermia,
 - oligozoospermia,
 - testicular atrophy,
 - sexual symptoms,
 - or evidence of hormonal abnormality.
-

Step 4: Physical Examination

I evaluate:

- testicular size,
- consistency,



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- epididymis,
- vas deferens,
- varicocele,
- secondary sexual characteristics,
- signs of hormonal disease.

A man with Early Maturation Arrest may still have:

- normal testicular volume,
- and normal FSH.

Therefore, no single examination finding confirms the diagnosis.

Step 5: Genetic Testing

This is especially important in severe spermatogenic failure.

Current 2024 AUA/ASRM guidance recommends:

Karyotype testing

for appropriately selected men with:

- primary infertility,
- azoospermia,
- or sperm concentration below 5 million/mL

when accompanied by:

- elevated FSH,
- testicular atrophy,
- or impaired sperm production.

Y-Chromosome Microdeletion Testing

particularly when:

- azoospermia,
- or sperm concentration ≤ 1 million/mL

is associated with:

- elevated FSH,



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- testicular atrophy,
 - or impaired sperm production.
-

Step 6: Scrotal Ultrasound

Ultrasound may help evaluate:

- testicular size,
- internal structure,
- varicocele,
- tumors,
- previous injury.

However:

Ultrasound cannot diagnose Early Maturation Arrest.

The diagnosis is microscopic.

Step 7: Testicular Histology

Early Maturation Arrest is fundamentally a:

Histopathological Diagnosis

A pathologist evaluates testicular tissue and examines which germ-cell stages are present.

A typical early-arrest pattern may show:

- spermatogonia,
- spermatocytes,
- but no spermatids,
- and no mature spermatozoa

in the affected tubules.

Should Every Azoospermia Patient Undergo a Diagnostic Testicular Biopsy?

No.

This is an important modern point.



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AUA/ASRM guidance states that:

Diagnostic testicular biopsy should not routinely be performed solely to distinguish obstructive from non-obstructive azoospermia.

In many patients, the distinction can be made from:

- history,
- physical examination,
- hormone testing,
- semen characteristics,
- and genetics.

If surgery is undertaken because sperm retrieval is clinically indicated, tissue may then provide histological information.

Focal vs Diffuse Early Maturation Arrest

This distinction can influence sperm-retrieval chances.

Diffuse Early Maturation Arrest

Most or all sampled tubules show the same early arrest.

Focal Early Maturation Arrest

The dominant pattern is early arrest, but some areas may contain more advanced development.

This matters because mature sperm may exist in rare focal regions.

Histology therefore helps with counselling but cannot perfectly map the entire testis.

Can Early Maturation Arrest Be Seen in Only One Testicle?

Potentially, sperm production can vary between testes and between different regions of the same testis.

Male reproductive pathology is often heterogeneous.

This is why micro-TESE systematically searches the testicular tissue rather than assuming one tiny biopsy represents the entire organ.



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Treatment of Early Maturation Arrest

Treatment should be realistic.

At present:

There is no universally proven medicine that reliably converts Early Maturation Arrest into normal spermatogenesis in every man.

Treatment depends on the cause.

1. Treat Hypogonadotropic Hypogonadism When Present

If the testes are under-stimulated because of deficient:

- FSH,
- LH,

this represents one of the more treatable forms of male infertility.

Current EAU guidance recommends gonadotropin treatment to induce spermatogenesis in men with congenital or acquired hypogonadotropic hypogonadism who want children.

This is cause-specific treatment.

2. Do Not Give Testosterone as Fertility Treatment

Testosterone may improve symptoms of hypogonadism, but external testosterone can suppress sperm production.

For a man who wants biological children:

testosterone replacement and fertility treatment are not the same thing.

Current AUA/ASRM and EAU guidelines advise against testosterone treatment as infertility therapy.

3. Hormonal Stimulation Before Micro-TESE: Evidence Remains Limited

Some clinicians use medicines such as:

- hCG,
- FSH,



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- selective estrogen receptor modulators,
- aromatase inhibitors

before sperm retrieval in selected NOA patients.

However, the evidence is uncertain.

EAU currently advises:

Do not start hormonal stimulation before testicular sperm extraction in NOA outside clinical trials.

AUA/ASRM similarly advises counselling men that evidence for pharmacological manipulation before surgery is limited.

A 2026 review found that hormonal optimization may be useful in carefully selected endocrine phenotypes, but evidence remains predominantly observational and low certainty.

Therefore:

hormonal therapy should be individualized—not routine.

4. Stop Testosterone and Anabolic Steroids

If external hormones are suppressing sperm production, identifying and removing that exposure is essential.

Recovery may take:

- many months,
- sometimes longer.

The treatment plan may require specialist endocrine management.

5. Treat Clinical Varicocele Selectively

A clinically significant palpable varicocele may deserve treatment in selected infertile men.

However, for men with established NOA:

there is insufficient evidence to promise that varicocele surgery will restore mature sperm production.



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AUA/ASRM notes that high-quality evidence is lacking and varicocele repair may also delay ART by several months.

6. Improve General Reproductive Health

I routinely encourage:

- smoking cessation,
- healthy weight,
- regular exercise,
- control of diabetes,
- adequate sleep,
- reduced heavy alcohol intake,
- avoidance of recreational drugs,
- avoidance of unnecessary testicular heat,
- balanced nutrition.

These measures support reproductive health.

But:

they are supportive measures, not guaranteed reversal therapy for meiotic arrest.

Micro-TESE: The Main Established Sperm-Retrieval Procedure

For men with persistent non-obstructive azoospermia who want to attempt biological fatherhood with their own sperm, the major established procedure is:

Microdissection Testicular Sperm Extraction – micro-TESE

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

Current EAU guidance similarly identifies microdissection TESE as the treatment of choice for sperm retrieval in NOA.

