

Dr. Vinay Chopra  
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Chairman & Consultant Pathologist

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MD (Pathology)  
CEO & Consultant Pathologist

NAME : Mrs. ARCHANA SINGH  
AGE/ GENDER : 28 YRS/FEMALE  
COLLECTED BY :  
REFERRED BY :  
BARCODE NO. : 01514182  
CLIENT CODE. : KOS DIAGNOSTIC LAB  
CLIENT ADDRESS : 6349/1, NICHOLSON ROAD, AMBALA CANTT

PATIENT ID : 1566196  
REG. NO./LAB NO. : 012407310042  
REGISTRATION DATE : 31/Jul/2024 11:11 AM  
COLLECTION DATE : 31/Jul/2024 11:13AM  
REPORTING DATE : 01/Aug/2024 08:23AM

Test Name	Value	Unit	Biological Reference interval
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## HAEMATOLOGY

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

#### HAEMOGLOBIN VARIANTS

HAEMOGLOBIN A0 (ADULT) by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	87.7	%	83.00 - 90.00
HAEMOGLOBIN F (FOETAL) by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	<0.8	%	0.00 - 2.0
HAEMOGLOBIN A2 by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	2.5	%	1.50 - 3.70
PEAK 3 by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	4	%	< 10.0
OTHERS-NON SPECIFIC by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	ABSENT	%	ABSENT
HAEMOGLOBIN S by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	NOT DETECTED	%	< 0.02
HAEMOGLOBIN D (PUNJAB) by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	NOT DETECTED	%	< 0.02
HAEMOGLOBIN E by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	NOT DETECTED	%	< 0.02
HAEMOGLOBIN C by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	NOT DETECTED	%	< 0.02
UNKNOWN UNIDENTIFIED VARIANTS by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)	NOT DETECTED	%	< 0.02

GLYCOSYLATED HAEMOGLOBIN (HbA1c): 3.7<sup>L</sup> % 4.0 - 6.4

#### WHOLE BLOOD

by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)

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

HAEMOGLOBIN (HB) by AUTOMATED HEMATOLOGY ANALYZER	10.1 <sup>L</sup>	gm/dL	12.0 - 16.0
RED BLOOD CELL (RBC) COUNT by AUTOMATED HEMATOLOGY ANALYZER	3.68	Millions/cmm	3.50 - 5.00
PACKED CELL VOLUME (PCV) by AUTOMATED HEMATOLOGY ANALYZER	32.6 <sup>L</sup>	%	37.0 - 50.0
MEAN CORPUSCULAR VOLUME (MCV)	88.5	fL	80.0 - 100.0



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by AUTOMATED HEMATOLOGY ANALYZER			
MEAN CORPUSCULAR HAEMOGLOBIN (MCH)	27.4	pg	27.0 - 34.0
by AUTOMATED HEMATOLOGY ANALYZER			
MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC)	31 <sup>L</sup>	g/dL	32.0 - 36.0
by AUTOMATED HEMATOLOGY ANALYZER			
RED CELL DISTRIBUTION WIDTH (RDW-CV)	16.5 <sup>H</sup>	%	11.00 - 16.00
by AUTOMATED HEMATOLOGY ANALYZER			
RED CELL DISTRIBUTION WIDTH (RDW-SD)	54.3	fL	35.0 - 56.0
by AUTOMATED HEMATOLOGY ANALYZER			

#### OTHERS

MENTZERS INDEX	24.05	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 mandelian 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 quatitation 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 istinguished 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 low, so the index will be less than 13.



  
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**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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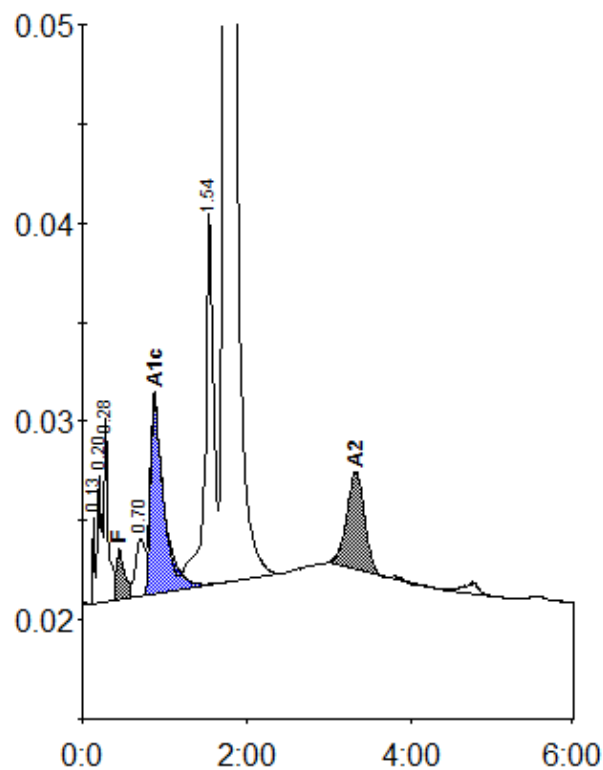
  
 DR.YUGAM CHOPRA  
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# Patient report

Bio-Rad  
D-10  
S/N: #DJ6F040603  
Sample ID:  
Injection date  
Injection #: 10  
Rack #: ---

DATE: 07/31/2024  
TIME: 05:44 PM  
Software version: 4.30-2  
01514182  
07/31/2024 05:42 PM  
Method: HbA2/F  
Rack position: 10



Peak table - ID: 01514182

Peak	R.time	Height	Area	Area %
Unknown	0.13	4311	6078	0.2
A1a	0.20	6344	24688	0.7
A1b	0.28	9312	28397	0.8
F	0.45	2545	18428	< 0.8 *
LA1c/CHb-1	0.70	2888	22232	0.6
A1c	0.88	9759	112865	3.7
P3	1.54	18755	140316	4.0
A0	1.73	627564	3056503	87.7
A2	3.33	4991	76238	2.5
Total Area:		3485745		

Concentration:	%
F	< 0.8 *
A1c	3.7
A2	2.5