Dr. Vinay Chopra
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Dr. Yugam Chopra
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CEO & Consultant Pathologist

NAME	**: Mrs. MEENU JAIN**		
AGE/ GENDER	: 54 YRS/FEMALE	**PATIENT ID**	: 1667175
COLLECTED BY	: SURJESH	**REG. NO./LAB NO.**	**: 012411090058**
REFERRED BY	:	**REGISTRATION DATE**	: 09/Nov/2024 07:21 PM
BARCODE NO.	: 01520447	**COLLECTION DATE**	: 10/Nov/2024 11:34AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 09/Nov/2024 10:49PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

IMMUNOPATHOLOGY/SEROLOGY

C-REACTIVE PROTEIN (CRP)

C-REACTIVE PROTEIN (CRP) QUANTITATIVE: SERUM *by NEPHLOMETRY*	3.18	mg/L	0.0 - 6.0

INTERPRETATION:

1. C-reactive protein (CRP) is one of the most sensitive acute-phase reactants for inflammation.
2. CRP levels can increase dramatically (100-fold or more) after severe trauma, bacterial infection, inflammation, surgery, or neoplastic proliferation.
3. CRP levels (Quantitative) has been used to assess activity of inflammatory disease, to detect infections after surgery, to detect transplant rejection, and to monitor these inflammatory processes.
4. As compared to ESR, CRP shows an earlier rise in inflammatory disorders which begins in 4-6 hrs, the intensity of the rise being higher than ESR and the recovery being earlier than ESR. Unlike ESR, CRP levels are not influenced by hematologic conditions like Anemia, Polycythemia etc.,
5. Elevated values are consistent with an acute inflammatory process.

NOTE:

1. Elevated C-reactive protein (CRP) values are nonspecific and should not be interpreted without a complete clinical history.
2. Oral contraceptives may increase CRP levels.

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RHEUMATOID FACTOR (RA): QUANTITATIVE - SERUM

Test Name	Value	Unit	Biological Reference interval
RHEUMATOID (RA) FACTOR QUANTITATIVE: SERUM *by NEPHLOMETRY*	1.44	IU/mL	NEGATIVE: < 18.0 BORDERLINE: 18.0 - 25.0 POSITIVE: > 25.0

INTERPRETATION:-

RHEUMATOID FACTOR (RA):

1. Rheumatoid factors (RF) are antibodies that are directed against the Fc fragment of IgG altered in its tertiary structure.
2. Over 75% of patients with rheumatoid arthritis (RA) have an IgM antibody to IgG immunoglobulin. This autoantibody (RF) is diagnostically useful although it may not be etiologically related to RA.
3. Inflammatory Markers such as ESR & C-Reactive protein (CRP) are normal in about 60 % of patients with positive RA.
4. The titer of RF correlates poorly with disease activity, but those patients with high titers tend to have more severe disease course.
5. The test is useful for diagnosis and prognosis of rheumatoid arthritis.

RHEUMATOID ARTHIRITIS:

1. Rheumatoid Arthiritis is a systemic autoimmune disease that is multi-functional in origin and is characterized by chronic inflammation of the membrane lining (synovium) joints which ledas to progressive joint destruction and in most cases to disability and reduction of quality life.
2. The disease spredas from small to large joints, with greatest damage in early phase.
3. The diagnosis of RA is primarily based on clinical, radiological & immunological features.The most frequent serological test is the measurement of RA factor.

CAUTION (FALSE POSTIVE):-

1. RA factor is not specific for Rheumatoid arthiritis, as it is often present in healthy individuals with other autoimmune diseases and chronic infections.
2. Non rheumatoid and rheumatoid arthritis (RA) populations are not clearly separate with regard to the presence of rheumatoid factor (RF) (15% of RA patients have a nonreactive titer and 8% of nonrheumatoid patients have a positive titer).
3. Patients with various nonrheumatoid diseases,characterized by chronic inflammation may have positive tests for RF. These diseases include systemic lupus erythematosus, polymyositis, tuberculosis, syphilis, viral hepatitis, infectious mononucleosis, and influenza.
4. Anti-CCP have been discovered in joints of patients with RA, but not in other form of joint disease.Anti-CCP2 is HIGHLY SENSITIVE (71%) & more specific (98%) than RA factor.
5. Upto 30 % of patients with Seronegative Rheumatoid arthiritis also show Anti-CCP antibodies.
6. The positive predictive value of Anti-CCP antibodies for Rheumatoid Arthiritis is far greater than Rheumatoid factor.

