Dr. Vinay Chopra
MD (Pathology & Microbiology)
Chairman & Consultant Pathologist

Dr. Yugam Chopra
MD (Pathology)
CEO & Consultant Pathologist

TEST PERFORMED AT KOS DIAGNOSTIC LAB, AMBALA CANTT.

NAME	**: Mr. HIRA LAL NAYYAR**		
AGE/ GENDER	: 74 YRS/MALE	**PATIENT ID**	: 1567307
COLLECTED BY	:	**REG. NO./LAB NO.**	**: 012408010028**
REFERRED BY	:	**REGISTRATION DATE**	: 01/Aug/2024 11:42 AM
BARCODE NO.	: 01514244	**COLLECTION DATE**	: 02/Aug/2024 09:35AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 03/Aug/2024 11:17AM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

MICROBIOLOGY

CULTURE AEROBIC BACTERIA AND ANTIBIOTIC SENSITIVITY: SPUTUM

CULTURE AND SUSCEPTIBILITY - SPUTUM

DATE OF SAMPLE	01-08-2024
SPECIMEN SOURCE	SPUTUM
INCUBATION PERIOD	48 HOURS
GRAM STAIN *by MICROSCOPY*	**GRAM POSITIVE (+ve)**
CULTURE *by AUTOMATED BROTH CULTURE*	**POSITIVE (+ve)**
ORGANISM *by AUTOMATED BROTH CULTURE*	Streptococci. sp.

AEROBIC SUSCEPTIBILITY - SPUTUM

AMOXICILLIN+CLAVULANIC ACID *by AUTOMATED BROTH MICRODILUTION, CLSI* Concentration: 8/4 µg/mL	RESISTANT
AMPICILLIN *by AUTOMATED BROTH MICRODILUTION, CLSI* Concentration: 8 µg/mL	RESISTANT
AMPICILLIN+SULBACTUM *by AUTOMATED BROTH MICRODILUTION, CLSI* Concentration: 8/4 µg/mL	**INTERMEDIATE**
CHLORAMPHENICOL *by AUTOMATED BROTH MICRODILUTION, CLSI* Concentration: 8 µg/mL	**SENSITIVE**
CIPROFLOXACIN *by AUTOMATED BROTH MICRODILUTION, CLSI* Concentration: 1 µg/mL	**INTERMEDIATE**
DOXYCYCLINE *by AUTOMATED BROTH MICRODILUTION, CLSI*	**SENSITIVE**

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Test Name	Value	Unit	Biological Reference interval
Concentration: 4 µg/mL			
GENTAMICIN ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 16 µg/mL	**SENSITIVE**		
NORFLOXACIN ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 4 µg/mL	**INTERMEDIATE**		
MINOCYCLINE ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 4 µg/mL	**SENSITIVE**		
TOBRAMYCIN ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 4 µg/mL	**SENSITIVE**		
AMIKACIN ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 16 µg/mL	**SENSITIVE**		
AZETREONAM ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 4 µg/mL	**SENSITIVE**		
CEFAZOLIN *by AUTOMATED BROTH MICRODILUTION, CLSI* Concentration: 16 µg/mL	RESISTANT		
CEFIXIME *by AUTOMATED BROTH MICRODILUTION, CLSI*	RESISTANT		
CEFOXITIN *by AUTOMATED BROTH MICRODILUTION, CLSI* Concentration: 8 µg/mL	RESISTANT		
CEFTAZIDIME ***by AUTOMATED BROTH MICRODILUTION, CLSI***	**SENSITIVE**		

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Test Name	Value	Unit	Biological Reference interval
Concentration: 4 µg/mL			
CEFTRIAXONE *by AUTOMATED BROTH MICRODILUTION, CLSI*	RESISTANT		
FOSFOMYCIN ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 64 µg/mL	**INTERMEDIATE**		
LEVOFLOXACIN ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 2 µg/mL	**SENSITIVE**		
NETLIMICIN SULPHATE ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 8 µg/mL	**SENSITIVE**		
PIPERACILLIN+TAZOBACTUM ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 16/4 µg/mL	**SENSITIVE**		
TICARCILLIN+CLAVULANIC ACID ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 16/2 µg/mL	**SENSITIVE**		
TRIMETHOPRIM+SULPHAMETHAZOLE ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 2/38 µg/mL	**INTERMEDIATE**		
CEFIPIME ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 2 µg/mL	**INTERMEDIATE**		
DORIPENEM ***by AUTOMATED BROTH MICRODILUTION, CLSI*** Concentration: 1 µg/mL	**SENSITIVE**		
IMIPINEM *by AUTOMATED BROTH MICRODILUTION, CLSI*	RESISTANT		

