

Male Infertility

CASE DISCUSSION SERIES -3

(Virtual Clinic)

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Terminology

- Oligospermia
- Azoospermia
- Asthenospermia
- Teratospermia
- Pyospermia
- Hematospermia

Semen analysis: WHO, 2010

Parameter	Lower reference limit
Volume	1.5 ml
pH	7.2
Concentration	15 million/ml
Total sperm number	39 million/ejaculate
Total motility: (PR+NP)	40% or PR: 32%
Vitality	58% live spermatozoa
Normal forms	4% (strict criteria).

Parameter**State**

Liquefaction : Entire. 60 Min at 37.0 °C
 Color and Smell : Gray, Opaque (Milky) ,
 Viscidity : Normal
 Agglutination : None
 Aggregation : None

Main Parameters

Parameter	Result	Status	Normal Values
Semen Volume (ml)	3.50	Normal	More than 2
Semen pH	7.50	Normal	7.2 - 8.0
Sperm Density (Mill/ml)	61.02	Normal	More than 20
Motile Sperms (%)	69.77	Normal	More than 60
Progressive Sperms (%)	56.98	Normal	A ≥ 25% or A+B ≥ 50%
Round Cell (Mill/ml)	0.12	Normal	0-1
WBC Density (Mill/ml)	--	Abnormal	0-1
Normal Morphology (%)	74.00	Normal	More than 40

Comments**Speed Assessment (W.H.O)**

Class	Percent
A (Rapid Progressive)	13.02
B (Slow Progressive)	43.95
C (Non Progressive)	12.79
D (Immotile)	30.23

**Other WHO Dynamic Parameters**

Parameter	Description	Value
VCL (µm/S)	Curvilinear Velocity	27.89
VSL (µm/S)	Straight line Velocity	9.90
VAP (µm/S)	Path Velocity	19.72
MAD (°)	Angular Displacement	24.54
ALH (µm)	Lateral Displacement	1.35
BCF (Hz)	Beat cross frequency	3.07
LIN (%)	Linearity (VSL/VCL)	25.51
WOB (%)	Wobble (VAP/VCL)	49.94
STR (%)	Straightness (VSL/VAP)	35.25

men Analysis

Test Result Unit Risk Normal Range

Semen Analysis

Volume
Liquefact
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PH
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Rapid Pro
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Immotili
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MSC(*1
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FSC(*4
Velocit
Sperm

LESSONS
LEARNED



(ref) MSC M
(ref) PMSCa
(ref) PMSCb

(ref) FSC Functiona Sperm Concentration

Case One

- A 29 year old man
- 3 years married
- 2 years wishing to have a child
- Wife 28, menses and primary evaluations: normal

What more information you need?

History

- Occupation
- Familial history
- Past medical history
- Habits / Drugs
- Body Mass Index
- Coitus: frequency, dysfunction

Physical exam

- General Exam
- Secondary Sex Characteristics
- Body Stature
- Skin hair
- Abdominal exam
- Genital Exam
 - *Penile deformities / anomalies*
 - *Testicles (size, texture, location)*
 - *Epididymis*
 - *Vas deferens*

Positive Findings

- Occupation **car painter**
- Familial history **negative**
- Past medical history **nothing special**
- Habits / Drugs **Smoker, 5/day**
- Body Mass Index **31**
- Coitus: frequency, dysfunction **once a week/no**

- General Exam **normal**
- Secondary Sex Characteristics **normal**
- Body Stature **normal**
- Skin hair **normal**
- Abdominal exam **normal**
- Genital Exam

What's
next



Semen Analysis Report

Name : Amir Sedigh Age : 47 Sampling Time : 1397/01/30 09:28
 Case No. : 87-49020 Collection : Masturbation Analysis Time : 1397/01/30 09:53
 Physician : Dr Vaezi Abstinence : 3

Visual Inspection

Parameter	State
Liquefaction :	80 Min at 37.0 °C
Color and Smell :	Gray, Opaque , Fishy smell
Viscosity :	High
Agglutination :	None
Aggregation :	None

Main Parameters

	Result	Status	Normal Values
Semen Volume (ml)	1.60	Abnormal	More than 2
Semen pH	7.50	Normal	7.2 - 8.0
Sperm Density (Mill/ml)	7.36	Abnormal	More than 20
Mobile Sperms (%)	17.86	Abnormal	More than 60
Progressive Sperms (%)	17.86	Abnormal	A: 25% or A+B: 50%
Round Cell (Mill/ml)	0.19	Normal	0-1
Normal Morphology (%)	29.00	Abnormal	More than 40

Sample Field View

Speed Assessment (W.H.O)

