

Pus Cells in Semen (Leukocytospermia/Pyospermia): Causes, Effect on Male Fertility, Diagnosis, Treatment and the Unani Approach

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Introduction: “Doctor, My Semen Report Shows Pus Cells. Does This Mean I Have an Infection or Infertility?”

This is a question I hear regularly from men who come to me with a semen analysis report.

A patient may say:

“Doctor, my sperm count is reasonable, but the laboratory has written 8–10 pus cells or 15–20 pus cells. Is this the reason my wife is not becoming pregnant?”

Another patient becomes frightened because he sees the word **“pus”** and immediately assumes that there must be a serious infection in his semen.

I first explain something very important:

The words “pus cells in semen” are commonly used on laboratory reports, but medically we are usually talking about white blood cells, or leukocytes, present in the semen. Their presence does not automatically prove a bacterial infection, and it does not automatically mean infertility.

The modern medical term most commonly used for an abnormally high concentration of white blood cells in semen is **leukocytospermia**, also called **leukospermia** or **pyospermia**.

The current European Association of Urology (EAU) male-infertility guideline follows the World Health Organization framework and defines leukocytospermia as **more than 1 million white blood cells per millilitre of semen**, with confirmation preferably using a peroxidase-based method. Importantly, the EAU also emphasizes that leukocytospermia indicates **inflammation**, but it does not necessarily mean that bacteria or viruses are present.

This distinction is one of the central messages of this article.



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The current **2026 EAU Sexual and Reproductive Health Guidelines** remain the latest European guideline framework, while the World Health Organization issued its first comprehensive global infertility guideline in November 2025. Together with the WHO sixth-edition semen laboratory manual, these provide an updated framework for evaluating men with abnormal semen findings.

From the Unani perspective, I look at the patient more broadly. I consider his **Mizaj, urinary and genital symptoms, digestion, diet, metabolic health, sexual history, general vitality, sleep, lifestyle and associated inflammatory or infectious conditions.**

But I also make an important distinction:

A modern laboratory finding such as leukocytospermia should first be understood scientifically. Unani assessment can complement that evaluation, but it should not replace proper microbiological, urological or fertility investigations when these are required.

At Saira Health Care, this integration of traditional Unani principles with appropriate contemporary diagnosis is the approach I prefer.

What Are “Pus Cells” in Semen?

The term *pus cells* is often used informally by laboratories to describe **white blood cells (WBCs)**.

White blood cells are part of the immune system.

They normally help the body respond to:

- infections;
- inflammation;
- tissue injury;
- immune-system activity.

A small number of white blood cells can be present in semen without necessarily indicating disease.

The concern arises when their concentration becomes significantly elevated.

The internationally used WHO/EAU threshold for leukocytospermia is:

More than 1.0 million peroxidase-positive white blood cells per millilitre of semen.

The EAU lists **less than 1 million peroxidase-positive leukocytes/mL** as the consensus threshold value and considers concentrations above this level evidence of an inflammatory process after urinary infection or urethritis has been appropriately considered.



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“0–5 Pus Cells per HPF” Is Not a Universal International Definition

Many patients bring reports stating:

Pus cells: 2–3/HPF

or

Pus cells: 8–10/HPF.

Some laboratories regard approximately 0–5 cells per high-power field as a local reference range.

However, I would not use **“0–5/HPF” as a universal WHO definition of normal semen leukocytes.**

The number seen per microscopic field depends on:

the microscope, sample preparation, chamber, magnification, laboratory technique and whether the cells have actually been identified as leukocytes.

The internationally standardized approach is based more reliably on the **concentration of confirmed leukocytes per millilitre**, particularly peroxidase-positive cells.

Therefore, if a report simply says:

“Pus cells: 10–12/HPF,”

I want to know how the laboratory identified those cells before concluding that the patient has clinically important leukocytospermia.

Not Every “Round Cell” Is a Pus Cell

This is another very important laboratory point.

Under an ordinary microscope, semen may contain **round cells**.

These can be:

White blood cells

which may represent inflammation or infection;

or

Immature germ cells

which are developing reproductive cells released during spermatogenesis.

These two types of cells may look similar on routine microscopy.



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The AUA/ASRM male-infertility guideline specifically recommends that men with more than **1 million round cells/mL** undergo further evaluation to determine whether the cells are true white blood cells or immature germ cells. Special staining techniques may be required.

Therefore:

A semen report showing “round cells” should not automatically be interpreted as pus or infection.

This is one reason semen testing is best performed in an experienced andrology laboratory.

Is “Pus in Semen” the Same as Actual Pus Coming Out of the Penis?

Usually, no.

In leukocytospermia, the inflammatory cells are usually **microscopic**.

A patient often cannot see them with the naked eye.

Semen does not necessarily look obviously infected.

Some patients may notice:

- yellowish semen;
- altered consistency;
- unpleasant smell;
- discomfort;
- painful ejaculation.

But semen colour alone cannot diagnose leukocytospermia.

Likewise, completely normal-looking semen may contain a high leukocyte concentration.

The diagnosis is made through appropriate laboratory examination.

Where Do White Blood Cells in Semen Come From?

White blood cells may enter semen because of inflammation involving different parts of the male genital or urinary tract.

