TEST PERFORMED AT KOS DIAGNOSTIC LAB, AMBALA CANTT.

NAME	**: Mr. AMRIK SINGH**		
AGE/ GENDER	: 92 YRS/MALE	**PATIENT ID**	: 1641325
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012410120008**
REFERRED BY	: DR. AJAY PANWAR	**REGISTRATION DATE**	: 12/Oct/2024 08:49 AM
BARCODE NO.	: 01518730	**COLLECTION DATE**	: 12/Oct/2024 09:08AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 16/Oct/2024 09:13AM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

SPECIAL INVESTIGATIONS

ANTI NUCLEAR ANTIBODY/FACTOR (ANA/ANF) - WITH REFLEX TO TITRES: IFA (HEP-2)

ANTI NUCLEAR ANTIBODY (ANA) - IFA, HEp2 *by IFA (IMMUNO FLUORESCENT ASSAY)*	NEGATIVE (-ve)	NEGATIVE (-ve)

INTERPRETATION:

1.Anti Nuclear antibody (ANA) in dilutions is recommended for all positive results and follow up

2.Immunofluorescence microscopy using human cellular extracts like HEp-2 cells is a sensitive test for detection of serum antibodies that react specifically with various cellular proteins and nucleic acids

3.Test conducted on Serum

INTERPRETATION GUIDELINES : (Sample screening Dilution - 1:100):

Negative : No Immunofluorescence

+ : Weak Positive (1:100)

++ : Moderate Positive (1:320)

+++ : Strong Positive (1:1000)

++++ : Very strong Positive (1:3200)

COMMENTS:

Anti Nuclear antibody (ANA / ANF) is a group of autoantibodies directed against constituents of cell nuclei including DNA, RNA & various nuclear proteins. These autoantibodies are found with high frequency in patients with connective tissue disorders specially SLE. Since positive ANA results have been reported in healthy individuals, these reactivities are not by themselves diagnostic but must be correlated with other laboratory and clinical findings.

PATTERN	DISEASE ASSOCIATION
NUCLEAR	
Homogenous	SLE & other connective tissue disorders, Drug induced SLE
Peripheral	SLE & other connective tissue disorders
Speckled Coarse	Mixed connective Tissue Disorders (MCTD), Scleroderma-Polymyositis Overlap Syndrome, Raynauds Phenomenon, Psoariasis, Sjogrens Syndrome, Systemic Sclerosis.

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Test Name	Value	Unit	Biological Reference interval
Speckled Fine	SLE,Sjogrens syndrome,Scleroderma,Myositis,MCTD		
NUCLEAR DOTS			
Few	Auto-immune & Viral disease- Primary Biliay Cirrhosis & Chronic Active Hepatitis, Rarely Collagen Vascular disease		
Multiple	Primary Biliary Cirrhosis (>30%)		
Centromere	CREST syndrome, Progresive Systemic Sclerosis		
NUCLEOLAR			
Homogeneous	Scleroderma, Myositis, Raynauds Phenomena, SLE & Rheumatoid arthiritis		
Clumpy	Systemic sclerosis & Scleroderma		
CYTOPLASMIC			
Mitochondrial	Primary Biliary Cirrhosis,Scleroderma & Overlap syndrome		
Ribosomal	SLE (10-20%)		

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IMMUNOTYPING/IMMUNOFIXATION ELECTROPHORESIS (IFE) QUALITATIVE: SERUM

