

Dr. Vinay Chopra
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NAME	: Master. AIDEN AGGARWAL	PATIENT ID	: 1765853
AGE/ GENDER	: 2 YRS/MALE	REG. NO./LAB NO.	: 012502210064
COLLECTED BY	:	REGISTRATION DATE	: 21/Feb/2025 08:25 PM
REFERRED BY	:	COLLECTION DATE	: 21/Feb/2025 08:31PM
BARCODE NO.	: 01525919	REPORTING DATE	: 21/Feb/2025 08:51PM
CLIENT CODE.	: KOS DIAGNOSTIC LAB		
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval
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HAEMATOLOGY

HAEMOGLOBIN (HB)

HAEMOGLOBIN (HB) by CALORIMETRIC	10.4^L	gm/dL	12.0 - 16.0
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INTERPRETATION:-

Hemoglobin is the protein molecule in red blood cells that carries oxygen from the lungs to the body's tissues and returns carbon dioxide from the tissues back to the lungs.

A low hemoglobin level is referred to as ANEMIA or low red blood count.

ANEMIA (DECREASED HAEMOGLOBIN):

- 1) Loss of blood (traumatic injury, surgery, bleeding, colon cancer or stomach ulcer)
- 2) Nutritional deficiency (iron, vitamin B12, folate)
- 3) Bone marrow problems (replacement of bone marrow by cancer)
- 4) Suppression by red blood cell synthesis by chemotherapy drugs
- 5) Kidney failure
- 6) Abnormal hemoglobin structure (sickle cell anemia or thalassemia).

POLYCYTHEMIA (INCREASED HAEMOGLOBIN):

- 1) People in higher altitudes (Physiological)
- 2) Smoking (Secondary Polycythemia)
- 3) Dehydration produces a falsely rise in hemoglobin due to increased haemoconcentration
- 4) Advanced lung disease (for example, emphysema)
- 5) Certain tumors
- 6) A disorder of the bone marrow known as polycythemia rubra vera,
- 7) Abuse of the drug erythropoietin (Epogen) by athletes for blood doping purposes (increasing the amount of oxygen available to the body by chemically raising the production of red blood cells).

NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD

RECHECKED.




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PERIPHERAL BLOOD SMEAR

TEST NAME:

PERIPHERAL BLOOD FILM/SMEAR (PBF)

RED BLOOD CELLS (RBC'S):

Mild anisocytosis with microcytes. RBC's mostly appear normochromic. No polychromatic cells or normoblastic cells activity noted.

WHITE BLOOD CELLS (WBC'S):

No immature leucocytes seen

PLATELETS:

Platelets are adequate on smear

HEMOPARASITES:

NOT SEEN

IMPRESSION:

Mild microcytic normochromic picture.




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RETICULOCYTE COUNT

RETICULOCYTE COUNT	0.6	%	0.5 - 2.5
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Test Name	Value	Unit	Biological Reference interval
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HAEMOGLOBIN - HIGH PERFORMANCE LIQUID CHROMATOGRAPHY (HB-HPLC)

HAEMOGLOBIN VARIANTS

HAEMOGLOBIN A0 (ADULT) <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	84.8	%	83.00 - 90.00
HAEMOGLOBIN F (FOETAL) <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	<0.8	%	0.00 - 2.0
HAEMOGLOBIN A2 <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	2.4	%	1.50 - 3.70
PEAK 3 <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	5.6	%	< 10.0
OTHERS-NON SPECIFIC <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	ABSENT	%	ABSENT
HAEMOGLOBIN S <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
HAEMOGLOBIN D (PUNJAB) <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
HAEMOGLOBIN E <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
HAEMOGLOBIN C <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
UNKNOWN UNIDENTIFIED VARIANTS <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	NOT DETECTED	%	< 0.02
GLYCOSYLATED HAEMOGLOBIN (HbA1c): WHOLE BLOOD <i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>	5.3	%	4.0 - 6.4