Possible sites include:

Urethra

Urethritis can release inflammatory cells into seminal fluid.



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Prostate

Prostatitis can contribute inflammatory cells and inflammatory mediators.

Seminal vesicles

Inflammation of the seminal vesicles can alter seminal composition.

Epididymis

Epididymitis can cause inflammation and, in some cases, affect fertility.

Testis

Orchitis may affect both inflammation and sperm production.

The current EAU male-infertility guidance discusses urethritis, prostatitis, orchitis and epididymitis within the broader context of male genitourinary or accessory-gland infection and inflammation.

Does Leukocytospermia Always Mean Infection?

No.

This is perhaps the most important correction to the common belief about “pus cells.”

The EAU states clearly that although leukocytospermia is a sign of **inflammation**, it is **not necessarily associated with a bacterial or viral infection** and therefore cannot be used as a reliable infection marker by itself.

The AUA/ASRM guideline similarly explains that semen white blood cells may be associated either with infection or with **non-infectious inflammation**, including chronic nonbacterial prostatitis.

Therefore:

High WBCs → investigate.

It does not mean:

High WBCs → automatically prescribe antibiotics.

That difference is critical.

Possible Causes of High Pus Cells / Leukocytes in Semen

1. Bacterial Infection



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A bacterial infection affecting the prostate, urethra, epididymis or other genital structures can increase semen leukocytes.

Possible organisms depend on the clinical situation.

Routine culture is not necessary for every asymptomatic man, but when genitourinary infection is suspected, current EAU guidance supports microbiological investigation through semen culture or molecular testing where appropriate.

2. Sexually Transmitted Infections

Sexually transmitted infections may cause inflammation in the male reproductive tract.

Important examples include:

Chlamydia trachomatis

Neisseria gonorrhoeae

and in selected situations **Mycoplasma genitalium** or other organisms.

CDC guidance recommends nucleic acid amplification testing, or **NAAT**, for gonorrhoea and chlamydia when urethritis is suspected, with first-void urine being the preferred urogenital specimen for men.

If an STI is identified, the sexual partner may also require evaluation and treatment to prevent reinfection and further transmission.

3. Prostatitis

Prostatitis is one condition I carefully consider when persistent inflammatory cells are found.

A patient may additionally have:

- pelvic or perineal discomfort;
- burning urination;
- increased urinary frequency;
- discomfort after ejaculation;
- painful ejaculation;
- pain around the prostate or genital region.

Bacterial prostatitis and chronic pelvic-pain syndromes are not the same condition, however.

Some men with chronic inflammatory prostatitis have leukocytes without a proven bacterial infection.



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This is another reason antibiotics should not be prescribed indefinitely without evidence.

4. Epididymitis

Inflammation or infection of the epididymis can also affect the reproductive tract.

The patient may notice:

testicular or scrotal pain, swelling or tenderness.

CDC guidance recognizes sexually transmitted pathogens and urinary organisms as important causes of acute epididymitis depending on the clinical circumstances.

A patient with sudden severe unilateral testicular pain should not simply assume that he has an infection because **testicular torsion is an emergency** and requires urgent assessment.

5. Urethritis

Urethritis may cause:

burning while urinating, urethral irritation or discharge.

CDC guidance notes that urethritis can be infectious or noninfectious, although gonorrhoea and chlamydia remain important infectious causes.

When urethritis is suspected, the correct approach is to test appropriately rather than simply treating the semen report.

6. Inflammation Without Identifiable Infection

This is common enough that it deserves its own section.

A patient can have leukocytospermia despite negative bacterial testing.

Possible mechanisms may include nonbacterial inflammation and chronic pelvic-pain conditions.

The EAU emphasizes that leukocytospermia is not synonymous with infection and that its clinical importance remains controversial.

This is why I prefer the expression:

“inflammatory cells in semen”

rather than automatically telling every patient:

“You have pus because you have an infection.”



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How Can Leukocytes Affect Sperm?

White blood cells are biologically active.

When they are activated during inflammation, they can release inflammatory chemicals and **reactive oxygen species (ROS)**.

At excessive levels, ROS can contribute to oxidative stress.

Sperm are particularly vulnerable to oxidative damage because their cell membranes contain large amounts of polyunsaturated fatty acids and they have limited internal antioxidant protection.

The AUA/ASRM guideline notes that elevated semen WBCs can release cytokines and free radicals that **may be detrimental to sperm function**, although pyospermia itself is not a fertility test.

The WHO 2025 infertility guideline also recognizes seminal leukocytes as one possible contributor to oxidative stress, while concluding that available evidence remains insufficient to recommend routinely for or against antioxidant supplements for male infertility.

Can High Pus Cells Reduce Sperm Motility?

Potentially, particularly when significant inflammation or infection is present.

Oxidative stress and inflammatory mediators may interfere with sperm membrane function and movement.

Some genital infections are associated with reduced sperm concentration, motility or morphology.

However, the relationship is not straightforward.

The EAU notes that the clinical significance of leukocytospermia remains **controversial** and that a meta-analysis did not find leukocytospermia to be associated with reduced fertility after assisted reproduction or consistently altered semen quality in asymptomatic men without genital-tract infection.

Therefore:

A high WBC count should be taken seriously, but it should not be presented as proof that the patient is infertile.

