



Mr. ANGAT SINGH
 AMBALA, CHEMBUR
 Tel No : 9781953307
 PIN No: 133001
 PID NO: P542100632121
 Age: 67.0 Year(s) Sex: Male

Reference: Dr.VINAY CHOPRA
 Sample Collected At:
 DR VINAY KUMAR CHOPRA
 KOS Diagnostic Lab, 6349/I, Nicholson
 Road, Ambala Cantt, HRY 133001.
**Sample Processed At: Metropolis
 Healthcare Ltd E-21, B1 Mohan Co-op
 Ind Estate New Delhi-110044**

VID: 54213320015841
 Registered On:
 05/08/2021 09:56 PM
 Collected On:
 05/08/2021 9:57PM
 Reported On:
 11/08/2021 12:31 PM

Immunofixation- Qualitative, Serum*

(Serum)

Investigation

Observed Value

Electrophoretic Zone

IgG	Absent
IgM	Absent
IgA	Absent
Kappa	Absent
Lambda	Absent
M-Band	Absent

Impression NO MONOCLONAL GAMMOPATHY SEEN

Interpretation:

Bands 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 band 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).

Reema

Dr. Reema Agrawal
 MD (Pathology)



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<u>Investigation</u>	<u>Observed Value</u>	<u>Unit</u>	<u>Biological Reference Interval</u>
Immunofixation-qualitativeSerum			
<u>SERUM, PROTEIN ELECTROPHORESIS</u>			
(Serum)			
Total Protein* (Biuret)	7.9		6.2-8.1
Serum Albumin	4.28	g/dL	3.57-5.42
Alpha 1 Globulin	0.29	g/dL	0.19-0.40
Alpha 2 Globulin	1.32	g/dL	0.45-0.96
Beta 1 Globulin	0.41	g/dL	0.30-0.59
Beta 2 Globulin	0.42	g/dL	0.20-0.53
Gamma Globulin	1.18	g/dL	0.71-1.54
Albumin, Globulin Ratio	1.18		1.1-2.2
"M" Band	See comment		Absent
Comment	Distortion seen in gamma region. Raised Alpha-2.		

Interpretation :

1. Serum protein electrophoresis is commonly used to identify multiple myeloma & related disorders.
2. Electrophoresis is a method of separating proteins based on their physical properties & the pattern is dependant on the fractions of 2 types of protein: Albumin & Globulin (alpha1, alpha2, beta & gamma).

Components	Major Components	Interferences
Albumin	Albumin	Lipoproteins, Drugs, Bilirubin, Radiological contrast
Alpha1 - globulins	α-1 antitrypsin, α-1 acid glycoprotein	-
Alpha2 - globulins	α-2 macroglobulin, haptoglobin	Haptoglobin - haemoglobin complex
Beta globulins	Transferrin, β-lipoprotein, IgA, IgM & sometimes IgG with complement proteins – C3 & C4	Fibrinogen
Gamma globulins	IgG, IgA, IgM, IgD, IgE	CRP

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Direct detection at 200 nm in capillaries yields relative concentrations (percentages) of individual protein zones.

Remarks :

1. In following conditions serum Immunofixation is required to confirm monoclonal gammopathy or to differentiate monoclonal and polyclonal disorders.

(A) A well defined 'M' band

(B) Non-discrete bands..

(C) Chronic inflammatory pattern (decreased Albumin, increased Alpha, increased Gamma region), which may mask the monoclonal band.

(D) Isolated increase in any region, with otherwise normal pattern.

2. SPE- Distortions/ Non-Discrete bands:

Distortions in Serum Protein Electrophoresis (SPE) usually affect curves of the gamma, beta, and alpha-2 peaks. Distortions are subtle, non-discrete bands which cannot be quantified & therefore not plotted on the graphs. These could be seen in the following situations:

a) Patients on therapy for Multiple myeloma.

b) Distortions at the point of sample application can be especially problematic when one is dealing with cryoglobulins (often precipitates at the origin).

c) Monoclonal gammopathies involving any of beta-migrating immunoglobulins (produce subtle distortion of the transferrin or C3 band)

d) Subtle distortions in the beta & gamma regions may indicate towards Ig D / Ig E gammaopathies.

Method : Capillary Electrophoresis