How Is Micro-TESE Performed?

During micro-TESE:

- the testis is surgically exposed,
- an operating microscope is used,
- individual seminiferous tubules are inspected,
- relatively larger or more promising tubules are sampled,
- an embryology laboratory searches immediately for sperm.

The objective is to find small focal areas where sperm production has progressed farther.

EAU describes micro-TESE as using approximately 20–25× magnification to identify tubules more likely to contain sperm while minimizing unnecessary tissue removal.

What Is the Overall Sperm Retrieval Rate in NOA?

Across different causes of NOA, studies often report sperm retrieval around:

40–60%

although the rate varies greatly according to:

- genetics,
- histology,
- surgical expertise,
- underlying disease,
- laboratory quality.

A June 2026 review similarly summarizes micro-TESE retrieval rates in NOA as roughly 40–60%, while emphasizing risks and the need for appropriate counselling.

What Is the Sperm Retrieval Rate in Early Maturation Arrest?

A widely cited retrospective study found approximately:

40% sperm retrieval in Early Maturation Arrest

compared with:

78% in Late Maturation Arrest.

This means Early Maturation Arrest generally carries a **more difficult prognosis**.

But:



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40% does not mean every patient has a 40% personal chance.

The original study involved a selected tertiary-centre population.

Genetics, diffuse versus focal disease and individual biology matter.

Current Guidelines Are More Cautious About Predicting Success

Current EAU guidance emphasizes that:

- histology,
- FSH,
- LH,
- AMH,
- testicular size,
- age,
- and other proposed predictors

cannot provide a sufficiently reliable individual prediction of sperm retrieval.

Therefore, I tell patients:

“Your biopsy can help us understand the situation, but it cannot give us a guaranteed yes-or-no answer before micro-TESE.”

Why Early Maturation Arrest Has a Lower Retrieval Rate

The biological explanation is logical.

If spermatogenesis stops at an early stage:

- fewer tubules have progressed near mature sperm formation.

In Late Maturation Arrest, the process has already reached:

- spermatids,

so there is a greater possibility that a small neighboring area may contain mature sperm.

This does not make Late Arrest mild.

It simply gives it a relatively better prognosis.



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What If Micro-TESE Finds Sperm?

If mature viable sperm are found, they can potentially be used with:

IVF + ICSI

ICSI means:

Intracytoplasmic Sperm Injection

An embryologist injects one sperm directly into an egg.

This bypasses the need for large sperm numbers or natural sperm transport.

Does Successful Sperm Retrieval Mean Pregnancy Is Guaranteed?

No.

There are several separate steps:

1. finding viable sperm,
2. obtaining mature eggs,
3. successful ICSI fertilization,
4. embryo development,
5. implantation,
6. pregnancy,
7. live birth.

Female fertility therefore matters enormously.

Why the Female Partner Must Be Evaluated at the Same Time

The latest WHO infertility guideline emphasizes systematic evaluation and management of infertility rather than treating one partner in isolation.

Consider two men with identical Early Maturation Arrest.

Couple A

The female partner is:

- 27,
- ovulating,



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- good ovarian reserve.

Couple B

The female partner is:

- 40,
- with diminished ovarian reserve.

Their treatment timing should not be identical.

The second couple may need faster ART planning.

Therefore:

The goal is not simply to make sperm appear. The goal is to help the couple build a realistic path toward pregnancy.

Fresh vs Frozen Testicular Sperm

If sperm are successfully retrieved, they may sometimes be:

- used fresh,
- or cryopreserved.

AUA/ASRM guidance states that either fresh or cryopreserved sperm can be used for ICSI, although in NOA the number of retrieved sperm may be limited and some centres coordinate retrieval closely with the female partner's ART cycle.

Risks of Micro-TESE

Micro-TESE is an established fertility procedure, but it is still surgery.

Possible risks include:

- bleeding,
- hematoma,
- infection,
- pain,
- testicular tissue injury,
- fibrosis,
- reduced testosterone,



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- and failure to retrieve sperm.

Current EAU evidence indicates micro-TESE generally causes less tissue damage than conventional TESE, but postoperative hormonal follow-up may still be appropriate.

A 2026 review similarly emphasizes that patients should be counselled about structural and endocrine risks, not merely retrieval probability.

What If Micro-TESE Finds No Sperm?

This can be emotionally difficult.

Options may then include:

- review of genetic and endocrine findings,
- specialist discussion about whether repeat retrieval has any reasonable basis,
- donor sperm,
- adoption,
- or other family-building options

according to the couple's beliefs and preferences.

A failed retrieval should not be presented as personal failure.

Can Micro-TESE Be Repeated?

In selected men, salvage or repeat micro-TESE may sometimes find sperm after a previous failed procedure.

EAU reports sperm-retrieval rates from approximately **18% to 43%** in studies of salvage micro-TESE after previous failed micro-TESE, but these are selected retrospective populations.

Repeat surgery is therefore not automatically appropriate for everybody.

Can Early Maturation Arrest Be Prevented?

Not always.

A genetic meiotic defect cannot currently be prevented through lifestyle changes.

However, men can reduce avoidable reproductive injury by:



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- avoiding anabolic steroids,
- not using testosterone when trying for fertility,
- avoiding smoking,
- using appropriate occupational protection,
- managing varicocele where clinically relevant,
- seeking urgent treatment for torsion,
- receiving fertility counselling before chemotherapy or radiation,
- controlling chronic medical disease.

Genetic counselling may help families understand inherited risks, but it does not prevent every case of spermatogenic arrest.

What About Stem-Cell Therapy?

This field attracts understandable attention.