Can High Pus Cells Damage Sperm DNA?



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Inflammation and excessive oxidative stress may contribute to sperm DNA damage.

Specific infections can also be associated with higher DNA fragmentation.

However, sperm DNA fragmentation testing is **not recommended as a routine first test for every infertile man.**

The AUA/ASRM guideline does not recommend routine sperm DNA fragmentation analysis during the initial infertility assessment.

It may become relevant in selected cases, depending on the complete reproductive history.

Does Leukocytospermia Cause Infertility?

The medically correct answer is:

Sometimes it may contribute, but leukocytospermia alone does not prove infertility.

A couple's chance of pregnancy depends on many factors:

sperm concentration, sperm motility, morphology, DNA quality, female age, ovulation, fallopian-tube function, intercourse timing and duration of infertility.

WHO emphasizes that semen analysis can assist fertility assessment but cannot by itself declare an individual man absolutely fertile or infertile. Fertility is ultimately a couple-level outcome.

Therefore, when I see high inflammatory cells in semen, I interpret them alongside the **complete semen analysis and the couple's fertility history.**

The Current WHO Reference Values for Semen Analysis

For perspective, current WHO sixth-edition reference values used in the EAU guideline include approximately:

Semen Parameter	Lower Reference Value
Semen volume	1.4 mL
Sperm concentration	16 million/mL
Total sperm number	39 million/ejaculate
Total motility	42%
Progressive motility	30%



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Semen Parameter	Lower Reference Value
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Vitality	54%
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Normal morphology	4%
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Peroxidase-positive leukocytes Less than 1 million/mL

These values are **reference percentiles, not absolute boundaries between fertile and infertile men.**

A semen report must therefore be interpreted as a pattern, not as a pass-or-fail examination.

How I Evaluate a Patient With High Pus Cells in Semen

When a patient consults me at Saira Health Care, I do not begin with an antibiotic or a fertility tonic.

I begin with questions.

I ask:

Why was the semen test done?

Was the couple experiencing infertility?

Is there burning during urination?

Pain during ejaculation?

Pelvic pain?

Urethral discharge?

Testicular pain?

Fever?

Previous STI?

Previous urinary infection?

Diabetes?

Recent urinary catheterization or surgery?

Which antibiotics have already been taken?

Has the same finding appeared repeatedly?

What are the sperm count, motility and morphology?



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This history is extremely important.

Step 1: Confirm That the Cells Are Actually Leukocytes

If a report simply states:

“Round cells increased”

or gives an unusual “pus cells per field” count, confirmation may be necessary.

The AUA/ASRM guideline recommends differentiating WBCs from immature germ cells when round cells exceed 1 million/mL.

The WHO laboratory manual provides standardized methods for detecting markers of infection and inflammatory cells in semen.

Step 2: Look for Evidence of Infection

When symptoms or examination suggest infection, further investigation may include:

urinalysis, urine culture, semen culture, molecular testing or STI testing according to the suspected source.

The EAU recommends culture or PCR analysis for common pathogens in suspected genitourinary infection rather than assuming that leukocytospermia itself identifies the organism.

If STI-related urethritis is suspected, CDC recommends NAAT testing for gonorrhoea and chlamydia.

Step 3: Evaluate the Prostate, Epididymis and Testes When Indicated

Physical examination can provide important clues.

Depending on symptoms, the clinician may assess:

the testes, epididymides, penis, prostate and urinary system.

Ultrasound is not automatically required for every man with leukocytospermia.

It should be selected according to the clinical question.

Step 4: Interpret the Entire Semen Analysis

A patient may have high leukocytes but:



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normal sperm concentration, normal motility and normal morphology.

Another may have:

leukocytospermia + severe asthenozoospermia.

Another may have:

leukocytospermia + oligozoospermia + abnormal morphology.

These situations do not carry exactly the same fertility implications.

That is why I never treat only the words “**pus cells**” while ignoring the rest of the report.

Step 5: Repeat Abnormal Semen Testing Appropriately

Semen parameters naturally vary between samples.

The new **WHO 2025 infertility guideline** suggests that when one or more semen parameters are outside WHO reference ranges, semen analysis should generally be repeated after a **minimum of 11 weeks** in the infertility evaluation.

This timing is useful because sperm production and maturation occur over many weeks.

A report taken a few days after treatment may show changes in inflammatory cells, but a meaningful assessment of overall sperm production often requires more time.

Should Semen Culture Be Done for Every Man With Infertility?

No.

The AUA/ASRM guideline notes that routine semen cultures have not been proven to benefit all infertile couples and are not routinely performed by many specialists unless pyospermia or another indication for infection evaluation is present.

Therefore, testing should be **targeted**.

Over-investigation can be just as unhelpful as under-investigation.

Modern Treatment: Treat the Cause, Not Merely the Laboratory Number

The correct treatment depends on the cause.

This is the most important treatment principle.



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Antibiotics: When Are They Necessary?

If a genuine bacterial infection is identified or strongly suspected according to accepted clinical criteria, an appropriate antibiotic may be necessary.

The choice depends on:

the organism, site of infection, resistance pattern, STI status, allergies and other patient factors.

For example, confirmed bacterial prostatitis is treated differently from gonococcal urethritis, which is treated differently again from enteric epididymitis.

