

**Dr. Vinay Chopra**  
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 Chairman & Consultant Pathologist

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

<b>NAME</b>	: Mrs. SUNITA	<b>PATIENT ID</b>	: 1600632
<b>AGE/ GENDER</b>	: 42 YRS/FEMALE	<b>REG. NO./LAB NO.</b>	: <b>012409030038</b>
<b>COLLECTED BY</b>	:	<b>REGISTRATION DATE</b>	: 03/Sep/2024 01:33 PM
<b>REFERRED BY</b>	:	<b>COLLECTION DATE</b>	: 03/Sep/2024 01:46PM
<b>BARCODE NO.</b>	: 01516243	<b>REPORTING DATE</b>	: 04/Sep/2024 03:49AM
<b>CLIENT CODE.</b>	: KOS DIAGNOSTIC LAB		
<b>CLIENT ADDRESS</b>	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
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### HAEMATOLOGY

#### HAEMOGLOBIN - HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HB-HPLC)

##### HAEMOGLOBIN VARIANTS

<b>HAEMOGLOBIN A0 (ADULT)</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	82.8 <sup>L</sup>	%	83.00 - 90.00
<b>HAEMOGLOBIN F (FOETAL)</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	0	%	0.00 - 2.0
<b>HAEMOGLOBIN A2</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	1.9	%	1.50 - 3.70
<b>PEAK 3</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	6.8	%	< 10.0
<b>OTHERS-NON SPECIFIC</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	ABSENT	%	ABSENT
<b>HAEMOGLOBIN S</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
<b>HAEMOGLOBIN D (PUNJAB)</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
<b>HAEMOGLOBIN E</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
<b>HAEMOGLOBIN C</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
<b>UNKNOWN UNIDENTIFIED VARIANTS</b> <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
<b>GLYCOSYLATED HAEMOGLOBIN (HbA1c):</b>	6.5 <sup>H</sup>	%	4.0 - 6.4

##### WHOLE BLOOD

*by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)*

##### RED BLOOD CELLS (RBCS) COUNT AND INDICES

<b>HAEMOGLOBIN (HB)</b> <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	9.6 <sup>L</sup>	gm/dL	12.0 - 16.0
<b>RED BLOOD CELL (RBC) COUNT</b> <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	4.22	Millions/cmm	3.50 - 5.00
<b>PACKED CELL VOLUME (PCV)</b> <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	32.1 <sup>L</sup>	%	37.0 - 50.0



  
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MEAN CORPUSCULAR VOLUME (MCV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	76.1 <sup>L</sup>	fL	80.0 - 100.0
MEAN CORPUSCULAR HAEMOGLOBIN (MCH) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	22.8 <sup>L</sup>	pg	27.0 - 34.0
MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	30 <sup>L</sup>	g/dL	32.0 - 36.0
RED CELL DISTRIBUTION WIDTH (RDW-CV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	15.9	%	11.00 - 16.00
RED CELL DISTRIBUTION WIDTH (RDW-SD) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	45.2	fL	35.0 - 56.0

**OTHERS**

MENTZERS INDEX 18.03 RATIO BETA THALASSEMIA TRAIT: < 13.0  
*by CALCULATED* IRON DEFICIENCY ANEMIA: >13.0

**INTERPRETATION**

Suggestive of absence of common abnormal hemoglobinopathies.

**INTERPRETATION:**

The Thalassemia syndromes, considered the most common genetic disorder worldwide, are a heterogenous group of mendelian disorders, all characterized by a lack of/or decreased synthesis of either the alpha-globin chains (alpha thalassemia) or the beta-globin chains (beta thalassemia) of haemoglobin.

**HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HPLC):**

1. HAEMOGLOBIN VARIANT ANALYSIS, BLOOD- High Performance liquid chromatography (HPLC) is a fast & accurate method for determining the presence and for quantitation of various types of normal haemoglobin and common abnormal hb variants, including but not limited to Hb S, C, E, D and Beta -thalassemia.

2. The diagnosis of these abnormal haemoglobin should be confirmed by DNA analysis.

3. The method use has a limited role in the diagnosis of alpha thalassemia.

4. Slight elevation in haemoglobin A2 may also occur in hyperthyroidism or when there is deficiency of vitamin b12 or folate and this should be distinguished from inherited elevation of HbA2 in Beta- thalassemia trait.