Researchers are studying:

- spermatogonial stem cells,
- in-vitro spermatogenesis,
- germ-cell transplantation,
- organoid systems,
- regenerative approaches.

These techniques may one day offer new fertility options for men with severe spermatogenic failure.

However:

Stem-cell therapy is not an established routine cure for Early Maturation Arrest in 2026.

Patients should be cautious when clinics advertise:

- stem-cell injections into testes,
- regenerative sperm therapy,
- guaranteed sperm production.

These remain experimental areas rather than established standard treatment.



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Can Spermatocytes or Immature Germ Cells Be Used for ICSI?

Standard ICSI normally uses:

mature spermatozoa

Research has examined the use of:

- spermatids,
- immature germ cells

in highly specialized experimental reproductive techniques.

But in Early Maturation Arrest, development stops **before spermatids**, which makes immature-germ-cell reproductive strategies even more challenging.

These techniques should not be presented as established routine treatment.

Psychological Impact of Early Maturation Arrest

A diagnosis involving:

- azoospermia,
- genetic testing,
- testicular biopsy,
- and uncertain biological fatherhood

can create considerable emotional pressure.

Men may experience:

- anxiety,
- sadness,
- shame,
- anger,
- loss of confidence,
- fear of marital problems,
- fear of social judgment.

I tell patients very clearly:

Infertility does not make a man less masculine.



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Sperm production is a biological function.

It does not determine:

- character,
- sexual ability,
- intelligence,
- worth,
- or capacity to have a loving marriage.

WHO recognizes psychological support as an important component of infertility care.

Early Maturation Arrest in the Unani System of Medicine

As a physician trained in Unani medicine, I look at male infertility from a broad whole-person perspective.

Traditional Unani assessment considers:

- **Mizaj**
- digestive health,
- nutritional state,
- physical activity,
- sleep,
- psychological condition,
- reproductive-organ function,
- general vitality,
- and traditional humoral balance.

This individualized framework can be valuable.

However, I make an important scientific distinction:

Classical Unani medicine did not identify Early Maturation Arrest through testicular histopathology.

Classical physicians did not have:

- testicular biopsy microscopy,
- Y-chromosome testing,



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- FSH assays,
- micro-TESE,
- or molecular genetics.

Therefore, there is no classical Unani term that should be presented as an exact one-to-one equivalent of:

“spermatogenic arrest at the primary spermatocyte stage.”

Traditional Unani Concepts of Male Infertility

Unani literature discusses male reproductive disorders through concepts involving:

- reduced Mani,
- reproductive weakness,
- altered reproductive-organ function,
- poor nutrition,
- general weakness,
- and changes in Mizaj.

These traditional concepts can guide supportive treatment.

But:

They should complement—not replace—the modern histological diagnosis.

Mizaj and Individualized Treatment

One of the strengths of Unani medicine is:

individualization.

Two men with Early Maturation Arrest may differ greatly.

Patient A

Has:

- normal testosterone,
- normal FSH,
- genetic meiotic abnormality.



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Patient B

Has:

- testosterone abuse,
- hormonal suppression,
- obesity.

Patient C

Has:

- previous undescended testes.

Patient D

Has:

- clinical varicocele,
- normal conventional genetics,
- no other obvious cause.

Giving all four men exactly the same treatment would ignore important differences.

Akhlat and Humoral Theory

Classical Unani medicine describes:

- Dam,
- Balgham,
- Safra,
- Sauda.

These are historical physiological concepts.

They are **not** the same as:

- FSH,
- LH,
- testosterone,
- chromosomes,
- spermatocytes,



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- or seminiferous-tubule histology.

I believe this distinction is essential for responsible modern Unani practice.

Asbab-e-Sitta Zarooriya

Unani health maintenance gives importance to the six essential factors of life.

These traditionally include broad concepts involving:

- environment,
- food and drink,
- activity and rest,
- mental activity and rest,
- sleep,
- physiological elimination and retention.

Several of these principles have practical relevance in male reproductive health.

Environment

A man's reproductive environment can include:

- occupational toxins,
 - smoking,
 - heat,
 - chemical exposure.
-

Food and Drink

Nutrition influences:

- body weight,
- metabolic health,
- micronutrients,
- diabetes,
- general health.



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Activity

Regular physical activity supports:

- cardiovascular health,
- insulin sensitivity,
- body weight.

Sleep

Poor sleep can adversely affect general and endocrine health.

Psychological Well-Being

Azoospermia itself can create profound emotional stress.

Therefore, addressing mental well-being is part of comprehensive fertility care.

Four Major Unani Therapeutic Modalities

Traditional Unani practice includes:

Ilaj-bil-Ghiza

Dietotherapy

Ilaj-bit-Tadbir

Regimenal Therapy

Ilaj-bid-Dawa

Pharmacotherapy

Ilaj-bil-Yad

Surgical Treatment

An important point follows from this:

Responsible Unani treatment does not require rejecting surgery.

When micro-TESE is the best evidence-based reproductive option, referral for micro-TESE can be part of responsible integrative care.



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Ilaj-bil-Ghiza in Early Maturation Arrest

Dietotherapy may be used to optimize:

- nutrition,
- weight,
- glucose,
- metabolic health,
- general reproductive health.

I advise balanced nutrition rather than miracle foods.

No specific:

- fruit,
- nut,
- spice,
- milk preparation,
- or food combination

has been proven to reverse a serious genetic Early Maturation Arrest.

The purpose of nutrition is to support:

the best possible physiological environment for any remaining spermatogenic function.

Ilaj-bit-Tadbir

Regimenal care may focus on:

- exercise,
- sleep,
- stress management,
- reducing reproductive toxins,
- healthy weight,
- avoiding excessive heat.

