Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

TEST PERFORMED AT KOS DIAGNOSTIC LAB, AMBALA CANTT.

NAME	**: Mr. TARUN**		
AGE/ GENDER	: 26 YRS/MALE	**PATIENT ID**	: 1751353
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012502100025**
REFERRED BY	: ROTARY HOSPITAL (AMBALA CANTT)	**REGISTRATION DATE**	: 10/Feb/2025 11:31 AM
BARCODE NO.	: 01525267	**COLLECTION DATE**	: 10/Feb/2025 11:33AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 10/Feb/2025 01:00PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

ENDOCRINOLOGY

LUTEINISING HORMONE (LH)

LUTEINISING HORMONE (LH): SERUM *by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)*	**19.3^{H}**	mIU/mL	MALES: 0.57 - 12.07 FOLLICULAR PHASE: 1.80 - 11.78 MID-CYCLE PEAK: 7.59 - 89.08 LUTEAL PHASE: 0.56 - 14.0 POST MENOPAUSAL WITHOUT HRT: 5.16 - 61.99

INTERPRETATION:

1. Luteinizing hormone (LH) is a glycoprotein hormone consisting of 2 non covalently bound subunits (alpha and beta). Gonadotropin-releasing hormone from the hypothalamus controls the secretion of the gonadotropins, FSH and LH, from the anterior pituitary.
2. In both males and females, LH is essential for reproduction. In females, the menstrual cycle is divided by a mid cycle surge of both LH and FSH into a follicular phase and a luteal phase.
3. This "LH surge" triggers ovulation thereby not only releasing the egg, but also initiating the conversion of the residual follicle into a corpus luteum that, in turn, produces progesterone to prepare the endometrium for a possiblei mplantation.
4. LH supports thecal cells in the ovary that provide androgens and hormonal precursors for estradiol production. LH in males acts on testicular interstitial cells of Leydig to cause increased synthesis of testosterone.

The test is useful in the following situations:

1. An adjunctin the evaluation of menstrual irregularities.
2. Evaluating patients with suspected hypogonadism
3. Predicting ovulation & Evaluating infertility
4. Diagnosing pituitary disorders
5. In both males and females, primary hypogonadism results in an elevation of basal follicle-stimulating hormone and luteinizing hormone levels.

FSH AND LH ELEVTED IN:

1. Primary gonadal failure
2. Complete testicular feminization syndrome
3. Precocious puberty (either idiopathic or secondary to a central nervous system lesion)
4. Menopause
5. Primary ovarian hypo dysfunction in females
6. Polycystic ovary disease in females
7. Primary hypogonadism in males

LH IS DECREASED IN:

1 .Primary ovarian hyper function in females
2. Primary hypergonadism in males

NOTE

1 .FSH and LH are both decreased in failure of the pituitary or hypothalamus.

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Test Name	Value	Unit	Biological Reference interval

FOLLICLE STIMULATING HORMONE (FSH)

FOLLICLE STIMULATING HORMONE (FSH): SERUM *by CLIA (CHEMILUMINESCENCE IMMUNOASSAY)*	5.47	mIU/mL	FEMALE FOLLICULAR PHASE: 3.03 - 8.08 FEMALE MID-CYCLE PEAK: 2.55 - 16.69 FEAMLE LUTEAL PHASE: 1.38 - 5.47 FEMALE POST-MENOPAUSAL: 26.72 - 133.41 MALE: 0.95 - 11.95

INTERPRETATION:

1. Gonadotropin-releasing hormone from the hypothalamus controls the secretion of the gonadotropins, follicle-stimulating hormone (FSH) and luteinizing hormone (LH) from the anterior pituitary.
2. The menstrual cycle is divided by a midcycle surge of both FSH and LH into a follicular phase and a luteal phase.
3. FSH appears to control gametogenesis in both males and females.

The test is useful in the following settings:

1. An adjunct in the evaluation of menstrual irregularities.
2. Evaluating patients with suspected hypogonadism.
3. Predicting ovulation
4. Evaluating infertility
5. Diagnosing pituitary disorders
6. In both males and females, primary hypogonadism results in an elevation of basal follicle-stimulating hormone (FSH) and luteinizing hormone (LH) levels.

FSH and LH LEVELS ELEVATED IN:

1. Primary gonadal failure
2. Complete testicular feminization syndrome.
3. Precocious puberty (either idiopathic or secondary to a central nervous system lesion)
4. Menopause (postmenopausal FSH levels are generally >40 IU/L)
5. Primary ovarian hypofunction in females
6. Primary hypogonadism in males

NOTE:

1. Normal or decreased FSH is seen in polycystic ovarian disease in females
2. FSH and LH are both decreased in failure of the pituitary or hypothalamus.

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Test Name	Value	Unit	Biological Reference interval

TESTOSTERONE: TOTAL

TESTOSTERONE - TOTAL: SERUM	4.37	ng/mL	0.47 - 9.80

by CMIA (CHEMILUMINESCENT MICROPARTICLE IMMUNOASSAY)

INTERPRETATION:

1.Testosterone is secreted in females by the ovary and formed indirectly from androstenedione in adrenal glands.
2.In males it is secreted by the testes. It circulates in blood bound largely to sex hormone binding globulin (SHBG). Less than 1% of the total testosterone is in the free form.
3.The bioavailable fraction includes the free form and that "weakly bound" to albumin (40% of the total in men and 20% of the total in women) and bound to cortisol binding globulin (CBG). It is the most potent circulating androgenic hormone.
4.The total testosterone bound to SHBG fluctuates since SHBG levels are affected by medication, disease, sex steroids and insulin.

