

Dr. Vinay Chopra  
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Dr. Yugam Chopra  
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**NAME** : Mr. GURDEEP SINGH  
**AGE/ GENDER** : 72 YRS/MALE  
**COLLECTED BY** :  
**REFERRED BY** :  
**BARCODE NO.** : 01517591  
**CLIENT CODE.** : KOS DIAGNOSTIC LAB  
**CLIENT ADDRESS** : 6349/1, NICHOLSON ROAD, AMBALA CANTT

**PATIENT ID** : 1623464  
**REG. NO./LAB NO.** : 012409240012  
**REGISTRATION DATE** : 24/Sep/2024 09:44 AM  
**COLLECTION DATE** : 24/Sep/2024 09:45AM  
**REPORTING DATE** : 24/Sep/2024 10:32AM

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

## HAEMATOLOGY

### COMPLETE BLOOD COUNT (CBC)

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

|  |                   |              |   |
|--|-------------------|--------------|---|
| HAEMOGLOBIN (HB)<br>by CALORIMETRIC  | 9.5 <sup>L</sup>  | gm/dL        | 12.0 - 17.0   |
| RED BLOOD CELL (RBC) COUNT<br>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE              | 3.5               | Millions/cmm | 3.50 - 5.00   |
| PACKED CELL VOLUME (PCV)<br>by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER                 | 29.6 <sup>L</sup> | %            | 40.0 - 54.0   |
| MEAN CORPUSCULAR VOLUME (MCV)<br>by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER            | 84.4              | fL           | 80.0 - 100.0  |
| MEAN CORPUSCULAR HAEMOGLOBIN (MCH)<br>by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER       | 27                | pg           | 27.0 - 34.0   |
| MEAN CORPUSCULAR HEMOGLOBIN CONC. (MCHC)<br>by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | 32                | g/dL         | 32.0 - 36.0   |
| RED CELL DISTRIBUTION WIDTH (RDW-CV)<br>by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER     | 14.9              | %            | 11.00 - 16.00   |
| RED CELL DISTRIBUTION WIDTH (RDW-SD)<br>by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER     | 47                | fL           | 35.0 - 56.0   |
| MENTZERS INDEX<br>by CALCULATED  | 24.11             | RATIO        | BETA THALASSEMIA TRAIT: < 13.0<br>IRON DEFICIENCY ANEMIA: >13.0   |
| GREEN & KING INDEX<br>by CALCULATED  | 35.74             | RATIO        | BETA THALASSEMIA TRAIT: <= 65.0<br>IRON DEFICIENCY ANEMIA: > 65.0 |


#### WHITE BLOOD CELLS (WBCS)


|   |       |      |              |
|---|-------|------|--------------|
| TOTAL LEUCOCYTE COUNT (TLC)<br>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY              | 10760 | /cmm | 4000 - 11000 |
| NUCLEATED RED BLOOD CELLS (nRBCS)<br>by AUTOMATED 6 PART HEMATOLOGY ANALYZER          | NIL   |      | 0.00 - 20.00 |
| NUCLEATED RED BLOOD CELLS (nRBCS) %<br>by CALCULATED BY AUTOMATED HEMATOLOGY ANALYZER | NIL   | %    | < 10 %       |

#### DIFFERENTIAL LEUCOCYTE COUNT (DLC)

|  |    |   |         |
|--|----|---|---------|
| NEUTROPHILS<br>by FLOW CYTOMETRY BY SF CUBE & MICROSCOPY | 68 | % | 50 - 70 |
|--|----|---|---------|