These measures are valuable supportive strategies.



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They should not be presented as proven methods of correcting a chromosome-level meiotic defect.

Ilaj-bid-Dawa

This is where individualized traditional pharmacotherapy may be considered.

At Saira Health Care, I assess:

- diagnosis,
- hormones,
- genetics,
- testicular history,
- semen reports,
- Mizaj,
- nutrition,
- sexual function,
- general health

before selecting an individualized fertility programme.

What Does the Scientific Evidence Say About Unani Medicine in Early Maturation Arrest?

This needs careful wording.

There is clinical research involving Unani treatment in male infertility conditions such as:

- oligospermia,
- semen-quality abnormalities.

However:

I do not identify high-quality controlled clinical trials proving that a specific Unani formulation reverses histologically confirmed Early Maturation Arrest.

Therefore, findings from oligospermia research should not be automatically transferred to Early Maturation Arrest.

This is a much more severe and biologically different condition.



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Jawahar-e-Khusia

Saira Health Care Pharmacy currently lists **Jawahar-e-Khusia** as a Unani preparation for male reproductive-health support, including spermatogenesis and semen-related concerns.

Within an individualized programme, it may be considered as traditional reproductive support.

However:

It should not be advertised as scientifically proven to overcome every case of Early Maturation Arrest.

Dr. Qasmi's Nuskha No. 129 – Vitasem Max

Saira Health Care Pharmacy currently identifies **Dr. Qasmi's Nuskha No. 129 – Vitasem Max** as a Unani preparation used for:

- general weakness,
- energy,
- and semen-quality support.

Within my approach, its use may be considered in selected male-fertility programmes.

But again:

general semen support is not the same as proven reversal of meiotic maturation arrest.

Semen Gold Plus

The current Saira Health Care Pharmacy page identifies **Semen Gold Plus** as an **Ayurvedic supplement**, not a classical Unani formulation.

It is marketed for:

- sperm count,
- motility,
- morphology,
- and broader male infertility.

If used within an integrative fertility programme, it should therefore be described accurately as:

Ayurvedic fertility support.



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It should not be presented as a scientifically proven treatment specifically for Early Maturation Arrest.

Sperm Plus Capsule

Saira Health Care's current pharmacy listing describes **Sperm Plus Capsule as an Ayurvedic herbal formulation** aimed primarily at:

- male vitality,
- stamina,
- libido,
- and reproductive support.

Therefore, it should also be distinguished from classical Unani medicine.

Why Product Classification Matters

A professional medical article should accurately distinguish:

- Unani medicine,
- Ayurvedic formulations,
- herbal supplements,
- modern prescription medicines,
- and surgical fertility treatments.

This is not a minor detail.

Correct classification helps patients understand:

- what they are taking,
 - why they are taking it,
 - what evidence exists,
 - and what the medicine cannot promise.
-

Should These Medicines Be Used as a “Standard Early Maturation Arrest Package”?

I do not support a one-size-fits-all approach.

Imagine:



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Patient 1

Has a complete AZFb deletion.

Surgical sperm retrieval has essentially no realistic chance according to current guidelines.

No fertility package should be advertised as capable of overriding that genetic finding.

Patient 2

Has reversible gonadotropin deficiency.

He requires evidence-based hormonal stimulation.

Patient 3

Has steroid-related suppression.

The priority is stopping fertility-suppressing hormones and restoring endogenous function.

Patient 4

Has unexplained Early Maturation Arrest with normal conventional genetics.

He may reasonably pursue individualized supportive treatment while discussing micro-TESE.

These patients cannot be treated identically.

Dr. Nizamuddin Qasmi's Individualized Treatment Approach at Saira Health Care

My preferred approach can be understood step by step.

Step 1: Verify That the Diagnosis Is Really Early Maturation Arrest

I ask:

“Where did this diagnosis come from?”

Was it documented by:

- testicular biopsy,
- TESE,
- micro-TESE histology?

Or was it merely assumed from:

- zero sperm count?

Azoospermia alone is not enough to make the diagnosis.



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Step 2: Review the Pathology Report

When histology is available, I review:

- stage of arrest,
- early vs late,
- diffuse vs focal,
- whether Sertoli-cell-only areas are present,
- whether hypospermatogenesis is present,
- whether rare mature sperm were identified.

This information influences counselling.

Step 3: Confirm Semen Findings

I review properly performed semen analyses to determine whether there is:

- true azoospermia,
- cryptozoospermia,
- or rare intermittent sperm.

This is clinically important because if sperm are found:

cryopreservation may become possible.

Step 4: Distinguish NOA From Obstruction

I assess:

- testicular volume,
- epididymis,
- vas deferens,
- semen volume,
- FSH,
- reproductive history.

A patient with obstruction should not be treated as a maturation-arrest patient.



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Step 5: Evaluate Hormones

I consider:

- FSH,
- LH,
- morning testosterone,
- prolactin when indicated,
- estradiol when indicated.

Hormone treatment is used only when the hormonal profile supports it.

Step 6: Perform Appropriate Genetic Evaluation

Depending on the clinical picture, this may include:

- karyotype,
- Y-chromosome microdeletion analysis,
- genetic counselling,
- and selected expanded testing.

This step is especially important in Early Maturation Arrest because genetic abnormalities appear to be relatively more frequent than in Late Maturation Arrest.

Step 7: Look for Reversible Causes

I ask about:

- testosterone,
- anabolic steroids,
- varicocele,
- undescended testes,
- chemotherapy,
- radiation,
- testicular injury,



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- mumps,
 - severe illness,
 - occupational toxins,
 - smoking,
 - obesity.
-

Step 8: Correct General Reproductive-Health Factors

Where appropriate:

- stop smoking,
 - manage weight,
 - control diabetes,
 - improve nutrition,
 - improve sleep,
 - stop harmful steroids,
 - reduce alcohol,
 - avoid reproductive toxins.
-

Step 9: Use Unani Treatment Individually

I may use:

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

to support:

- general testicular health,
- nutrition,
- metabolism,
- overall fertility health,
- and any remaining spermatogenic potential.