ELECTROPHORETIC ZONE

Test Name	Value	Unit	Biological Reference interval
IMMUNOGLOBIN-G (IgG): SERUM *by IMMUNOFIXATION - AGAROSE GEL ELECTROPHORESIS*	ABSENT		ABSENT
IMMUNOGLOBIN-M (IgM): SERUM *by IMMUNOFIXATION - AGAROSE GEL ELECTROPHORESIS*	ABSENT		ABSENT
IMMUNOGLOBIN-A (IgA): SERUM *by IMMUNOFIXATION - AGAROSE GEL ELECTROPHORESIS*	ABSENT		ABSENT
KAPPA - FREE LIGHT CHAIN: SERUM *by IMMUNOFIXATION - AGAROSE GEL ELECTROPHORESIS*	ABSENT	mg/dL	629.0 - 1350.0
LAMBDA - FREE LIGHT CHAIN: SERUM *by IMMUNOFIXATION - AGAROSE GEL ELECTROPHORESIS*	ABSENT	mg/dL	313.0 - 723.0
MYELOMA (M) BAND/SPIKE *by IMMUNOFIXATION - AGAROSE GEL ELECTROPHORESIS*	ABSENT	gm/dL	
INTERPRETATION	NO MONOCLONAL GAMMOPATHY SEEN.		

INTERPRETATION:

BAND IN SERUM PROTEIN ELECTROPHORESIS	SERUM IMMUNOFIXATION		RESULT
	Anti heavy chain antisera (IgG/ IgM/IgA)	Anti Light chain Kappa/Lambda	
REMARK 1: 1 BAND PRESENT	+	+	Presence of monoclonal
REMARK 2: 1 BAND PRESENT	-	+	1.Light chain disease,suggest urine Immunofixation 2.IgD or IgE disease 3.Multiple bands in lambda region indicates polymerised form
REMARK 3: 1 BAND PRESENT	+	-	Heavy Chain Disease
REMARK 4: FAINT BAND PRESENT	Faint Band	-	Cryoglobulin
REMARK 5: 2 BANDS PRESENT	2 band with same or different anti-heavy chain sera	2 band with same different anti-light chain sera	1. Biclonal gammopathy 2. Paraprotein monomer/polymer of Immunoglobulins).

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Test Name	Value	Unit	Biological Reference interval

1. High resolution serum protein electrophoresis does not reveal the presence of any abnormal bands. No 'M' spike seen.
2. Immunofixation (IFE) identifies polyclonal gamma globulin to consist mainly of IgG, kappa and Lambda with fair amount of IgA.
Also available: Serum IgG, IgA and IgM levels (Quantitative).

NOTE: Immunofixation is a Qualitative assay which cannot quantify monoclonal protein if detected.

COMMENT:

Immunofixation electrophoresis (IFE) is used for immunotyping of monoclonal proteins which identifies the monoclonal immunoglobulin heavy-chain (gamma, alpha, mu) and/or light-chain type (kappa or lambda). It is generally recommended that both serum Protein electrophoresis (SPEP) and IFE be used as a screening panel because IFE is more sensitive than SPEP. IFE is not only recommended as part of the initial screening process but also for confirmation of complete response to therapy.

USES:

1. Identification of monoclonal immunoglobulin heavy and light chains.
2. Documentation of complete response to therapy

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PROTEIN ELECTROPHORESIS: SERUM

Test Name	Value	Unit	Biological Reference interval
TOTAL PROTEINS: SERUM *by MIGRATION GEL ELECTROPHORESIS*	7.6	gm/dL	6.20 - 8.00
ALBUMIN: SERUM *by MIGRATION GEL ELECTROPHORESIS*	4.22	gm/dL	3.50 - 5.50
A : G RATIO: SERUM *by MIGRATION GEL ELECTROPHORESIS*	1.25	RATIO	1.00 - 2.00
ALPHA 1 GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	0.24	gm/dL	0.11 - 0.40
ALPHA 2 GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	0.73	gm/dL	0.43 - 1.03
BETA 1 GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	0.48	gm/dL	0.30 - 0.59
BETA 2 GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	0.4	gm/dL	0.20 - 0.53
GAMMA GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	1.53	gm/dL	0.75 - 1.80
MYELOMA (M) BAND/SPIKE *by MIGRATION GEL ELECTROPHORESIS*	NO MONOCLONAL BAND SEEN	gm/dL	
INTERPRETATION	Protein electrophoresis shows normal pattern.		
ADVICE	**KINDLY CORRELATE CLINICALLY**		

INTERPRETATION:

1.Serum protein electrophoresis is commonly used to identify patients with multiple myeloma and disorders of serum proteins.
2.Electrophoresis is a method of separating proteins based on their physical properties. the pattern of serum protein electrophoresis results depends on the frations of 2 types of protein : albumin and globulin (alpha 1 alpha2, beta and gamma.)
3.A homogeneous spike-like peak in a focal region of the gamma-globulin zone indicates a monoclonal gammopathy.
4.Monoclonal gammopathies are associated with a clonal process that is malignant or potentially malignant, including multiple myeloma, Waldenstrom macroglobulinemia, solitary plasmacytoma, smoldering multiple myeloma, monoclonal gammopathy of undetermined significance, plasma cell leukemia, heavy chain disease, and amyloidosis.
5.M-protein (in the gamma region) level greater than 3 g/dL should be interpreted along with other radiologic and haematological findings to arrive at a diagnosis of Multiple myeloma and must not be considered in isolation.
6.Occasionally M protein may appear as a narrow spike in the beta or alpha2 regions also.
7.Up to one fifth of patients with Myeloma may have an M-protein spike of less than 1 g /dL.
8.Hypogammaglobulinemia on serum protein electrophoresis occurs in about 10% of patients with multiple myeloma who do not have a serum M-protein spike.

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Test Name	Value	Unit	Biological Reference interval

9.Most of these patients have a large amount of Bence Jones protein (monoclonal free kappa or lambda chain) in their urine, wherein urine protein electrophoresis should be performed. Monoclonal gammopathy is present in up to 8 percent of healthy geriatric patients.

NOTE:

The following conditions require serum immunofixation to confirm monoclonality or to differentiate monoclonal and polyclonal disoders.

1.A well defined "M" band.
2.Faint band .
3.Chronic inflammatory pattern (decreased albumin, increased alpha, increased gamma fractions)
4.Isolated increase in any region with an otherwise normal pattern.
5.Shouldering of albumin peak along anodal or cathodal side may be seen with lipoproteins, drugs, bilirubin or radiological contrast.

*** End Of Report ***

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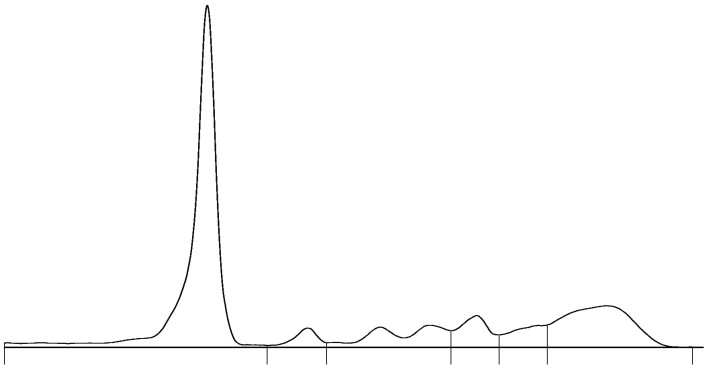
Investigation	Observed Value	Unit	Biological Reference Interval

PROTEIN ELECTROPHORESIS

Name: **AMRIK SINGH**
Sample : **20**
Sex : **M**

Date: **10/19/2024**
ID: **0524746536**
Age : **92**

A/G Ratio: **1.25**
T. P.: **7.6** g/dL



Fractions	%		Ref. %	Conc.	Ref. Conc.
Albumin	**55.5**	<	55.8 - 66.1	**4.22**	3.57 - 5.42
Alpha 1	**3.2**		2.9 - 4.9	**0.24**	0.19 - 0.40
Alpha 2	**9.6**		7.1 - 11.8	**0.73**	0.45 - 0.96
Beta 1	**6.3**		4.7 - 7.2	**0.48**	0.30 - 0.59
Beta 2	**5.3**		3.2 - 6.5	**0.40**	0.20 - 0.53
Gamma	**20.1**	>	11.1 - 18.8	**1.53**	0.71 - 1.54

Signature

-- End of Report --

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