Therefore, one fixed antibiotic course cannot be recommended for every case of “pus cells in semen.”

Antibiotics Should Not Be Used Automatically for Every High WBC Count

This deserves strong emphasis.

The current EAU guideline states:

There is currently no evidence that treating leukocytospermia **alone**, in the absence of identified infective organisms, improves conception rates.

The 2025 Australian evidence-based male-infertility guideline similarly recommends **against routinely using antibiotics and antioxidants solely for infertility with pyospermia to improve live-birth rates**, while still recommending appropriate treatment when a genuine genitourinary infection is present.

This distinction protects patients from unnecessary antibiotics and antimicrobial resistance.

Why Repeated Self-Medication With Antibiotics Can Be a Problem

Some patients take one antibiotic after another whenever a semen report shows pus cells.

This may:

- expose the patient to unnecessary adverse effects;
- disturb normal bacterial flora;
- increase antimicrobial resistance;
- delay diagnosis of nonbacterial prostatitis or another cause;
- create the false impression that fertility treatment is being addressed.



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An antibiotic should have a **clinical reason**.

Treatment of Sexually Transmitted Infection

When chlamydia, gonorrhoea or another STI is confirmed, treatment should follow established STI guidance.

The sexual partner may also require evaluation and treatment.

This is important because treating only one partner can lead to reinfection.

CDC guidance stresses organism-specific diagnosis, treatment and partner management for gonorrhoea and chlamydia.

Treatment of Epididymitis or Orchitis

If leukocytospermia occurs together with significant scrotal pain or swelling, the patient needs proper assessment.

Acute epididymitis may require antimicrobial treatment according to whether an STI or urinary pathogen is suspected.

Severe or sudden testicular pain should be urgently assessed because torsion or other acute conditions can mimic infection.

Nonbacterial Inflammation

Some patients have persistent inflammatory findings despite negative cultures.

These cases may involve chronic pelvic-pain or inflammatory syndromes.

The AUA/ASRM guideline recognizes that elevated WBCs can occur in chronic nonbacterial prostatitis and notes that inflammatory disease may sometimes require anti-inflammatory management rather than repeated antibiotics.

The exact treatment should be selected according to symptoms and diagnosis.

What About Antioxidants?

The biological idea is attractive.

If leukocytes produce ROS, perhaps antioxidants could protect sperm.

However, current evidence is not strong enough to recommend antioxidants universally.

The **WHO 2025 infertility guideline** reviewed the evidence and made **no recommendation either for or against antioxidant supplementation** in men with infertility and abnormal semen parameters because studies used different products, populations and doses and did not provide sufficiently reliable evidence.

Therefore, antioxidants may be considered individually, but should not be sold to patients as a guaranteed way to eliminate leukocytes or produce pregnancy.

Lifestyle and General Reproductive Health

Lifestyle treatment does not replace treatment of infection, but it can support reproductive health.

The WHO 2025 infertility guideline recommends providing appropriate lifestyle advice to individuals and couples, which can include attention to:

diet, physical activity, smoking, alcohol and weight management.

In my practice I additionally pay attention to:

sleep, hydration, diabetes control, unnecessary heat exposure, stress and overall metabolic health.

For a patient with infertility, these factors form part of a complete treatment programme.

Smoking and Inflammation

Smoking exposes the reproductive system to oxidative stress and other harmful chemicals.

A patient trying to improve sperm health should be encouraged to stop tobacco use.

The latest WHO infertility guideline also emphasizes tobacco cessation as an important fertility-health measure.

No medicine should be expected to fully compensate for ongoing harmful exposures.

Diabetes and Reproductive Infection

Diabetes can increase susceptibility to infection and affect reproductive health in several ways.

Poor glucose control may also affect sperm and sexual function.



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Therefore, when a diabetic patient has recurrent urinary or genital infection and leukocytospermia, proper diabetes management becomes an essential part of the overall strategy.

I do not consider diabetes treatment separate from fertility treatment in such a patient.

The Unani Understanding of Pus Cells in Semen

Now we come to an important part of this discussion.

The **Unani system of medicine** is a comprehensive Greco-Arab medical tradition that evaluates disease through concepts such as:

Mizaj (temperament), Akhlat (humours), Quwa (functional faculties), organ function, diet, lifestyle, elimination and psychological state.

However, I want to make an academically important clarification.

Modern leukocytospermia is a laboratory diagnosis.

It is defined by measurable inflammatory cells.

I would therefore not claim that one traditional Unani term maps perfectly onto modern leukocytospermia.

The expression “**Balgami Mani**” may appear in some contemporary descriptions of semen quality, but I would not use it as if it were scientifically identical to the finding of more than one million peroxidase-positive WBCs/mL.

These are two different explanatory frameworks.

Modern pathology talks about:

infection, inflammation, leukocytes, cytokines and oxidative stress.

Classical Unani medicine talks about:

Mizaj, Akhlat, Waram, functional disturbance and systemic balance.

A responsible integrative physician can understand both without falsely claiming that they are exactly the same.