CLINIC USE:

1.Assesment of testicular functions in males
2.Management of hirsutism and virilization in females

INCREASED LEVELS:

1.Precocious puberty (Males)
2.Androgen resistance
3.Testoxicosis
4.Congenital Adrenal Hyperplasia
5.Polycystic ovarian disease
7.Ovarian tumors

DECREASED LEVELS:

1.Delayed puberty (Males)
2.Gonadotropin deficiency
3.Testicular defects
4.Systemic diseases

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CLINICAL PATHOLOGY

SEMEN ANALYSIS/SEMINOGRAM

Test Name	Value	Unit	Biological Reference interval
PHYSICAL EXAMINATION			
TIME OF SPECIMEN COLLECTION	10-02-2025	AM/PM	
DURATION OF ABSTINENCE	3 DAYS	DAYS	2 - 7
TYPE OF SAMPLE	FRESH		
LIQUIFACTION TIME AT 37*C	<30 MINS	MINS	30 - 60
VOLUME	1	ML	
COLOUR	WHITISH OPAQUE		WHITISH OPAQUE
VISCOSITY	VISCOUS		VISCOUS
pH	**8^H**		5.0 - 7.5
AUTOMMATED SEMEN ANALYSIS, GOLD STANDARD, WHO APPROVED (SQA GOLD)			
TOTAL SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	20.6	Millions/mL	12 - 16
TOTAL MOTILITY (GRADE A + GRABE B + GRADE C) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	40	%	> = 42.0
RAPIDLY PROGRESSIVE MOTILITY (GRADE A) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	4	%	> = 30.0
SLOWLY PROGRESSIVE MOTILITY (GRADE B) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	7	%	>= 30
NON PROGRESSIVE MOTILITY (GRADE C) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	29	%	<= 1
IMMOTILE *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	60	%	
MORPHOLOGY NORMAL *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	2	%	> = 4.0
MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	8.2	Millions/mL	> = 6.0
RAPIDLY PROGRESSIVE MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	0.8	Millions/mL	> = 5.0
SLOWLY PROGRESSIVE MOTILE SPERM CONCENTRATION *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	1.5	Millions/mL	
FUNCTIONAL SPERM CONCENTRATION	0.1	Millions/mL	

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Test Name	Value	Unit	Biological Reference interval
by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM			
VELOCITY (AVERAGE PATH VELOCITY) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	9	Mic/sec	> = 5
SPERM MOTILE INDEX (SMI) *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	18		> = 80
TOTAL PER EJACULATION			
TOTAL SPERM NUMBER *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	20.6	Millions/ejc.	> = 39.0
TOTAL MOTILE SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	0.2	Millions/ejc.	> = 16.0
TOTAL PROGRESSIVE MOTILE SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	2.2	Millions/ejc.	> = 12.0
TOTAL FUNCTIONAL SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	0.1	Millions/ejc.	
TOTAL MORPHOLOGY NORMAL SPERM *by ELECTRO-OPTICS SIGNAL & COMPUTER ALOGRITHM*	0.4	Millions/ejc.	> = 2.0
MANUAL MICROSCOPY AND MORPHOLOGY			
VITALITY *by MICROSCOPY*	67	%	
RED BLOOD CELLS (RBCs) *by MICROSCOPY*	NOT DETECTED	/HPF	NOT DETECTED
PUS CELLS *by MICROSCOPY*	2-4	/HPF	0 - 5
AGGLUTINATES *by MICROSCOPY*	NOT DETECTED		NOT DETECTED
AMORPHOUS DEPOSITS/ROUND CELLS/DEBRIS *by MICROSCOPY*	NOT DETECTED		NOT DETECTED
BACTERIA *by MICROSCOPY*	NEGATIVE (-ve)		NEGATIVE (-ve)
HEAD DEFECTS *by MICROSCOPY*	38	%	
PIN HEADS *by MICROSCOPY*	9	%	
NECK AND MID-PIECE DEFECTS *by MICROSCOPY*	29	%	
TAIL DEFECTS *by MICROSCOPY*	19	%	

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Test Name	Value	Unit	Biological Reference interval
CYTOPLASMIC DROPLETS *by MICROSCOPY*	2	%	
ACROSOME/NUCLEUS DEFECTS *by MICROSCOPY*	1	%	
CHEMICAL EXAMINATION			
SEMEN FRUCTOSE (QUALITATIVE) ***by QUALITATIVE METHOD USING RESORCINOL***	**POSITIVE (+ve)**		**POSITIVE (+ve)**

INTERPRETATION:

1.Fructose is the energy source for sperm motility. A positive fructose is considered normal.
2.Azoospermia and fructose negative results may indicate an absence of seminal vesicles / vas deferens in the area of seminal vesicles / obstruction of seminal vesicles.

*** End Of Report ***

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