  
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| <b>LYMPHOCYTES</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>                         | 18 <sup>L</sup>     | %    | 20 - 40                       |
| <b>EOSINOPHILS</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>                         | 6                   | %    | 1 - 6                         |
| <b>MONOCYTES</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>                           | 8                   | %    | 2 - 12                        |
| <b>BASOPHILS</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>                           | 0                   | %    | 0 - 1                         |
| <b><u>ABSOLUTE LEUKOCYTES (WBC) COUNT</u></b>  |                     |      |                               |
| <b>ABSOLUTE NEUTROPHIL COUNT</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>           | 7317                | /cmm | 2000 - 7500                   |
| <b>ABSOLUTE LYMPHOCYTE COUNT</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>           | 1937                | /cmm | 800 - 4900                    |
| <b>ABSOLUTE EOSINOPHIL COUNT</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>           | 646 <sup>H</sup>    | /cmm | 40 - 440                      |
| <b>ABSOLUTE MONOCYTE COUNT</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>             | 861                 | /cmm | 80 - 880                      |
| <b>ABSOLUTE BASOPHIL COUNT</b><br><i>by FLOW CYTOMETRY BY SF CUBE &amp; MICROSCOPY</i>             | 0                   | /cmm | 0 - 110                       |
| <b><u>PLATELETS AND OTHER PLATELET PREDICTIVE MARKERS.</u></b>                                     |                     |      |                               |
| <b>PLATELET COUNT (PLT)</b><br><i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>              | 352000              | /cmm | 150000 - 450000               |
| <b>PLATELETCRIT (PCT)</b><br><i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>                | 0.38 <sup>H</sup>   | %    | 0.10 - 0.36                   |
| <b>MEAN PLATELET VOLUME (MPV)</b><br><i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i>        | 11                  | fL   | 6.50 - 12.0                   |
| <b>PLATELET LARGE CELL COUNT (P-LCC)</b><br><i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i> | 111000 <sup>H</sup> | /cmm | 30000 - 90000                 |
| <b>PLATELET LARGE CELL RATIO (P-LCR)</b><br><i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i> | 31.5                | %    | 11.0 - 45.0                   |
| <b>PLATELET DISTRIBUTION WIDTH (PDW)</b><br><i>by HYDRO DYNAMIC FOCUSING, ELECTRICAL IMPEDENCE</i> | 16.2                | %    | 15.0 - 17.0                   |
| NOTE: TEST CONDUCTED ON EDTA WHOLE BLOOD   |                     |      |                               |



  
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### ERYTHROCYTE SEDIMENTATION RATE (ESR)

**ERYTHROCYTE SEDIMENTATION RATE (ESR)**      76<sup>H</sup>      mm/1st hr      0 - 20  
*by RED CELL AGGREGATION BY CAPILLARY PHOTOMETRY*

#### INTERPRETATION:

1. ESR is a non-specific test because an elevated result often indicates the presence of inflammation associated with infection, cancer and autoimmune disease, but does not tell the health practitioner exactly where the inflammation is in the body or what is causing it.
2. An ESR can be affected by other conditions besides inflammation. For this reason, the ESR is typically used in conjunction with other test such as C-reactive protein
3. This test may also be used to monitor disease activity and response to therapy in both of the above diseases as well as some others, such as systemic lupus erythematosus

#### CONDITION WITH LOW ESR

A low ESR can be seen with conditions that inhibit the normal sedimentation of red blood cells, such as a high red blood cell count (polycythaemia), significantly high white blood cell count (leucocytosis), and some protein abnormalities. Some changes in red cell shape (such as sickle cells in sickle cell anaemia) also lower the ESR.

#### NOTE:

1. ESR and C - reactive protein (C-RP) are both markers of inflammation.
2. Generally, ESR does not change as rapidly as does CRP, either at the start of inflammation or as it resolves.
3. **CRP is not affected by as many other factors as is ESR, making it a better marker of inflammation.**
4. If the ESR is elevated, it is typically a result of two types of proteins, globulins or fibrinogen.
5. Women tend to have a higher ESR, and menstruation and pregnancy can cause temporary elevations.
6. Drugs such as dextran, methyldopa, oral contraceptives, penicillamine procainamide, theophylline, and vitamin A can increase ESR, while aspirin, cortisone, and quinine may decrease it



  
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**CLINICAL CHEMISTRY/BIOCHEMISTRY**  
**KIDNEY FUNCTION TEST (BASIC)**

|   |                    |       |               |
|---|--------------------|-------|---------------|
| UREA: SERUM<br><i>by UREASE - GLUTAMATE DEHYDROGENASE (GLDH)</i>                                | 64.18 <sup>H</sup> | mg/dL | 10.00 - 50.00 |
| CREATININE: SERUM<br><i>by ENZYMATIC, SPECTROPHOTOMETRY</i>                                     | 1.61 <sup>H</sup>  | mg/dL | 0.40 - 1.40   |
| BLOOD UREA NITROGEN (BUN): SERUM<br><i>by CALCULATED, SPECTROPHOTOMETRY</i>                     | 29.99 <sup>H</sup> | mg/dL | 7.0 - 25.0    |
| BLOOD UREA NITROGEN (BUN)/CREATININE<br>RATIO: SERUM<br><i>by CALCULATED, SPECTROPHOTOMETRY</i> | 18.63              | RATIO | 10.0 - 20.0   |
| UREA/CREATININE RATIO: SERUM<br><i>by CALCULATED, SPECTROPHOTOMETRY</i>                         | 39.86              | RATIO |               |
| URIC ACID: SERUM<br><i>by URICASE - OXIDASE PEROXIDASE</i>                                      | 6.74               | mg/dL | 3.60 - 7.70   |



  
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**INTERPRETATION:**

Normal range for a healthy person on normal diet: 12 - 20

To Differentiate between pre- and postrenal azotemia.