How Unani Medicine Can Be Useful in These Patients

In my experience, the greatest value of Unani medicine is that it encourages us to treat the **patient rather than only the laboratory value.**

For example, a man may have:



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high seminal leukocytes, chronic digestive disturbance, obesity, poor sleep, recurrent urinary symptoms, stress, reduced sexual confidence and abnormal sperm motility.

Simply giving an antibiotic may treat one part of that picture.

A comprehensive programme may additionally need:

dietary correction, metabolic improvement, stress reduction, lifestyle management and appropriately selected supportive medicines.

This is where Unani medicine can be particularly useful as an **integrative and individualized system**.

The Four Main Modes of Treatment in Unani Medicine

The Central Council for Research in Unani Medicine, under the Ministry of AYUSH, officially describes four major therapeutic modes:

Ilaj-bil-Ghiza

Dietotherapy

Ilaj-bil-Tadbir

Regimental therapy

Ilaj-bil-Dawa

Pharmacotherapy

Ilaj-bil-Yad

Surgical treatment

These modes are selected according to the nature and cause of disease.

This broad therapeutic framework is useful in reproductive medicine because not every fertility problem should be treated only with drugs.

Ilaj-bil-Ghiza: Dietotherapy

Diet is an important part of my supportive approach.

However, I do not prescribe a “fertility diet” blindly.

A diabetic patient requires different advice from an underweight patient.

An obese man with fatty liver and insulin resistance needs different management from a physically weak man with nutritional deficiency.



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For men with leukocytospermia and fertility concerns, I generally prefer a balanced diet that supports:

normal body weight, metabolic health, adequate protein, micronutrient sufficiency and cardiovascular health.

I discourage the idea that a patient can clear an infection simply by eating one special fruit, herb or dry fruit.

Food supports health.

It does not replace treatment of a confirmed bacterial infection.

Ilaj-bil-Tadbir: Regimental Therapy and Lifestyle

Unani regimental care emphasizes regulation of activity, rest, sleep and other lifestyle factors.

In patients with reproductive inflammation, this may complement modern care through: appropriate exercise, adequate sleep, stress management, healthy body weight and avoidance of harmful habits.

I also encourage patients to manage chronic constipation, poor hydration and metabolic problems appropriately when these coexist.

These measures support general health but should not be described as direct replacements for antimicrobial treatment where infection is proven.

Ilaj-bil-Dawa: Unani Pharmacotherapy

Unani pharmacotherapy can be selected according to:

the patient's Mizaj, associated symptoms, urinary complaints, general vitality, digestive condition and reproductive findings.

Traditional Unani medicine contains herbs and compound formulations historically used for urinary, inflammatory and reproductive complaints.

However:

A Unani medicine should not automatically be described as an “herbal antibiotic” unless there is convincing microbiological and clinical evidence showing that it treats the specific infection involved.

Laboratory antimicrobial activity is not the same as proven clinical cure in humans.



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CCRUM has published experimental research showing antibacterial activity of some Unani formulations against urinary pathogens, illustrating scientific interest in this field, but such laboratory findings do not by themselves establish a specific medicine as a replacement for standard antimicrobial therapy in prostatitis, gonorrhoea or another confirmed infection.

What About Safed Musli, Ashwagandha and Shilajit?

These substances are commonly discussed in traditional male reproductive-health medicine.

They may be included in some programmes intended to support:

general vitality, stress adaptation or reproductive wellness.

However, I would **not** describe Safed Musli, Ashwagandha or Shilajit as scientifically proven treatments for leukocytospermia itself.

None should be used as a substitute for identifying and treating:

gonorrhoea, chlamydia, bacterial prostatitis, epididymitis or other confirmed infections.

If used, their role should be **supportive and individualized**.

Natural Does Not Mean Side-Effect Free

This is a principle I repeatedly explain at Saira Health Care.

Any biologically active substance can potentially produce:

allergy, intolerance, drug interactions or dose-related adverse effects.

Traditional medicines should therefore be selected according to:

age, diabetes, kidney health, liver health, existing medicines and overall clinical condition.

A strong Unani system does not need to claim that every traditional medicine has “zero side effects.”

Responsible prescribing makes traditional medicine stronger and safer.

Can Unani Medicine Reduce Reproductive Inflammation?

Potentially it can play a supportive role, especially when used as part of an individualized programme addressing:

diet, metabolic health, chronic inflammatory symptoms, lifestyle and general reproductive wellness.



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But we need to separate **traditional therapeutic rationale** from **proven clinical endpoints**.

At present, there is not enough high-quality evidence to state that one particular finished Unani formulation reliably reduces seminal leukocytes below 1 million/mL and increases live-birth rates in every patient.

That is an important research opportunity for the future.

The Saira Health Care Approach to Increased Pus Cells in Semen

At **Saira Health Care**, increased pus cells in semen form part of our focused work in male infertility.

The clinic's public physician profile specifically lists **increased pus cells in semen** among the fertility conditions managed within Dr. Nizamuddin Qasmi's clinical practice.

However, my preferred treatment philosophy is not:

“Pus cells are high → give the same medicine to everyone.”

My approach is more structured.

My Step-by-Step Clinical Approach

Step 1: Verify the Semen Report

I first determine:

Are these definitely white blood cells?

Were they reported as round cells?

Was the semen examined in a standardized laboratory?

Is a peroxidase test required?