Class	Percent
A (Rapid Progressive)	0.00
B (Slow Progressive)	17.86
C (Non Progressive)	0.00
D (Immotile)	82.14



Other WHO Dynamic Parameters

Parameter	Description	Value
VCL ($\mu\text{m/s}$)	Crosslinear Velocity	3.73
VSL ($\mu\text{m/s}$)	Straight line Velocity	2.64
VAP ($\mu\text{m/s}$)	Path Velocity	3.22
MAD (°)	Angular Displacement	1.42
ALH (μm)	Lateral Displacement	0.20
BCF (Hz)	Beal cross frequency	0.34
LIN (%)	Linearity (VSL/VCL)	12.72
WOB (%)	Wobble (VAP/VCL)	15.47
STR (%)	Straightness (VSL/VAP)	14.56

Semen Analysis

What is your Recommendation?

Visual Inspection		Speed Assessment (W.H.O)	
Parameter	State	Class	Percent
Liquefaction :	Entire , 30 Min at 37.0 °C	A (Rapid Progressive)	0.00
Color and Smell :	Gray,Opaque , Fishy smell	B (Slow Progressive)	0.00
Viscosity :	Normal	C (Non Progressive)	0.00
Agglutination :	None	D (Immotile)	100.00
Aggregation :	None		
Main Parameters			
	Result	Status	Normal Values
Semen Volume (ml)	3.30	Normal	More than 2
Semen pH	7.60	Normal	7.2 – 8.0
Sperm Count (Mill/ml)	2.42	Abnormal	More than 20
Motile Sperms (%)	0.00	Abnormal	More than 60
Progressive Sperms (%)	0.00	Abnormal	A≥ 25% or A+B≥ 50%
Round Cell (Mill/ml)	0.73	Normal	0-1
WBC (/HPF)	0-1	Normal	0-1
Normal Morphology (%)	0.00	Abnormal	More than 40
Comments		Other WHO Dynamic Parameters	
Parameter	Description	Value	
VCL (µm/S)	Curvilinear Velocity	0.00	
VSL (µm/S)	Straight line Velocity	0.00	
VAP (µm/S)	Path Velocity	0.00	
MAD (D)	Angular Displacement	0.00	
ALH (µm)	Lateral Displacement	0.00	
BCF (Hz)	Beat cross frequency	0.00	
LIN (%)	Linearity (VSL/VCL)	0.00	
WOB (%)	Wobble (VAP/VCL)	0.00	
STR (%)	Straightness (VSL/VAP)	0.00	

What now?

- **Varicocele Surgery... patient asks:**
 - How is it done?
 - What types of operation is possible?
 - Which is the best option?
 - When should we expect the Spermogram to progress?

Case Two

- A 22 year old man, came with his close friend (another man)
- Single, Concerned about fertility
- Is planning marriage, Needs assurance
- Has a laboratory test sheet in hand
- Occupation: farmer
- Education: elementary



First thing to do?

Positive Findings

- History of hernia operation at childhood (7 years of age)
- Normal Secondary Sex Characteristics
- Bilateral Inguinal Incision Scars
- Normal Penis
- Severely Atrophic Testicles
- Vas Deferens Palpable