**INCREASED RATIO (>20:1) WITH NORMAL CREATININE:**

1. Prerenal azotemia (BUN rises without increase in creatinine) e.g. heart failure, salt depletion, dehydration, blood loss) due to decreased glomerular filtration rate.
2. Catabolic states with increased tissue breakdown.
3. GI hemorrhage.
4. High protein intake.
5. Impaired renal function plus .
6. Excess protein intake or production or tissue breakdown (e.g. infection, GI bleeding, thyrotoxicosis, Cushings syndrome, high protein diet, burns, surgery, cachexia, high fever).
7. Urine reabsorption (e.g. ureterocolostomy)
8. Reduced muscle mass (subnormal creatinine production)
9. Certain drugs (e.g. tetracycline, glucocorticoids)

**INCREASED RATIO (>20:1) WITH ELEVATED CREATININE LEVELS:**

1. Postrenal azotemia (BUN rises disproportionately more than creatinine) (e.g. obstructive uropathy).
2. Prerenal azotemia superimposed on renal disease.

**DECREASED RATIO (<10:1) WITH DECREASED BUN :**

1. Acute tubular necrosis.
2. Low protein diet and starvation.
3. Severe liver disease.
4. Other causes of decreased urea synthesis.
5. Repeated dialysis (urea rather than creatinine diffuses out of extracellular fluid).
6. Inherited hyperammonemias (urea is virtually absent in blood).
7. SIADH (syndrome of inappropriate antidiuretic hormone) due to tubular secretion of urea.
8. Pregnancy.


**DECREASED RATIO (<10:1) WITH INCREASED CREATININE:**


1. Phenacimide therapy (accelerates conversion of creatine to creatinine).
2. Rhabdomyolysis (releases muscle creatinine).
3. Muscular patients who develop renal failure.

**INAPPROPRIATE RATIO:**

1. Diabetic ketoacidosis (acetoacetate causes false increase in creatinine with certain methodologies, resulting in normal ratio when dehydration should produce an increased BUN/creatinine ratio).
2. Cephalosporin therapy (interferes with creatinine measurement).



  
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| <b>CLIENT CODE.</b>   | : KOS DIAGNOSTIC LAB                   |                          |                        |
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### IMMUNOPATHOLOGY/SEROLOGY

#### TYPHOID COMBO SCREEN (TYPHOID ANTIGEN, IgG AND IgM): SERUM

|   |                       |                |
|---|-----------------------|----------------|
| TYPHOID ANTIGEN - SERUM<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i> | NEGATIVE (-ve)        | NEGATIVE (-ve) |
| TYPHI DOT ANTIBODY IgG<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i>  | NEGATIVE (-ve)        | NEGATIVE (-ve) |
| TYPHI DOT ANTIBODY IgM<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i>  | WEAKLY POSITIVE (+ve) | NEGATIVE (-ve) |

#### INTERPRETATION:

Typhoid fever is a life threatening illness caused by the bacterium *Salmonella typhus*. The infection is acquired typically by ingestion. On reaching the gut, the bacilli attach themselves to the epithelial cells of the intestinal villi and penetrate the lamina and submucosa. They are then phagocytosed there by polymorphs and mesenteric lymph nodes, where they multiply and, via the thoracic duct, enter the blood stream. A transient bacteremia follows, during which the bacilli are seeded in the liver, gall bladder, spleen, bone marrow, lymph nodes, and kidneys, where further multiplication takes place. Towards the end of the incubation period, there occurs a massive bacteremia from these sites, heralding the onset of the clinical symptoms.

The diagnosis of typhoid consists of isolation of the bacilli and the demonstration of antibodies. The isolation of the bacilli is very time consuming and antibody detection is not very specific. Other tests include the Widal reaction. The advantage of this test is that it takes only 10-20 minutes and requires only a small amount of stool/serum/plasma to perform. It is the easiest and most specific method for detecting *S. typhi* infection.

