

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

NAME : Mrs. NITIKA  
AGE/ GENDER : 30 YRS/FEMALE  
COLLECTED BY :  
REFERRED BY :  
BARCODE NO. : 01517940  
CLIENT CODE. : KOS DIAGNOSTIC LAB  
CLIENT ADDRESS : 6349/1, NICHOLSON ROAD, AMBALA CANTT

PATIENT ID : 1628905  
REG. NO./LAB NO. : 012409290028  
REGISTRATION DATE : 29/Sep/2024 12:38 PM  
COLLECTION DATE : 29/Sep/2024 12:41 PM  
REPORTING DATE : 29/Sep/2024 01:21 PM

| Test Name | Value | Unit | Biological Reference interval |
|-----------|-------|------|-------------------------------|
|-----------|-------|------|-------------------------------|

## HAEMATOLOGY

### BLOOD GROUP (ABO) AND RH FACTOR TYPING

ABO GROUP  
by SLIDE AGGLUTINATION  
RH FACTOR TYPE  
by SLIDE AGGLUTINATION

B  
POSITIVE



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

#### HAEMOGLOBIN VARIANTS

|   |                   |   |               |
|---|-------------------|---|---------------|
| HAEMOGLOBIN A0 (ADULT)<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                           | 82.1 <sup>L</sup> | % | 83.00 - 90.00 |
| HAEMOGLOBIN F (FOETAL)<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                           | 1.1               | % | 0.00 - 2.0    |
| HAEMOGLOBIN A2<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                                   | 4.7 <sup>H</sup>  | % | 1.50 - 3.70   |
| PEAK 3<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>   | 5.7               | % | < 10.0        |
| OTHERS-NON SPECIFIC<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                              | ABSENT            | % | ABSENT        |
| HAEMOGLOBIN S<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                                    | NOT DETECTED      | % | < 0.02        |
| HAEMOGLOBIN D (PUNJAB)<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                           | NOT DETECTED      | % | < 0.02        |
| HAEMOGLOBIN E<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                                    | NOT DETECTED      | % | < 0.02        |
| HAEMOGLOBIN C<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                                    | NOT DETECTED      | % | < 0.02        |
| UNKNOWN UNIDENTIFIED VARIANTS<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i>                    | NOT DETECTED      | % | < 0.02        |
| GLYCOSYLATED HAEMOGLOBIN (HbA1c):<br>WHOLE BLOOD<br><i>by HPLC (HIGH PERFORMANCE LIQUID CHROMATOGRAPHY)</i> | 4.6               | % | 4.0 - 6.4     |

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

|  |                   |              |              |
|--|-------------------|--------------|--------------|
| HAEMOGLOBIN (HB)<br><i>by AUTOMATED HEMATOLOGY ANALYZER</i>              | 9.8 <sup>L</sup>  | gm/dL        | 12.0 - 16.0  |
| RED BLOOD CELL (RBC) COUNT<br><i>by AUTOMATED HEMATOLOGY ANALYZER</i>    | 5.63 <sup>H</sup> | Millions/cmm | 3.50 - 5.00  |
| PACKED CELL VOLUME (PCV)<br><i>by AUTOMATED HEMATOLOGY ANALYZER</i>      | 33.1 <sup>L</sup> | %            | 37.0 - 50.0  |
| MEAN CORPUSCULAR VOLUME (MCV)<br><i>by AUTOMATED HEMATOLOGY ANALYZER</i> | 58.9 <sup>L</sup> | fL           | 80.0 - 100.0 |



  
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| MEAN CORPUSCULAR HAEMOGLOBIN (MCH)<br>by AUTOMATED HEMATOLOGY ANALYZER       | 17.5 <sup>L</sup> | pg   | 27.0 - 34.0                   |
| MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC)<br>by AUTOMATED HEMATOLOGY ANALYZER | 29.7 <sup>L</sup> | g/dL | 32.0 - 36.0                   |
| RED CELL DISTRIBUTION WIDTH (RDW-CV)<br>by AUTOMATED HEMATOLOGY ANALYZER     | 17 <sup>H</sup>   | %    | 11.00 - 16.00                 |
| RED CELL DISTRIBUTION WIDTH (RDW-SD)<br>by AUTOMATED HEMATOLOGY ANALYZER     | 37                | fL   | 35.0 - 56.0                   |

#### OTHERS

MENTZERS INDEX 10.46 RATIO BETA THALASSEMIA TRAIT: < 13.0  
 by CALCULATED IRON DEFICIENCY ANEMIA: >13.0

#### INTERPRETATION

HB VARIANT ANALYSIS- Suggestive of Beta thalassemia trait. Parental screening &/or DNA analysis is advised.