Step 2: Check the Complete Fertility Profile

I review:

sperm concentration, total sperm count, progressive motility, morphology, semen volume and other relevant findings.

I do not treat leukocytes separately from the entire reproductive picture.



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Step 3: Search for the Cause

I ask about:

urinary burning, discharge, pelvic pain, painful ejaculation, testicular pain, fever, previous STIs, urinary infections, diabetes and previous treatment.

Step 4: Perform Appropriate Infection Testing

If infection is suspected, the patient may require:

urinalysis, urine culture, semen culture or PCR/NAAT testing according to the clinical circumstances.

This allows treatment to target an actual organism instead of guessing.

Step 5: Treat Proven Infection Properly

When a bacterial or sexually transmitted infection is identified, appropriate conventional antimicrobial therapy should be used when indicated.

I do not advise a patient to avoid an effective antibiotic simply because he prefers herbal medicine.

Unani treatment can support the patient, but infection control takes priority.

Step 6: Evaluate Noninfectious Inflammation

If cultures are negative and inflammatory cells remain elevated, I consider conditions such as chronic inflammatory prostatitis or pelvic-pain syndromes rather than repeatedly prescribing antibiotics.

Step 7: Assess the Patient From the Unani Perspective

I evaluate:

Mizaj, diet, digestion, sleep, activity, general strength, psychological stress and associated urinary or reproductive symptoms.

This makes treatment individual rather than mechanical.

Step 8: Provide Individualized Supportive Unani Treatment



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Traditional treatment may then be selected according to the patient's actual constitution and associated complaints.

The purpose may include:

supporting general reproductive health, improving overall vitality, correcting lifestyle and dietary factors and supporting recovery alongside treatment of the underlying disease.

Step 9: Reassess Fertility

If the initial semen analysis is abnormal, repeat testing should be planned appropriately.

The WHO 2025 infertility guideline suggests repeating abnormal semen analysis after at least **11 weeks** when assessing male-factor infertility.

This allows us to judge whether:

sperm concentration, motility and other parameters have meaningfully changed.

Why I Do Not Promise “Zero Pus Cells” to Every Patient

The goal of treatment is not simply to make one number disappear.

Consider two men.

Patient A

Has high semen leukocytes because of a proven bacterial infection.

For him, eradication of the infection is a clear objective.

Patient B

Has mild persistent leukocytospermia, negative cultures, no symptoms and otherwise satisfactory semen parameters.

For him, repeatedly giving antibiotics until the report says “0 pus cells” may provide no proven fertility benefit.

Current EAU evidence specifically states that treating leukocytospermia alone without an infective organism has not been shown to improve conception rates.

That is why medical judgment matters.

Can Treatment Improve Sperm Count and Motility?



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If an active genital-tract infection is harming sperm function, successfully treating that infection may improve semen quality.

However, improvement is not guaranteed.

The 2025 Australian evidence-based guideline notes that treating a genitourinary infection may improve sperm quality, but this does not necessarily translate into higher pregnancy or live-birth rates.

This distinction is very important when counselling couples.

A better report is encouraging.

A pregnancy is a much more complex outcome.

Can Treatment Guarantee Pregnancy?

No.

Pregnancy depends on both partners.

Even if leukocytospermia resolves completely, pregnancy may not occur if there is: severe low sperm count, tubal disease, reduced ovarian reserve, anovulation or another fertility factor.

The WHO 2025 guideline emphasizes a structured evaluation of both male and female factors rather than treating only one laboratory result.

Should the Wife Also Be Evaluated?

When a couple has infertility, yes.

Male fertility evaluation should not replace female evaluation.

The latest WHO infertility diagnostic pathway specifically emphasizes evaluation of the female partner alongside assessment of the male.

This is especially important when:

the female partner is older, ovarian reserve may be reduced, infertility has lasted several years or there are menstrual or gynecological problems.

What If an STI Is Found?

If an STI is identified, partner management becomes particularly important.



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Treating the husband while leaving an infected partner untreated can allow reinfection.

Current CDC guidance recommends appropriate partner evaluation and treatment for infections such as gonorrhoea and chlamydia.

During active infection, patients should also follow professional advice regarding sexual activity and barrier protection.

When Are Pus Cells More Concerning?

I pay greater attention when high leukocyte levels are accompanied by:

- burning urination;
- urethral discharge;
- fever;
- pelvic pain;
- painful ejaculation;
- testicular or epididymal pain;
- recurrent urinary infection;
- markedly abnormal sperm motility;
- infertility;
- positive bacterial culture or STI testing.

In such situations, simply taking fertility supplements without evaluating infection is not sufficient.

When Is Urgent Medical Assessment Required?

Most leukocytospermia is not an emergency.

However, urgent assessment is appropriate for:

sudden severe testicular pain, rapidly increasing scrotal swelling, high fever with severe illness, difficulty passing urine or severe genital pain.

Acute epididymitis, testicular torsion and other serious conditions need prompt differentiation. CDC guidance stresses that testicular torsion must remain an important consideration in men with acute scrotal pain because it is a surgical emergency.



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Common Myths About Pus Cells in Semen

“Any pus cell means infection.”

Incorrect.

Small numbers may be present, and even leukocytospermia above the accepted threshold can represent inflammation without bacterial infection.