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Selected traditional formulations may be used according to the patient.

I do **not** tell every patient that the same four medicines are guaranteed to complete meiosis.

Step 10: Monitor With Objective Tests

Treatment response should be monitored using:

- repeat semen analysis,
- hormones where relevant,
- clinical examination,
- and fertility outcomes.

Changes in:

- energy,
- libido,
- semen thickness

do not prove that Early Maturation Arrest has improved.

We need reproductive evidence.

Step 11: Preserve Sperm Immediately if They Become Detectable

This is a very important principle.

Sperm production in severe spermatogenic failure may be intermittent.

If rare viable sperm appear in semen:

cryopreservation should be discussed promptly.

Waiting for the sperm count to become “perfect” can sometimes lose an important reproductive opportunity.

Step 12: Discuss Micro-TESE at the Appropriate Time

If:

- NOA persists,
- no clear reversible cause remains,



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- the couple wishes to use the man's own sperm,

micro-TESE should be discussed with an experienced reproductive urologist.

Current guidelines support it as the principal retrieval technique for NOA.

Step 13: Do Not Delay ART Indefinitely

This is particularly important when the female partner has:

- advanced reproductive age,
- low ovarian reserve,
- tubal disease,
- or another time-sensitive fertility problem.

The couple should not spend years pursuing uncertain treatments merely to improve a male laboratory result.

Step 14: Coordinate With IVF/ICSI Specialists

Where sperm retrieval is attempted, male and female treatment should be coordinated.

This may involve:

- egg stimulation,
- egg retrieval,
- micro-TESE,
- sperm cryopreservation,
- ICSI,
- embryo culture,
- and transfer.

The strategy should be tailored to the couple.

Success Stories: How They Should Be Presented Responsibly

The supplied material states that patients with Early Maturation Arrest have experienced successful outcomes after treatment.

Saira Health Care does publish an educational patient journey involving:



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- long-standing infertility,
- azoospermia,
- and reported maturation arrest,

in which sperm were subsequently detected after approximately six months of individualized treatment under Dr. Nizamuddin Qasmi.

This is encouraging.

However:

The public case does not establish that the patient's histology was specifically Early Maturation Arrest rather than Late or another maturation-arrest pattern.

Therefore, I would **not** publish it as:

“A proven Early Maturation Arrest cure.”

The responsible wording is:

“A documented Saira Health Care patient journey involving azoospermia and maturation arrest.”

Why One Patient Journey Cannot Establish a Success Rate

One patient's improvement cannot tell us:

- how many similar patients would respond,
- whether the treatment caused the change,
- whether rare sperm were present intermittently beforehand,
- whether the pathology was focal,
- whether the arrest was early or late,
- or what the pregnancy/live-birth probability is.

A clinical trial would require:

- clearly defined diagnosis,
- control group,
- standardized treatment,
- adequate sample size,
- repeat laboratory assessment,



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- and fertility outcomes.

Therefore:

Patient stories can provide hope, but they are not the same as scientific efficacy data.

What Would Count as a Strong Early Maturation Arrest Success Story?

Ideally, the case should document:

Before Treatment

- at least two semen analyses,
- azoospermia confirmation,
- testicular histology showing Early Maturation Arrest,
- FSH,
- LH,
- testosterone,
- genetic findings,
- testicular size,
- varicocele status.

Treatment

- exact medicines,
- dosage,
- duration,
- lifestyle interventions.

Follow-Up

- repeat semen analysis,
- sperm concentration,
- motility,
- morphology,
- repeat sperm detection,
- cryopreservation,



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- IVF/ICSI outcome,
- pregnancy or live birth when applicable.

This level of documentation makes an individual case much more educational.

Does Sperm Appearing in Semen Mean Early Maturation Arrest Has Been “Cured”?

Not necessarily.

The appearance of mature sperm after previous azoospermia is:

clinically very important and encouraging.

However, we need to know:

- whether sperm remain detectable,
- whether the number is sufficient,
- whether motility is adequate,
- whether sperm need to be frozen,
- whether natural conception is realistic,
- or whether ICSI is needed.

The word:

cure

should therefore be used cautiously.

Saira Health Care's Contribution to Male Infertility

Saira Health Care currently lists:

- azoospermia,
- Early Maturation Arrest,
- Late Maturation Arrest,
- maturation arrest,
- oligospermia,
- asthenospermia,
- abnormal sperm morphology,



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- varicocele,
- and other male-infertility problems

within its sexual and reproductive-health services.

One of the most important contributions I believe a specialist-focused fertility clinic can make is:

giving patients a correct diagnosis before giving them treatment.

Correcting Male-Infertility Myths

A man with Early Maturation Arrest may be told:

“Zero sperm means biological fatherhood is impossible.”

That may not always be true because micro-TESE may retrieve focal sperm in selected men.

Another patient is told:

“Take these medicines and sperm are guaranteed.”

That is also not responsible.

Another may be told:

“FSH is high, so micro-TESE cannot work.”

Current evidence does not support such a definite statement.

Another may be told:

“Your testes are normal-sized, so sperm production must be normal.”

That is also unreliable.

Good infertility care means correcting these misconceptions.

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

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

Saira Health Care's current professional educational material also lists:

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

within my current physician profile.