**RELATIVE SENSITIVITY OF TYPHOID ANTIGEN DETECTION: 98.7%**

**RELATIVE SPECIFICITY OF TYPHOID ANTIGEN DETECTION: 97.4%**

#### DETECTABLE IgM RESPONSE:


| ONSET OF FEVER | PERCENT POSITIVE |
|----------------|------------------|
| 4 - 6 DAYS     | 43.5             |
| 6 - 9 DAYS     | 92.9             |
| > 9 DAYS       | 99.5             |


1. This is a solid phase, immunochromatographic ELISA assay that detects specific IgM and IgG Antibodies against the OUTER MEMBRANE PROTEIN (OMP) of the *Salmonella* species. IgM antibodies appear in the serum 2-3 days post infection and are indicative of a recent infection while the IgG antibodies appear later and are useful for presumptive diagnosis of Enteric fever if the patient presents more than a week after onset of symptoms.

2. This is a useful screening assay for the early detection of Enteric fever and has a high sensitivity. However the test has moderate specificity and false positive results may be obtained in the following situations:

- Antibodies against *Salmonella* may cross react with other antibodies.



  
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. Unrelated infections may lead to production of specific Salmonella antibodies if the patient has previously been exposed to Salmonella infection (ANAMNESTIC RESPONSE).

**NOTE:-**Rapid blood culture performed during 1<sup>st</sup> week of infection is highly recommended for confirmation of all IgM positive results. In case the patient has presented after the first week of infection, a thorough clinical correlation and confirmatory Widal test must be performed to establish the diagnosis.



  
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|---|----------------|------|-------------------------------|
| <b>DENGUE FEVER COMBO SCREENING - (NS1 ANTIGEN, IgG AND IgM)</b>        |                |      |                               |
| DENGUE NS1 ANTIGEN - SCREENING<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i>  | NEGATIVE (-ve) |      | NEGATIVE (-ve)                |
| DENGUE ANTIBODY IgG - SCREENING<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i> | NEGATIVE (-ve) |      | NEGATIVE (-ve)                |
| DENGUE ANTIBODY IgM - SCREENING<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i> | NEGATIVE (-ve) |      | NEGATIVE (-ve)                |

**INTERPRETATION:-**

- 1.This is a solid phase immunochromatographic ELISA test for the qualitative detection of the specific IgG and IgM antibodies against the Dengue virus.
- 2.The IgM antibodies take a minimum of 5-10 days in primary infection and 4-5 days in secondary infections to test positive and hence are suitable for the diagnosis of dengue fever only when the fever is approximately one week old.
- 3.The IgG antibodies develop at least two weeks after exposure to primary infection and subsequently remain positive for the rest of the life. A positive result is incapable of differentiating a current infection from a past infection.
- 4.The Dengue NS-1 antigen test is most suited for early diagnosis (within the first week of exposure).



  
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|                       |  |                          |                        |
|-----------------------|--|--------------------------|------------------------|
| <b>NAME</b>           | : Mr. GURDEEP SINGH                    | <b>PATIENT ID</b>        | : 1623464              |
| <b>AGE/ GENDER</b>    | : 72 YRS/MALE                          | <b>REG. NO./LAB NO.</b>  | : 012409240012         |
| <b>COLLECTED BY</b>   | :                                      | <b>REGISTRATION DATE</b> | : 24/Sep/2024 09:44 AM |
| <b>REFERRED BY</b>    | :                                      | <b>COLLECTION DATE</b>   | : 24/Sep/2024 09:45AM  |
| <b>BARCODE NO.</b>    | : 01517591                             | <b>REPORTING DATE</b>    | : 24/Sep/2024 11:18AM  |
| <b>CLIENT CODE.</b>   | : KOS DIAGNOSTIC LAB                   |                          |                        |
| <b>CLIENT ADDRESS</b> | : 6349/1, NICHOLSON ROAD, AMBALA CANTT |                          |                        |


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


**MALARIA - P.FALCIPARUM AND P.VIVAX ANTIGEN DETECTION**

|   |                |                |
|---|----------------|----------------|
| PLASMODIUM FALCIPARUM ANTIGEN<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i> | NEGATIVE (-ve) | NEGATIVE (-ve) |
| PLASMODIUM VIVAX ANTIGEN<br><i>by ICT (IMMUNOCHROMATOGRAPHY)</i>      | NEGATIVE (-ve) | NEGATIVE (-ve) |

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



  
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