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Test Name	Value	Unit	Biological Reference interval

TB GOLD (QUANTIFERON): INTERFERON GAMMA RELEASE ASSAY (IGRA)

TB GOLD - QUANTIFERON *by ELISA (ENZYME LINKED IMMUNOASSAY)*	NEGATIVE (-ve)	

TEST DETAILS (REFERENCE ONLY)

IFN-GAMMA FROM NEGATIVE CONTROL VIAL (N) *by ELISA (ENZYME LINKED IMMUNOASSAY)*	0.198	pg/mL
IFN-GAMMA FROM TB Ag CULTURE VIAL (T) *by ELISA (ENZYME LINKED IMMUNOASSAY)*	0.46	pg/mL
IFN-GAMMA DIFFERENCE (T-N) *by ELISA (ENZYME LINKED IMMUNOASSAY)*	0.26	pg/mL
(T-N/N) % VALUE *by ELISA (ENZYME LINKED IMMUNOASSAY)*	131.31	%
INTERPRETATION CRITERIA FOR IGRA	(T-N) VALUE SHOULD BE >= 0.35 AND >= 25% OF NIL VALUE	

INTERPRETATION:

NIL (IU/ML)	T – N (TB Antigen minus NIL Tube) IU/mL	SATNDARD E RESULT	INTERPRETATION
<= 8.0	< 0.35	NEGATIVE	NOT Infected with *Mycobacterium tuberculosis*
	>= 0.35 and < 25 % of NIL VALUE		
	>= 0.35 and >25 % of NIL VALUE	POSITIVE	Infected with *Mycobacterium tuberculosis*(active, latent or inapparent infection)
>8.0	ANY VALUE	INTERMEDIATE	Cannot determine whether Mycobacterium tuberculosis infection/ Result are indeterminate for TB Antigen responsiveness Any

NOTE:

1. Diagnosing or excluding tuberculosis disease, and assessing the probability of LTBI, Requires a combination of epidemiological, historical, medical, and diagnostic findings that should be taken into account when interpreting ELISA Report results.

2. NEGATIVE TEST DOES NOT PRECLUDE THE POSSIBILITY OF MYCOBACTERIUM TUBERCULOSIS INFECTION/DISEASE

3. IGRA Test is approved as an in vitro diagnostic aid for detection of Mycobacterium tuberculosis infection (active disease and LTBI) and is intended for use in conjunction with risk assessment, radiography and other medical and diagnostic evaluations. The IGRA test does not differentiate between active and latent TB so latent patient will also be picked by IGRA. IGRA cannot be used as standalone test to diagnose TB infection. IGRA test is not

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Test Name	Value	Unit	Biological Reference interval

established for any prognostic use.

3. The SD Biosensor TB Gold IGRA (Interferon Gamma Releasing Assay) test is whole blood test for detection of infection to Mycobacterium tuberculosis as occurs in active tuberculosis and latent tuberculosis infection (LTBI).If not detected and treated, LTBI may later develop into TB disease. This test measures the patient's immune reactivity to M. tuberculosis, the bacterium that causes TB. Blood samples are mixed with TB specific antigens and incubated for 20 to 24 hours. The antigens include ESAT-6 and CFP-10, proteins specific to tuberculosis complex. These antigens are not found in BCG strains or atypical Mycobacteria. If the patient is infected with M. tuberculosis, the patient's lymphocytes will recognize the antigens and release interferon –gamma in response .The TB Platinum test results are based on the amount of IFN –gamma that is released. Additional tests (such as chest radiograph) are needed to exclude TB disease and confirm the diagnosis of LTBI.