#### 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.



  
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### CLINICAL CHEMISTRY/BIOCHEMISTRY

#### GLUCOSE TOLERANCE TEST MODIFIED (AFTER 75 GMS OF GLUCOSE)

|   |        |       |   |
|---|--------|-------|---|
| GLUCOSE FASTING (F): PLASMA<br>by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)    | 97.12  | mg/dL | NORMAL: < 100.0<br>PREDIABETIC: 100.0 - 125.0<br>DIABETIC: > OR = 126.0 |
| GLUCOSE AFTER 60 MINS: PLASMA<br>by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD)  | 148.04 | mg/dL | 60.0 - 180.0  |
| GLUCOSE AFTER 120 MINS: PLASMA<br>by GLUCOSE OXIDASE - PEROXIDASE (GOD-POD) | 113.12 | mg/dL | 60.0 - 160.0  |

**Interpretation: (In accordance with the American diabetes association guidelines):**

This test is recommended for patients who have tested positive in the screening OGT (50 gram OGT) or in patients who are deemed to be at high risk of developing gestational diabetes. An 8-14 hour fasting is mandatory for initiation of this test.

For this test, a fasting sample is followed by two more samples drawn at 1 hour and 2 hours after ingestion of 75 grams of glucose.

| The American diabetes group recommendations suggest that gestational diabetes be diagnosed when one or more of the plasma glucose values are: |       |                   |
|---|-------|-------------------|
| Time  | Unit  | Blood Sugar level |
| Fasting   | mg/dl | ≥95               |
| 1 hour  | mg/dl | ≥180              |
| 2 hour  | mg/dl | ≥155              |

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



  
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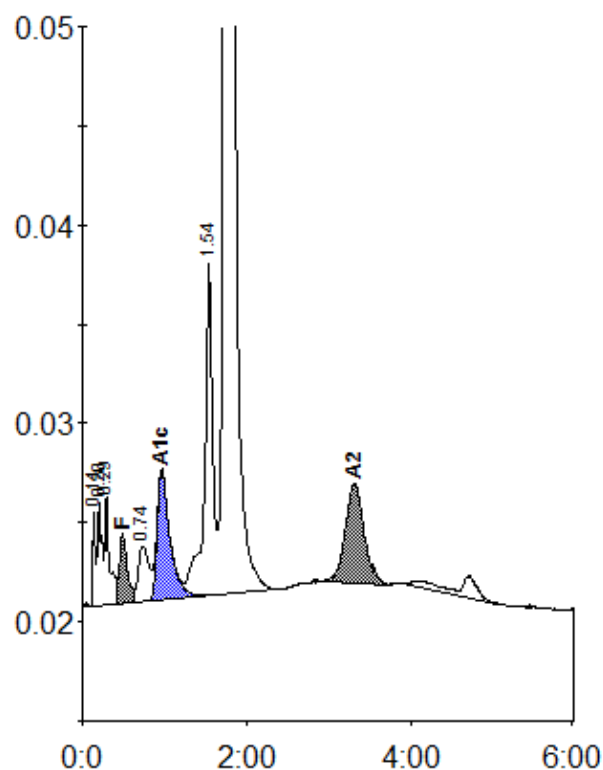
  
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# Patient report

Bio-Rad  
D-10  
S/N: #DJ6F040603  
Sample ID:  
Injection date  
Injection #: 2  
Rack #: ---

DATE: 09/29/2024  
TIME: 10:58 AM  
Software version: 4.30-2  
01517940  
09/29/2024 10:05 AM  
Method: HbA2/F  
Rack position: 2



Peak table - ID: 01517940

| Peak        | R.time  | Height | Area    | Area % |
|-------------|---------|--------|---------|--------|
| Unknown     | 0.14    | 4902   | 9499    | 0.5    |
| A1a         | 0.20    | 5239   | 20825   | 1.0    |
| A1b         | 0.29    | 5595   | 21673   | 1.1    |
| F           | 0.49    | 3532   | 22881   | 1.1    |
| LA1c/CHb-1  | 0.74    | 2812   | 26209   | 1.3    |
| A1c         | 0.97    | 6509   | 71827   | 4.6    |
| P3          | 1.54    | 16861  | 116477  | 5.7    |
| A0          | 1.75    | 349819 | 1682271 | 82.1   |
| A2          | 3.31    | 4954   | 78362   | 4.7    |
| Total Area: | 2050024 |        |         |        |

|                |     |
|----------------|-----|
| Concentration: | %   |
| F              | 1.1 |
| A1c            | 4.6 |
| A2             | 4.7 |