

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

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

NAME : Mrs. USHA KOHLI
AGE/ GENDER : 73 YRS/FEMALE
COLLECTED BY : SURJESH
REFERRED BY : CENTRAL PHOENIX CLUB (AMBALA CANTT)
BARCODE NO. : 01519762
CLIENT CODE. : KOS DIAGNOSTIC LAB
CLIENT ADDRESS : 6349/1, NICHOLSON ROAD, AMBALA CANTT

PATIENT ID : 1656301
REG. NO./LAB NO. : 012410290035
REGISTRATION DATE : 29/Oct/2024 11:56 AM
COLLECTION DATE : 29/Oct/2024 12:05PM
REPORTING DATE : 29/Oct/2024 05:03PM

Test Name	Value	Unit	Biological Reference interval
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HAEMATOLOGY COMPLETE BLOOD COUNT (CBC)

RED BLOOD CELLS (RBCS) COUNT AND INDICES

HAEMOGLOBIN (HB) by CALORIMETRIC	7.9 ^L	gm/dL	12.0 - 16.0
RED BLOOD CELL (RBC) COUNT by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE	2.41 ^L	Millions/cmm	3.50 - 5.00
PACKED CELL VOLUME (PCV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	25.9 ^L	%	37.0 - 50.0
MEAN CORPUSCULAR VOLUME (MCV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	107.5 ^H	fL	80.0 - 100.0
MEAN CORPUSCULAR HAEMOGLOBIN (MCH) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	32.8	pg	27.0 - 34.0
MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	30.5 ^L	g/dL	32.0 - 36.0
RED CELL DISTRIBUTION WIDTH (RDW-CV) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	21.7 ^H	%	11.00 - 16.00
RED CELL DISTRIBUTION WIDTH (RDW-SD) by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	86.8 ^H	fL	35.0 - 56.0
MENTZERS INDEX by CALCULATED	44.61	RATIO	BETA THALASSEMIA TRAIT: < 13.0 IRON DEFICIENCY ANEMIA: >13.0
GREEN & KING INDEX by CALCULATED	96.85	RATIO	BETA THALASSEMIA TRAIT:<= 65.0 IRON DEFICIENCY ANEMIA: > 65.0

WHITE BLOOD CELLS (WBCS)

TOTAL LEUCOCYTE COUNT (TLC) by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY	2070 ^L	/cmm	4000 - 11000
NUCLEATED RED BLOOD CELLS (nRBCS) by AUTOMATED 6 PART HEMATOLOGY ANALYZER	NIL		0.00 - 20.00
NUCLEATED RED BLOOD CELLS (nRBCS) % by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER	NIL	%	< 10 %



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<u>DIFFERENTIAL LEUCOCYTE COUNT (DLC)</u>			
NEUTROPHILS <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	50	%	50 - 70
LYMPHOCYTES <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	36	%	20 - 40
EOSINOPHILS <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	4	%	1 - 6
MONOCYTES <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	10	%	2 - 12
BASOPHILS <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	0	%	0 - 1
<u>ABSOLUTE LEUKOCYTES (WBC) COUNT</u>			
ABSOLUTE NEUTROPHIL COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	1035 ^L	/cmm	2000 - 7500
ABSOLUTE LYMPHOCYTE COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	745 ^L	/cmm	800 - 4900
ABSOLUTE EOSINOPHIL COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	83	/cmm	40 - 440
ABSOLUTE MONOCYTE COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	207	/cmm	80 - 880
ABSOLUTE BASOPHIL COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	0	/cmm	0 - 110
ABSOLUTE IMMATURE GRANULOCYTE COUNT <i>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY</i>	0	/cmm	0.0 - 999.0
<u>PLATELETS AND OTHER PLATELET PREDICTIVE MARKERS.</u>			
PLATELET COUNT (PLT) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	21000 ^L	/cmm	150000 - 450000
PLATELETCRIT (PCT) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	0.03 ^L	%	0.10 - 0.36
MEAN PLATELET VOLUME (MPV) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	14 ^H	fL	6.50 - 12.0
PLATELET LARGE CELL COUNT (P-LCC) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	11000 ^L	/cmm	30000 - 90000
PLATELET LARGE CELL RATIO (P-LCR) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	54.5 ^H	%	11.0 - 45.0
PLATELET DISTRIBUTION WIDTH (PDW) <i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>	17.3 ^H	%	15.0 - 17.0





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NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD

RECHECKED.




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CLINICAL CHEMISTRY/BIOCHEMISTRY

UREA

UREA: SERUM by UREASE - GLUTAMATE DEHYDROGENASE (GLDH)	40.19	mg/dL	10.00 - 50.00
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CREATININE

CREATININE: SERUM by ENZYMATIC, SPECTROPHOTOMETRY	0.96	mg/dL	0.40 - 1.20
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SPECIAL INVESTIGATIONS

PROTEIN ELECTROPHORESIS: SERUM

TOTAL PROTEINS: SERUM <i>by MIGRATION GEL ELECTROPHORESIS</i>	7.73	gm/dL	6.20 - 8.00
ALBUMIN: SERUM <i>by MIGRATION GEL ELECTROPHORESIS</i>	3.68	gm/dL	3.50 - 5.50
A : G RATIO: SERUM <i>by MIGRATION GEL ELECTROPHORESIS</i>	0.91^L	RATIO	1.00 - 2.00
ALPHA 1 GLOBULIN <i>by MIGRATION GEL ELECTROPHORESIS</i>	0.28	gm/dL	0.11 - 0.40
ALPHA 2 GLOBULIN <i>by MIGRATION GEL ELECTROPHORESIS</i>	0.81	gm/dL	0.43 - 1.03
BETA GLOBULIN <i>by MIGRATION GEL ELECTROPHORESIS</i>	2.38^H	mg/dL	0.53 - 1.40
GAMMA GLOBULIN <i>by MIGRATION GEL ELECTROPHORESIS</i>	0.57^L	gm/dL	0.75 - 1.80
MYELOMA (M) BAND/SPIKE <i>by MIGRATION GEL ELECTROPHORESIS</i>	PRESENT	gm/dL	