“More than 5 pus cells per field always means I need antibiotics.”

Not necessarily.

HPF reporting is laboratory-method dependent. Diagnosis should ideally identify true WBCs and determine whether infection exists.

“High pus cells definitely cause infertility.”

No.

They may contribute in selected patients, but their relationship with fertility is complex and controversial.

“If I take antibiotics until the pus becomes zero, pregnancy will occur.”

No.

There is no evidence that treating leukocytospermia alone without infection improves conception.

“All round cells are pus.”

Incorrect.

Some round cells are immature germ cells and require differentiation from leukocytes.

“Yellow semen proves pus.”

No.

Colour alone cannot diagnose leukocytospermia.

“Herbal medicine can replace STI treatment.”

No.

Confirmed bacterial or sexually transmitted infection should receive appropriate evidence-based treatment.

“Antioxidants always improve sperm affected by pus cells.”

The current WHO infertility guideline does not make a recommendation for or against antioxidant supplementation because evidence remains insufficient.



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Frequently Asked Questions

What is the medical term for pus cells in semen?

The usual terms are **leukocytospermia, leukospermia or pyospermia** when the white-cell concentration is abnormally elevated.

What is considered high?

The WHO/EAU threshold is generally **more than 1 million peroxidase-positive white blood cells per millilitre of semen.**

My report says 8–10 pus cells/HPF. Is that severe?

The significance depends on the laboratory method.

Cells per high-power field cannot always be directly converted into the standardized per-millilitre threshold.

The complete semen report and clinical history should be reviewed.

Can prostatitis increase pus cells?

Yes.

Inflammatory and bacterial prostatic disorders can increase semen leukocytes.

Can chlamydia or gonorrhoea cause pus cells?

Yes, sexually transmitted urethral or genital infection can produce inflammation.

When suspected, NAAT testing for chlamydia and gonorrhoea is recommended.

Can pus cells reduce sperm motility?

Inflammation and oxidative stress may affect sperm function in some patients, but the relationship is inconsistent, especially in asymptomatic men.

Does high pus automatically mean sperm DNA damage?



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No.

Inflammation can contribute to oxidative stress, but DNA fragmentation is a separate parameter and is not routinely tested during the initial infertility evaluation.

Do I need antibiotics?

Only if the clinical evaluation indicates an infection or another valid reason for antibiotic treatment.

Do not self-medicate based solely on the phrase “pus cells.”

How long should antibiotics be taken?

That depends entirely on the diagnosed infection.

Urethritis, epididymitis, bacterial prostatitis and other infections have different treatment regimens.

There is no universal “pus-cell antibiotic course.”

Can Unani medicine help?

I consider Unani medicine particularly useful as **individualized supportive care** addressing the patient's Mizaj, diet, metabolic health, general vitality, lifestyle, stress and associated reproductive or urinary complaints.

However, proven bacterial infections must be appropriately treated, and Unani therapy should not delay STI treatment, treatment of acute epididymitis or other necessary medical care.

Can Safed Musli or Ashwagandha remove pus cells?

They should not be presented as proven antimicrobial treatments for leukocytospermia.

They may have roles in traditional reproductive-health formulations, but the underlying cause of high leukocytes should first be identified.

How soon should semen analysis be repeated?



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For an infertile man whose semen parameters are outside WHO reference ranges, the new WHO 2025 guideline suggests repeating semen analysis after a **minimum of 11 weeks** when reassessing male-factor infertility.

Clinical infection testing may, of course, sometimes be repeated sooner when required to assess microbiological treatment.

About Me: Dr. Nizamuddin Qasmi

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

My professional education and training 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 current public physician profile lists BUMS, MD, CGO, Certificate in Infertility and Certificate in Urology – London, UK, and specifically describes my clinical focus as including conditions such as **azoospermia, oligospermia, asthenospermia, abnormal morphology and increased pus cells in semen**.

MasterHealthPro publicly lists a **six-month Male Infertility Masters programme**, along with advanced male reproductive-health education covering semen analysis and male-infertility evaluation.

For a condition such as leukocytospermia, training in both sexual medicine and infertility is particularly relevant because the patient may not have any sexual dysfunction at all—the concern may be purely **reproductive**.

Contribution of Saira Health Care in Male Infertility and Sexual Health

At Saira Health Care, our clinical focus includes both **sexual disorders and reproductive-health conditions**.

Our public professional material specifically recognizes **increased pus cells in semen** as one of the male-infertility findings evaluated within the clinic.



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I believe our most important contribution in this area is not simply prescribing another medicine.

It is helping patients understand:

what their semen report actually means, whether infection is really present, whether sperm quality is being affected and what treatment is medically justified.

Saira Health Care describes its broader philosophy as providing a safe and non-judgmental environment for sexual and infertility concerns, using individualized traditional care together with contemporary medical knowledge.

That approach is especially useful in fertility medicine because patients frequently arrive after months of self-treatment based on a single semen value.

My Treatment Philosophy at Saira Health Care

When I see leukocytospermia, my goal is not simply:

“Reduce the laboratory pus count.”

My goals are broader:

Confirm the finding

Are the cells really leukocytes?

Find the cause

Infection or noninfectious inflammation?