**NAKED EYE SINGLE TUBE RED CELL OSMOTIC FRAGILITY TEST (NESTROFT):**

1. It is a screening test to distinguish beta thalassemia trait. Also called as Naked Eye Single Tube Red Cell Osmotic Fragility Test.

2. The test showed a sensitivity of 100%, specificity of 85.47%, a positive predictive value of 66% and a negative predictive value of 100%.

3. A high negative predictive value can reasonably rule out beta thalassemia trait cases. So, it should be adopted as a screening test for beta thalassemia trait, as it is not practical or feasible to employ HbA2 in every case of anemia in childhood.

**MENTZERS INDEX:**

1. The Mentzer index, helpful in differentiating iron deficiency anemia from beta thalassemia. If a CBC indicates microcytic anemia, the Mentzer index is said to be a method of distinguishing between them.

2. If the index is less than 13, thalassemia is said to be more likely. If the result is greater than 13, then iron-deficiency anemia is said to be more likely.

3. The principle involved is as follows: In iron deficiency, the marrow cannot produce as many RBCs and they are small (microcytic), so the RBC count and the MCV will both be low, and as a result, the index will be greater than 13. Conversely, in thalassemia, which is a disorder of globin synthesis, the number of RBC's produced is normal, but the cells are smaller and more fragile. Therefore, the RBC count is normal, but the MCV is



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low, so the index will be less than 13.

**NOTE:** In practice, the Mentzer index is not a reliable indicator and should not, by itself, be used to differentiate. In addition, it would be possible for a patient with a microcytic anemia to have both iron deficiency and thalassemia, in which case the index would only suggest iron deficiency.

\*\*\* End Of Report \*\*\*




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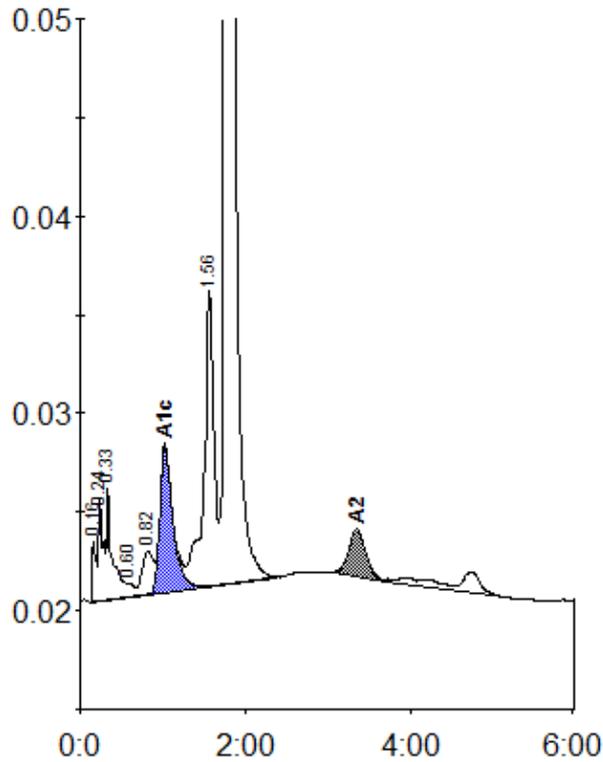


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# Patient report

Bio-Rad                      DATE: 09/03/2024  
D-10                         TIME: 03:49 PM  
S/N: #DJ6F040603        Software version: 4.30-2  
Sample ID:                 01516243  
Injection date             09/03/2024 03:31 PM  
Injection #: 7              Method: HbA2/F  
Rack #: ---                 Rack position: 7



Peak table - ID: 01516243

Peak	R.time	Height	Area	Area %
Unknown	0.16	3018	8412	0.5
A1a	0.24	5172	20953	1.1
A1b	0.33	5624	28670	1.5
LA1c/CHb-1	0.60	683	3392	0.2
LA1c/CHb-2	0.82	2216	16998	0.9
A1c	1.03	7371	81392	6.5
P3	1.56	14998	127037	6.8
A0	1.76	332302	1535572	82.8
A2	3.35	2375	32807	1.9
Total Area:		1855232		

Concentration:	%
A1c	6.5
A2	1.9