This focused education is particularly relevant to severe male infertility because Early Maturation Arrest requires understanding of:

- spermatogenesis,
- azoospermia,
- semen analysis,
- hormonal physiology,
- genetics,
- testicular disease,
- reproductive surgery,
- micro-TESE,
- IVF/ICSI,
- and couple-level fertility treatment.

Saira Health Care's Integrative Philosophy

I believe modern reproductive medicine and Unani medicine do not have to be presented as opposing systems.

The patient needs whichever intervention is appropriate for the actual diagnosis.



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If the patient has hypogonadotropic hypogonadism

He requires appropriate gonadotropin treatment.

If he is taking testosterone

The fertility-suppressing medication must be addressed.

If he has a complete AZFb deletion

Genetic counselling becomes more important than repeated sperm supplements because surgical retrieval is not recommended.

If he has potentially reversible lifestyle problems

Unani dietotherapy and lifestyle management can make an important contribution.

If he has persistent unexplained NOA

Individualized supportive Unani treatment may be used while realistic sperm-retrieval options are discussed.

If micro-TESE is appropriate

The patient should not lose reproductive time simply because he wants traditional treatment.

If sperm are retrieved

The couple may proceed to IVF/ICSI.

That is what I consider genuine integrative fertility treatment.

Common Myths About Early Maturation Arrest

Myth 1: Early Maturation Arrest means late physical development.

Fact: It is a testicular sperm-development disorder.

Myth 2: It is diagnosed from a semen report.

Fact: A semen report identifies azoospermia or severe sperm deficiency; the maturation-arrest stage is a histological finding.

Myth 3: Low motility is the main symptom.

Fact: In many Early Maturation Arrest patients, mature sperm are absent altogether.



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Myth 4: Every patient has high FSH.

Fact: FSH may be normal when germ cells remain present but maturation stops at the spermatocyte stage.

Myth 5: Normal testicular size means sperm production is normal.

Fact: Men with maturation arrest can have normal testicular size.

Myth 6: Early and Late Maturation Arrest have the same prognosis.

Fact: Available evidence suggests lower sperm retrieval in Early Maturation Arrest.

Myth 7: A 40% retrieval rate means my chance is exactly 40%.

Fact: Published rates describe study populations, not an individual guarantee.

Myth 8: High FSH means micro-TESE should not be attempted.

Fact: Current EAU guidance states that FSH does not reliably predict sperm retrieval in an individual man.

Myth 9: Testosterone improves sperm production.

Fact: External testosterone can severely suppress spermatogenesis.

Myth 10: Every man with NOA should take hormones before micro-TESE.

Fact: Evidence for routine hormonal stimulation before sperm retrieval remains limited.

Myth 11: Varicocele surgery always reverses Early Maturation Arrest.

Fact: Evidence in NOA is insufficient to make this promise.

Myth 12: Herbal medicine is proven to restart meiosis.



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Fact: There is currently no high-quality evidence demonstrating universal reversal of histologically confirmed Early Maturation Arrest by herbal treatment.

Myth 13: Micro-TESE always finds sperm.

Fact: Micro-TESE is the preferred retrieval procedure for NOA, but failure remains possible.

Myth 14: If micro-TESE fails once, biological sperm can never be found.

Fact: Salvage retrieval can succeed in selected men, although success is limited and repeat surgery requires specialist counselling.

Myth 15: Stem-cell treatment can cure Early Maturation Arrest today.

Fact: Regenerative fertility therapies remain experimental.

Frequently Asked Questions

What is Early Maturation Arrest?

It is a spermatogenic disorder in which developing germ cells stop at an early stage—commonly the spermatocyte stage—before spermatids and mature sperm are formed.

Is Early Maturation Arrest serious?

Yes.

It is generally associated with severe impairment of sperm production and commonly occurs in men with non-obstructive azoospermia.

However, it does not prove that no mature sperm exists anywhere within the testis.

Is it worse than Late Maturation Arrest?

Generally, from the standpoint of sperm retrieval, yes.

A major retrospective study reported approximately 40% retrieval in early arrest compared with approximately 78% in late arrest.



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Can sperm still be found with Early Maturation Arrest?

Yes, in some men.

Focal areas of more advanced spermatogenesis may remain.

What is the best sperm-retrieval procedure?

For appropriately selected men with NOA, current AUA/ASRM and EAU guidance supports:

micro-TESE

as the preferred retrieval technique.

Can a high FSH rule out sperm retrieval?

No.

FSH is useful for understanding testicular function but cannot reliably predict the outcome of micro-TESE in an individual patient.

Do I need genetic tests?

They are very important in appropriately selected men with azoospermia or severe oligozoospermia.

Current AUA/ASRM thresholds recommend:

- karyotype in appropriate men with azoospermia or <5 million/mL,
 - Y-chromosome microdeletion testing particularly with azoospermia or ≤ 1 million/mL plus signs of impaired sperm production.
-

What if I have a complete AZFb deletion?

Current guidelines indicate that sperm retrieval is essentially unsuccessful in complete AZFb deletion and recommend against TESE/micro-TESE in this setting.

Can hormones treat Early Maturation Arrest?

Only when a genuine hormonal abnormality that can be treated is present.

Routine hormonal stimulation in NOA is not currently supported by strong evidence.



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Can Unani medicine help?

Unani medicine may provide valuable individualized supportive care through:

- Mizaj assessment,
- Ilaj-bil-Ghiza,
- Ilaj-bit-Tadbir,
- Ilaj-bid-Dawa,
- nutrition,
- lifestyle correction,
- metabolic-health management,
- stress and sleep support,
- reproductive-health support.

Its role should be integrated with:

- genetics,
- endocrine evaluation,
- semen testing,
- and reproductive-urology treatment.

It should not be presented as a guaranteed cure for a severe genetic or meiotic defect.