METHOD: Interferon Gamma Release Assay (IGRA);

CAUTION: Assay results should be interpreted only in the context of other laboratory finding and the total clinical status of the patient

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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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Test Name	Value	Unit	Biological Reference interval
PROTEIN ELECTROPHORESIS: SERUM			
TOTAL PROTEINS: SERUM *by MIGRATION GEL ELECTROPHORESIS*	6.6	gm/dL	6.20 - 8.00
ALBUMIN: SERUM *by MIGRATION GEL ELECTROPHORESIS*	3.53	gm/dL	3.50 - 5.50
A : G RATIO: SERUM *by MIGRATION GEL ELECTROPHORESIS*	1.15	RATIO	1.00 - 2.00
ALPHA 1 GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	0.2	gm/dL	0.11 - 0.40
ALPHA 2 GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	0.85	gm/dL	0.43 - 1.03
BETA GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	0.97	mg/dL	0.53 - 1.40
GAMMA GLOBULIN *by MIGRATION GEL ELECTROPHORESIS*	1.06	gm/dL	0.75 - 1.80
MYELOMA (M) BAND/SPIKE *by MIGRATION GEL ELECTROPHORESIS*	NOT SEEN	gm/dL	
INTERPRETATION	Protein electrophoresis shows normal pattern. No M band seen.		
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.
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.

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Test Name	Value	Unit	Biological Reference interval

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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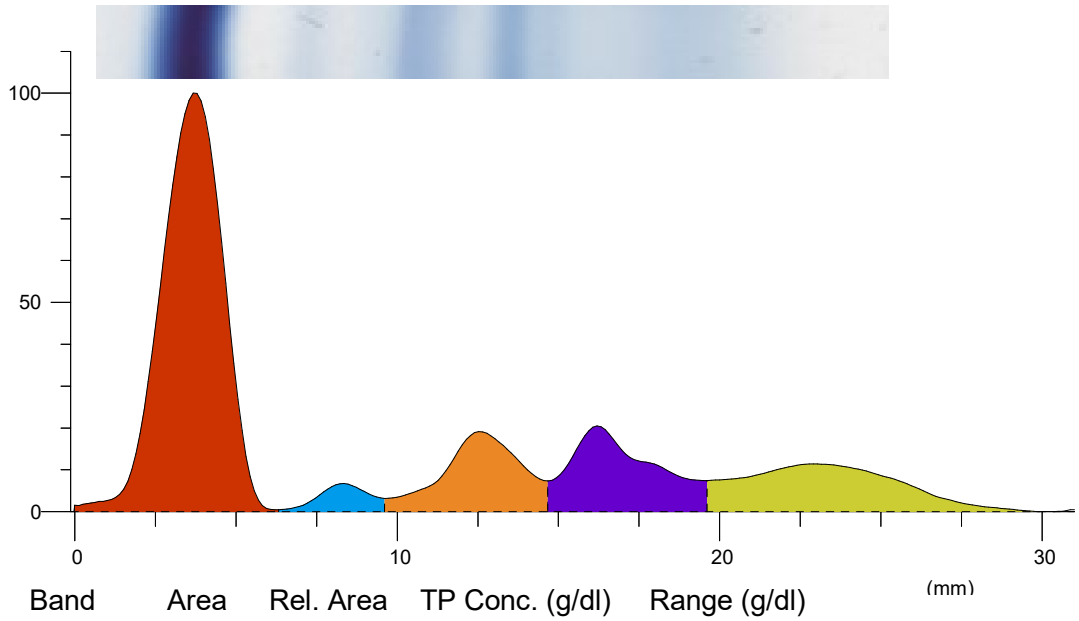
KOS Diagnostic Lab

(A Unit of KOS Healthcare)

PROTEIN ELECTROPHORESIS

NAME	**MEENU JAIN**	**BARCODE ID**	**01520447**
AGE/SEX	**54/f**	**DATE**	**11/11/2024**

Chemistry Results **TP 6.60(g/dl)**



Index	Band	Area	Rel. Area	TP Conc. (g/dl)	Range (g/dl)
1	Albumin	1.298	53.44%	3.53	3.50 ... 5.00
2	Alpha 1	0.072	2.98%	0.20	0.11 ... 0.40
3	Alpha 2	0.313	12.88%	0.85	0.43 ... 1.03
4	Beta	0.356	14.64%	0.97	0.53 ... 1.40
5	Gamma	0.390	16.07%	1.06	0.75 ... 1.80
Total		2.430		6.60	

Ratio A/G 1.15

Comment:-

Protein electrophoresis shows normal pattern. No M band seen. Kindly correlate clinically.

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