Semen Analysis

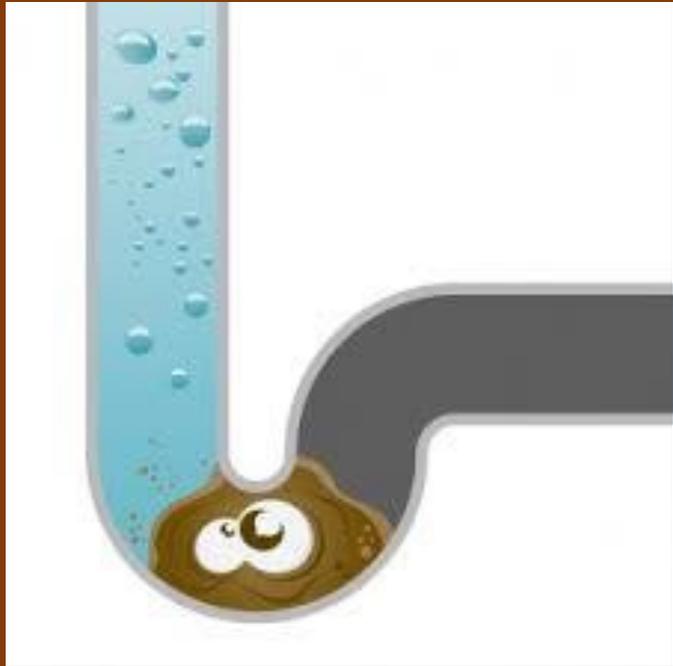
Semen Analysis

<u>Test</u>	<u>Result</u>	<u>Unit</u>	<u>Refrence Range</u>
<i>Semen Analysis</i>			
Volume	3.9	ml	3 - 7
Color & Appearence	Grey & opaque		Grey & opaque
viscosity	Ab Normol		high & Gelatinous
pH	Alkaline		7.2 - 8
Liquefaction time	After 2 hours	min	15 - 20
count per ml	Zero		60 - 150
Non motile	-	%	less than 25%
Motility(fast)	-	%	More than 70%
Motility (Sluggish)	-	%	
W.B.C.	0-1	HPF	Occasional
R.B.C	0-1	HPF	Occasional
Epithelial Cells	1-2	HPF	Few
Spermatocyte	-	%	
Abnormal form		%	Less than 25%

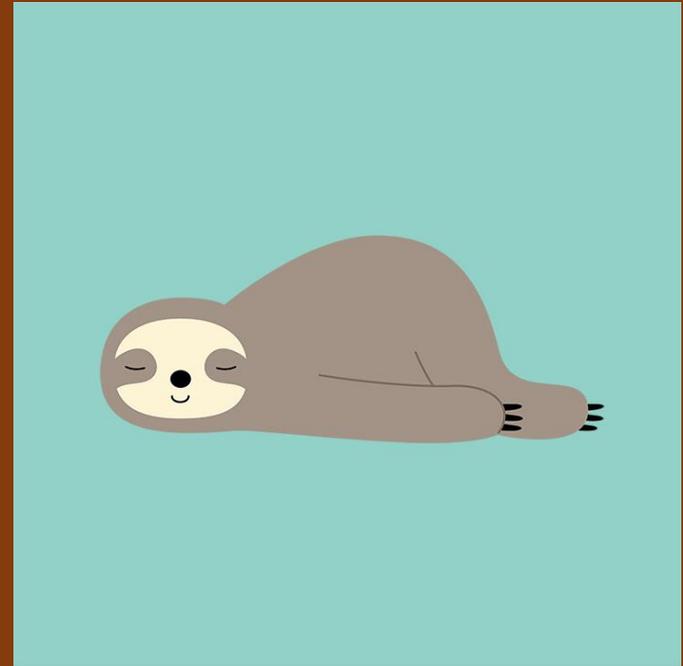
ab Director

Two main types of Azoospermia

obstructive



non-obstructive



Which one is more possible in this patient?

- **What can help?**
- FSH: 28 (normal up to 12) mIU/mL
- LH: Normal
- Testosterone: Normal



**What
Next?**

Assisted Reproductive Techniques (ARTs)



- IUI
- IVF
- ICSI (microinjection)
- Egg Donation
- Sperm Donation
- Surrogacy

Case Three

- A 41 year old man
- Married for 8 years
- Planning for a child since 4 years ago
- Wife 34. normal in several evaluations
- Numerous sono's, spermograms: nothing special found
- Several medical treatments ineffective
- No risk factor, no drug, no tobacco, no alcohol
- Normal physical exam
- Anxious and tired

Last Spermograms (2 & 6 months ago)

Semen Analysis

Test	Result	Unit	Normal Range
Semen Analysis			
Volume	2cc	ml	2 ml or more
Color	Milky		
Viscosity	Normal		
Liquefaction	15	min	15-30 minutes
PH	7.5		7.2 - 8
Sperm count(ml)	90x10 ⁶		15x10 ⁶ or more
Sperm count(total)	180x10 ⁶	%	22x10 ⁶ or more
Motility(total)	50	%	40% or more
Activity(Motility)	20	%	Over 30%
Grade(A) High progressive%	0		
Grade(B) Low progressive%	20%		
Grade(C) NO progressive%	30%		
Grade(D) Immotile	50%	%	
Normal morphology	4%		4% or more
Abnormal morphology	96%		

Main Parameters (W.H.O - 2010)

MainParameters	Unit	Result	State	Normal Values
Semen Volume	ml	1.4	Abnormal	>= 1.5
Semen PH	-	8	Normal	7.2 =< N <= 8
Motility	%			>= 58
Sperm Count (Density)	M/ml	34.5	Normal	>= 15
Progressive (A + B)	%	29.5	Abnormal	>= 40
Motile (A + B + C)	%	43	Abnormal	>= 50
Round Cell	M/ml	0	Normal	< 1
Germ Cell	M/ml	0	Normal	< 1
WBC	M/ml	1.7	Abnormal	< 1
RBC	M/ml	1.2	Abnormal	< 1
Normal Morphology	%	40	Normal	>= 4
TZI	-	1	---	---

Idiopathic Infertility

- DNA Fragmentation Index (DFI)
- Empirical Treatment
- Considerations and preferences of the couple
- ART

Thanks for your attention