Is Jawahar-e-Khusia used?

Jawahar-e-Khusia is currently listed by Saira Health Care Pharmacy as a Unani male reproductive-health preparation.

It may be used as part of an individualized fertility-support programme but is not proven to reverse every Early Maturation Arrest.

What is the role of Nuskha No. 129?

Dr. Qasmi's Nuskha No. 129 is listed as a Unani preparation used for general vitality and semen-quality support.

Its use should be individualized.



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Are Semen Gold Plus and Sperm Plus Unani medicines?

Current Saira Health Care Pharmacy listings describe both as **Ayurvedic formulations**, so they should not be labelled as classical Unani medicines.

Can Early Maturation Arrest be cured in 7–8 months?

There is no scientifically established universal treatment period.

A fixed 7–8 month cure timeline should not be promised.

Does Saira Health Care have success stories?

Saira Health Care has published a patient journey involving azoospermia and maturation arrest in which sperm were subsequently reported after approximately six months of individualized treatment.

However, the published case does not establish that the histological subtype was specifically Early Maturation Arrest, and one outcome cannot predict every patient's result.

Should sperm be frozen if they appear?

In severe spermatogenic failure, this can be very important.

If viable sperm become detectable after previous azoospermia, discussing cryopreservation promptly is reasonable.

Does finding sperm guarantee natural pregnancy?

No.

The sperm number and quality may remain too low for natural conception.

ICSI may still be necessary.

Does successful micro-TESE guarantee pregnancy?

No.

It means usable sperm have been retrieved.



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Pregnancy still depends on:

- egg quality,
 - female age,
 - fertilization,
 - embryo development,
 - implantation,
 - and other reproductive factors.
-

When Should a Patient Seek Specialist Evaluation?

A male infertility specialist or reproductive-urology evaluation is particularly important when:

- semen analysis repeatedly shows azoospermia,
 - pathology reports Early Maturation Arrest,
 - FSH is abnormal,
 - testes are small,
 - there is a history of cryptorchidism,
 - varicocele is present,
 - testosterone or steroids have been used,
 - chemotherapy or radiotherapy was received,
 - severe testicular injury occurred,
 - genetic disease is suspected,
 - previous TESE failed,
 - or infertility has persisted for a prolonged period.
-

Latest Scientific Perspective: 2025–2026

Current research has changed how severe male infertility is understood.

WHO Global Infertility Guideline – November 2025

WHO published its first global guideline dedicated to the prevention, diagnosis and treatment of infertility in November 2025.



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It emphasizes:

- standardized semen analysis,
 - structured male evaluation,
 - appropriate referral,
 - evidence-based male-factor treatment,
 - and evaluation of both partners.
-

NICE Male-Fertility Update – March 2026

The March 2026 NICE guideline reinforces standardized WHO semen testing and recommends confirmatory semen analysis after an abnormal initial result, with prompt repeat assessment for severe abnormalities such as azoospermia.

Modern Genetics

A 2025 review describes genetics as one of the most rapidly advancing areas of male-infertility medicine, with an expanding number of recognized genetic causes of severe spermatogenic failure.

Early Maturation Arrest is particularly relevant because failure at meiosis can be caused by defects in genes regulating chromosome pairing and germ-cell division.

Micro-TESE in 2026

A June 2026 review confirms micro-TESE as a major reproductive option in NOA, with overall sperm retrieval typically in the range of approximately 40–60%, while emphasizing that:

- outcomes vary,
 - surgery may affect testosterone,
 - and proper counselling is essential.
-

Predicting Retrieval Remains Difficult

Despite research into:

- hormones,
- testicular volume,



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- biomarkers,
- histology,
- machine learning

there is still no universally reliable method of predicting micro-TESE success for an individual man.

Hormonal Optimization Remains an Evolving Area

A 2026 review notes that selected endocrine manipulation before micro-TESE remains biologically interesting but supported mainly by lower-certainty observational evidence rather than definitive randomized trials.

Current EAU guidance therefore advises against routine pre-TESE hormonal stimulation outside clinical trials.

My Final Message to Patients

If you have received a diagnosis of:

Early Maturation Arrest

please do not misunderstand it.

It does **not** mean:

“My body has failed to mature.”

It does **not** automatically mean:

“I am sexually weak.”

And it does **not** automatically mean:

“There is absolutely no chance of finding sperm.”

It means:

the germ cells inside the testes are failing to complete sperm development at a relatively early stage.

The questions I want you to ask are:

Was the diagnosis confirmed histologically?

Do I have true azoospermia or cryptozoospermia?



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Is the pattern focal or diffuse?

What are my FSH, LH and testosterone levels?

Do I have a genetic abnormality?

Have I been tested for Y-chromosome microdeletions?

Do I have a complete AZFb deletion?

Were my testes undescended during childhood?

Do I have a clinical varicocele?

Have I used testosterone or anabolic steroids?

Did I receive chemotherapy or radiation?

Is there a reversible hormonal problem?

Would micro-TESE be appropriate?

How is my wife's fertility?

If sperm appear, should they be frozen?

These questions are much more important than simply asking:

“Which medicine will complete sperm maturation?”

Conclusion

Early Sperm Maturation Arrest is a specific form of impaired spermatogenesis in which developing germ cells stop progressing at a relatively early stage, typically around the spermatogonial or primary spermatocyte stage.

It is commonly encountered as a histological pattern in men with:

Non-Obstructive Azoospermia.

It should not be confused with:

- delayed puberty,
- sexual weakness,
- low libido,
- low sperm motility,
- or ordinary oligospermia.

The condition may be associated with:



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- genetic abnormalities,
- Y-chromosome deletions,
- chromosomal disease,
- meiotic defects,
- hormonal problems,
- cryptorchidism,
- testicular injury,
- varicocele,
- anabolic steroids,
- chemotherapy,
- radiation,
- environmental exposures,
- or unexplained factors.