Protect reproductive health

Are sperm count, motility or morphology affected?

Treat infection when present

Use appropriate evidence-based antimicrobial treatment where required.

Avoid unnecessary antibiotics

Do not repeatedly prescribe them solely because inflammatory cells remain elevated.

Apply Unani principles individually

Correct diet, lifestyle, Mizaj-related considerations and associated general-health problems.

Monitor appropriately

Repeat laboratory assessment when clinically meaningful.



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Treat the couple, not one report

Consider female reproductive factors and the couple's pregnancy goals.

That, in my opinion, is the difference between simply treating a laboratory number and practicing comprehensive infertility medicine.

Prognosis

The outlook depends on the underlying cause.

Infection-related leukocytospermia

When the responsible infection can be identified and treated, inflammation and sperm parameters may improve.

Nonbacterial inflammatory leukocytospermia

Management can be more complex and may require treatment of chronic inflammatory or pelvic-pain conditions rather than repeated antibiotics.

Asymptomatic isolated leukocytospermia

Some men have persistent leukocytes without clear infection and without major semen abnormalities. Current evidence does not establish that simply eliminating leukocytes improves conception.

Leukocytospermia with poor sperm quality

These patients need a complete male-infertility assessment rather than treatment of inflammatory cells alone.

The prognosis should therefore be based on the **cause and the complete fertility profile**, not simply the number of pus cells.

Conclusion

Pus cells in semen are one of the most commonly misunderstood findings in male fertility reports.

The first important fact is:

“Pus cells” usually refers to white blood cells or leukocytes, and not every round cell seen under a microscope is actually a white blood cell.

The AUA/ASRM guideline specifically recommends differentiating true WBCs from immature germ cells when round-cell counts are elevated.



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The second important fact is:

Leukocytospermia means inflammation, but inflammation does not automatically mean bacterial infection.

Current EAU guidance defines leukocytospermia as more than **1 million white blood cells per millilitre** and emphasizes that it is not a reliable marker of infection by itself.

The third important fact is:

High seminal leukocytes may contribute to oxidative stress and potentially impair sperm function, but they do not automatically diagnose male infertility.

Modern evidence regarding their independent effect on natural conception and assisted reproduction remains mixed.

The fourth important fact is:

Antibiotics should treat an infection—not simply a laboratory number.

The EAU states that there is currently no evidence that treating leukocytospermia alone without identified infective organisms improves conception rates.

When infection is suspected, the correct approach may involve microbiological investigation. STI-related disease may require NAAT testing and partner treatment according to established guidance.

For men experiencing infertility, the new **WHO 2025 global infertility guideline** reinforces a structured approach based on medical history, examination and standardized semen analysis. When semen parameters are outside WHO reference ranges, repeat testing after a minimum of approximately 11 weeks is suggested.

The **Unani system of medicine** can make a meaningful contribution because it encourages individualized care through **Ilaj-bil-Ghiza, Ilaj-bil-Tadbir, Ilaj-bil-Dawa and, where required, Ilaj-bil-Yad**, while considering the patient's constitution and general health rather than only one laboratory result.

But I believe responsible Unani medicine must be integrated intelligently.

A patient with gonorrhoea needs appropriate STI treatment.

A patient with bacterial prostatitis requires suitable antimicrobial management.

A patient with acute epididymitis needs timely treatment.

A patient with nonbacterial inflammation should not be given endless courses of antibiotics.

And a patient with abnormal sperm count, motility and morphology requires a proper infertility evaluation.



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At Saira Health Care, my approach as Dr. Nizamuddin Qasmi is therefore:

First confirm whether the “pus cells” are truly leukocytes. Then determine whether there is infection or noninfectious inflammation. Review the complete semen analysis and fertility history, investigate the reproductive tract where necessary, treat proven infection appropriately, and add individualized Unani diet, lifestyle and supportive treatment according to the patient's overall condition. Finally, reassess fertility rather than judging success only from one laboratory number.

This is the message I want every patient to remember:

Do not panic because your semen report contains the words “pus cells.” Do not take repeated antibiotics without knowing the cause, and do not assume that you are infertile. Leukocytospermia is a laboratory finding that needs interpretation. In many patients, once the underlying cause is correctly identified, appropriate treatment and follow-up can provide a much clearer path toward better reproductive health.

Medical Disclaimer

This article is intended for **general medical education, male reproductive-health awareness and discussion of integrative Unani care**. It does not replace an individualized consultation, examination, semen analysis, microbiological investigation or fertility assessment.

A semen report showing increased round cells or “pus cells” should be interpreted by an appropriately qualified healthcare professional. Not every round cell is a leukocyte, and leukocytospermia does not automatically indicate bacterial infection.

Do not self-medicate with antibiotics, anti-inflammatory medicines, herbal preparations or fertility supplements solely on the basis of a semen report.

Confirmed sexually transmitted or bacterial infections should receive appropriate evidence-based treatment. Sexual partners may also require evaluation when an STI is identified.

Traditional Unani medicines and herbal products contain biologically active substances and may cause adverse effects or interactions in some individuals.

No antibiotic, antioxidant, herbal preparation, Unani formulation or fertility programme can responsibly guarantee elimination of all seminal leukocytes, normalization of sperm parameters or pregnancy in every couple.



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