INTERPRETATION


Serum protein electrophoresis shows Hypogamma globulin region. and M band seen in the beta region. M spike is 1.32 g/dL. Kindly correlate clinically. (IFE) IMMUNOFIXATION ELECTROPHORESIS FURTHER CONFIRMATION.


ADVICE

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 fractions 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.
9. Most of these patients have a large amount of Bence Jones protein (monoclonal free kappa or lambda chain) in their urine, wherein urine




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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 disorders.

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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KOS Diagnostic Lab

(A Unit of KOS Healthcare)

PROTEIN ELECTROPHORESIS

NAME USHA KOHLI

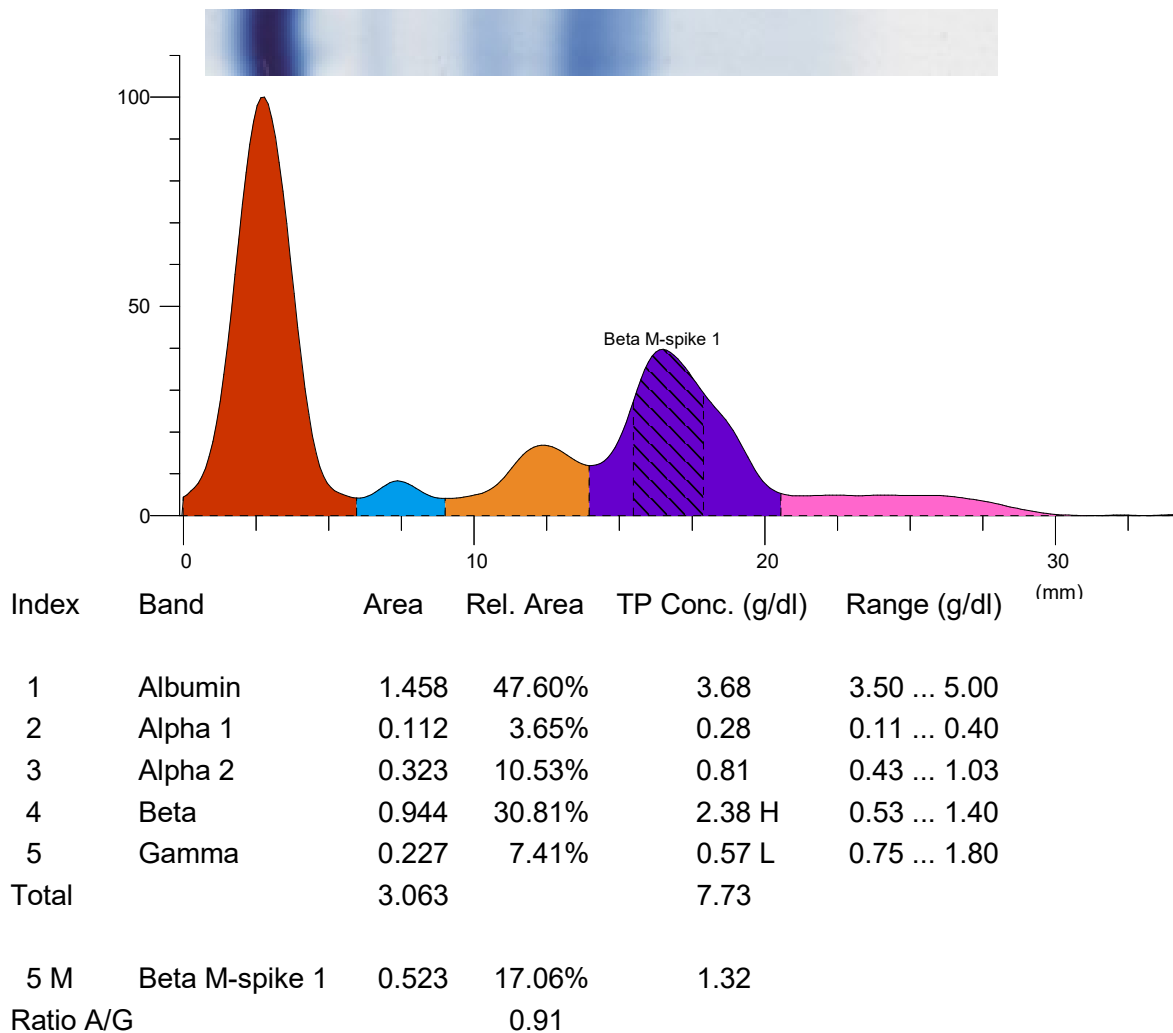
BARCODE ID 01519762

AGE/SEX 73/f

DATE 01/11/2024

Chemistry Results

TP 7.73(g/dl)



Comment:-

Serum protein electrophoresis shows Hypogamma globulin region. and M band seen in the beta region. M spike is 1.32 g/dL. Kindly correlate clinically. Advice IFE immunofixation electrophoresis further confirmation.

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