Diagnosis requires a structured infertility evaluation involving:

- semen analysis,
- confirmation of azoospermia,
- clinical examination,
- hormones,
- genetic testing,
- and histological information where appropriately available.

A semen report alone cannot diagnose Early Maturation Arrest.

Early Maturation Arrest generally carries a less favorable sperm-retrieval prognosis than Late Maturation Arrest.

A widely cited retrospective study reported sperm retrieval of approximately:

40% in Early Maturation Arrest

compared with:

78% in Late Maturation Arrest.

These percentages should be used only for general counselling.



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Current EAU guidance emphasizes that no combination of:

- FSH,
- hormones,
- testicular size,
- or other pre-operative findings

can reliably guarantee sperm-retrieval outcome for an individual patient.

For appropriately selected men with persistent NOA:

micro-TESE is the principal established sperm-retrieval procedure

and any retrieved sperm can potentially be used through:

IVF with ICSI.

Genetic evaluation is essential in many patients.

Complete AZFa or AZFb deletions are especially important because sperm retrieval is essentially unsuccessful and surgery is not recommended.

Hormonal treatment can be highly useful when a genuine reversible endocrine disorder exists, particularly hypogonadotropic hypogonadism.

But routine empirical hormonal stimulation before micro-TESE is not supported by strong evidence.

The **Unani system of medicine** can contribute to care through:

- Mizaj-based individualized assessment,
- Ilaj-bil-Ghiza,
- Ilaj-bit-Tadbir,
- Ilaj-bid-Dawa,
- lifestyle modification,
- nutritional support,
- metabolic-health improvement,
- psychological support,
- general reproductive-health optimization,
- and selected traditional pharmacotherapy.



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At Saira Health Care, medicines such as:

- **Jawahar-e-Khusia**
- and **Dr. Qasmi's Nuskha No. 129**

may form part of selected individualized Unani fertility-support programmes.

Products such as:

- **Semen Gold Plus**
- and **Sperm Plus**

are currently classified by Saira Health Care Pharmacy as **Ayurvedic formulations** and should be described accurately.

There is currently insufficient high-quality evidence to claim that any one of these products can reliably reverse histologically confirmed Early Maturation Arrest in every patient.

Saira Health Care has published an encouraging individual patient journey involving azoospermia and maturation arrest in which sperm were later detected after individualized treatment.

However:

that case should not be presented as proof of a universal Early Maturation Arrest cure or success rate.

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

Confirm the diagnosis correctly.

Differentiate Early from Late Maturation Arrest.

Differentiate NOA from obstruction.

Investigate hormones.

Investigate genetics.

Recognize complete AZFa/AZFb deletions before unnecessary surgery.

Stop testosterone and anabolic steroids when relevant.

Treat reversible endocrine causes.

Correct lifestyle and metabolic factors.

Use Unani medicine rationally and individually.

Monitor results objectively.



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Cryopreserve rare sperm when appropriate.

Discuss micro-TESE without unnecessary delay when indicated.

Coordinate treatment with IVF/ICSI specialists.

Evaluate both partners.

And never replace realistic prognosis with guaranteed claims.

For a man diagnosed with Early Maturation Arrest, my central message is:

The condition is challenging, and its sperm-retrieval outlook is generally less favorable than Late Maturation Arrest—but the diagnosis should not automatically be interpreted as the end of every possibility of biological fatherhood.

The correct next step is:

accurate diagnosis, genetic and hormonal evaluation, individualized integrative treatment, and realistic fertility planning.

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 current public professional profile lists Dr. Nizamuddin Qasmi's BUMS, MD, CGO, Certificate in Infertility and Certificate in Urology – London, UK, and identifies sexual disorders and infertility as his principal area of clinical focus.



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Saira Health Care's current educational profile additionally lists the **Masters in Male Infertility – MasterHealthPro (HealthPro)** and **Integrated Sexual and Reproductive Health – ISRH, UNFPA** among his professional training.

His approach combines traditional Unani clinical principles with contemporary understanding of:

- male infertility,
- spermatogenesis,
- semen analysis,
- azoospermia,
- reproductive endocrinology,
- genetics,
- sexual health,
- micro-TESE,
- and assisted reproduction.

Medical Disclaimer

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

It is not a substitute for:

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

A diagnosis of Early Maturation Arrest should not be made solely from:

- a low sperm count,



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- azoospermia,
- abnormal motility,
- abnormal morphology,
- or the presence of a varicocele.

The diagnosis is based on the stage of spermatogenic failure identified in testicular tissue.

Do not independently start or stop:

- testosterone,
- anabolic steroids,
- hCG,
- FSH,
- selective estrogen receptor modulators,
- aromatase inhibitors,
- Unani medicines,
- Ayurvedic medicines,
- herbal supplements,
- or other fertility treatments.

External testosterone can suppress sperm production and should not be used as infertility treatment in men seeking current or future biological fatherhood.

Jawahar-e-Khusia, Nuskha No. 129, Semen Gold Plus, Sperm Plus or other fertility formulations should not be interpreted as guaranteed treatments for histologically confirmed Early Maturation Arrest.

Men with non-obstructive azoospermia who want biological children should receive appropriate counselling regarding:

- genetic testing,
- micro-TESE,
- IVF,
- and ICSI.

Men with complete AZFa or AZFb Y-chromosome microdeletions should receive specialist genetic counselling because current guidelines indicate that surgical sperm retrieval is not appropriate in these conditions.



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Any individual Saira Health Care patient outcome or success story should be interpreted as an individual case and not as proof that every patient will obtain the same result.



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