RED BLOOD CELLS (RBCS) COUNT AND INDICES

HAEMOGLOBIN (HB) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	10.4^L	gm/dL	12.0 - 16.0
RED BLOOD CELL (RBC) COUNT <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	5.79^H	Millions/cmm	3.50 - 5.50
PACKED CELL VOLUME (PCV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	35.1^L	%	35.0 - 49.0
MEAN CORPUSCULAR VOLUME (MCV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	60.6^L	fL	80.0 - 100.0
MEAN CORPUSCULAR HAEMOGLOBIN (MCH) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	18^L	pg	27.0 - 34.0




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Test Name	Value	Unit	Biological Reference interval
MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	29.6^L	g/dL	32.0 - 36.0
RED CELL DISTRIBUTION WIDTH (RDW-CV) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	20.4^H	%	11.00 - 16.00
RED CELL DISTRIBUTION WIDTH (RDW-SD) <i>by AUTOMATED HEMATOLOGY ANALYZER</i>	46.4	fL	35.0 - 56.0
OTHERS			
NAKED EYE SINGLE TUBE RED CELL OSMOTIC FRAGILITY TEST <i>by SINGLE RED CELL OSMOTIC FRAGILITY</i>	NEGATIVE (-ve)		NEGATIVE (-ve)
MENTZERS INDEX <i>by CALCULATED</i>	10.47	RATIO	BETA THALASSEMIA TRAIT: < 13.0 IRON DEFICIENCY ANEMIA: >13.0

INTERPRETATION

THE ABOVE FINDINGS ARE SUGGESTIVE OF NORMAL HAEMOGLOBIN CHROMATOGRAPHIC PATTERN

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




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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.

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.




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Test Name	Value	Unit	Biological Reference interval
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CLINICAL PATHOLOGY
STOOL FOR OCCULT BLOOD

OCCULT BLOOD by IMMUNOCHROMATOGRAPHY	NEGATIVE (-ve)	NEGATIVE (-ve)
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*** End Of Report ***




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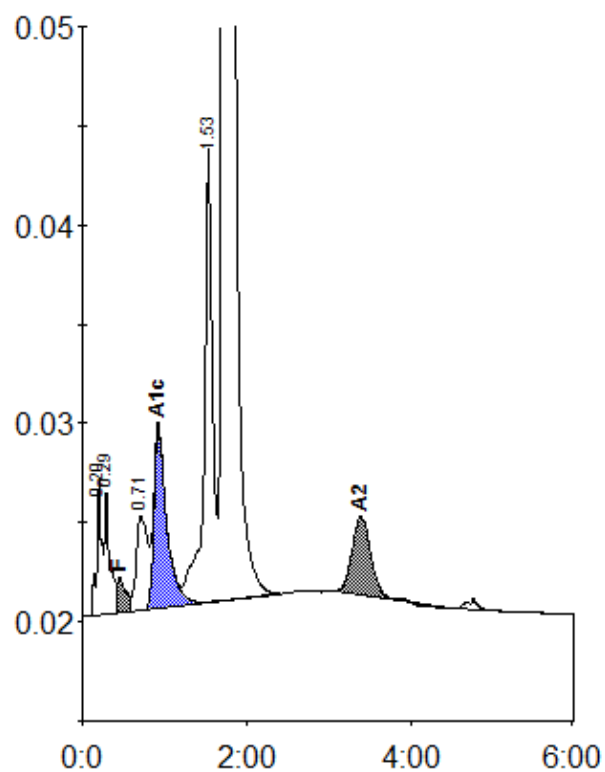

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Patient report

Bio-Rad
D-10
S/N: #DJ6F040603
Sample ID:
Injection date
Injection #: 5
Rack #: ---

DATE: 02/21/2025
TIME: 04:32 PM
Software version: 4.30-2
01525919
02/21/2025 03:12 PM
Method: HbA2/F
Rack position: 5



Peak table - ID: 01525919

Peak	R.time	Height	Area	Area %
A1a	0.20	6904	30046	1.0
A1b	0.29	6257	25698	0.9
F	0.45	1814	16505	< 0.8 *
LA1c/CHb-1	0.71	4741	44873	1.6
A1c	0.92	9087	98840	5.3
P3	1.53	22930	161421	5.6
A0	1.73	505171	2450873	84.8
A2	3.39	4020	63356	2.4
Total Area:		2891614		

Concentration:	%
F	< 0.8 *
A1c	5.3
A2	2.4