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Test Name	Value	Unit	Biological Reference interval

Concentration: 1 µg/mL

MEROPENEM **SENSITIVE**
by AUTOMATED BROTH MICRODILUTION, CLSI
Concentration: 1 µg/mL

COLISTIN **SENSITIVE**
by AUTOMATED BROTH MICRODILUTION, CLSI
Concentration: 0.06 µg/mL

INTERPRETATION
SUSCEPTIBILITY:
1. A test interpreted as **SENSTITIVE** implies that infection due to isolate may be appropriately treated with the dosage of an antimicrobial agent recommended for that type of infection and infecting species, unless otherwise indicated.
2. A test interpreted as **INTERMEDIATE** implies that the" Infection due to the isolate may be appropriately treated in body sites where the drugs are physiologically concentrated or when a high dosage of drug can be used".
3.A test interpreted as **RESISTANT** implies that the "isolates are not inhibited by the usually achievable concentration of the agents with normal dosage, schedule and/or fall in the range where specific microbial resistance mechanism are likely (e.g. beta-lactamases), and clinical efficacy has not been reliable in treatment studies.

CAUTION:
Conditions which can cause a false Negative culture:
1. Patient is on antibiotics. Please repeat culture post therapy.
2. Anaerobic bacterial infection.
3. Fastidious aerobic bacteria which are not able to grow on routine culture media.
4. Besides all these factors, at least in 25-40 % of cases there is no direct correlation between in vivo clinical picture.
5. Renal tuberculosis to be confirmed by AFB studies.

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MBBS, MD (PATHOLOGY & MICROBIOLOGY)

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MBBS , MD (PATHOLOGY)

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BARCODE NO.	: 01514244	**COLLECTION DATE**	: 02/Aug/2024 09:35AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 03/Aug/2024 11:16AM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

GRAMS STAIN

TEST NAME:
GRAMS STAIN

CLINICAL HISTORY (IF ANY):

NATURE OF SPECIMEN:
SPUTUM

MICROSCOPIC EXAMINATION :
Gram's stained smear show occasional gram +ve cocci.

IMPRESSION:
Correlate clinically.

Interpretation:-
Gram stain is the most important staining method in bacteriology .It is the most rapid method employed for the presumptive diagnosis of infections agent in clinical specimens. It also servers to assess the quality of clinical specimens.
It distinguishes bacteria into broad categories :
(a).The gram-positive, which stain dark purple
(b).Gram-negative ,which stain light red.

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(c).A few species are Gram-variable , and tend to show a mixture of the cells .
(d).Further details of the bacteria as any other special features , including unusual shapes (such as comma shaped Gram negative bacilli) as also observed.

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CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

FUNGAL SMEAR EXAMINATION

TEST NAME:
FUNGAL SMEAR EXAMINATION

CLINICAL HISTORY (IF ANY):

SITE:
SPUTUM

NATURE/APPEAREANCE OF SPECIMEN :
Mucoid type

MICROSCOPIC EXAMINATION:
Smear reveals no hypae or spores of fungus.

IMPRESSION:
Negative for FUNGUS.

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BARCODE NO.	: 01514244	**COLLECTION DATE**	: 02/Aug/2024 09:35AM
CLIENT CODE.	: KOS DIAGNOSTIC LAB	**REPORTING DATE**	: 07/Sep/2024 04:24PM
CLIENT ADDRESS	: 6349/1, NICHOLSON ROAD, AMBALA CANTT		

Test Name	Value	Unit	Biological Reference interval

CULTURE MYCOBACTERIUM TUBERCULOSIS (AFB) RAPID BY BACTEC MGIT: OTHERS

CULTURE: ACID FAST BACILLI (AFB)/MYCOBACTERIUM TUBERCULOSIS

DATE OF SAMPLE	02-08-2024	
SPECIMEN SOURCE	SPUTUM	
ACID FAST/Z.N. STAIN FOR AFB *by MICROSCOPY*	No Acid Fast Bacilli seen.	NEGATIVE (-ve)
CULTURE MEDIUM USED	MODIFIED MIDDLEBROOK	
FIRST INTERIM REPORT *by AUTOMATED FLUORESCENT*	NO FUNGAL ORGANISM GROWN AFTER 2 DAYS INCUBATION AT 37*C	
SECOND INTERIM REPORT *by AUTOMATED FLUORESCENT*	NO FUNGAL ORGANISM GROWN AFTER 7 DAYS OF INCUBATION AT 37*C	
FINAL REPORT *by AUTOMATED FLUORESCENT*	NO FUNGAL ORGANISM GROWN AFTER 21 DAYS OF INCUBATION AT 37*C	

INTERPRETATION:

NOTE:

1.All positive results are confirmed by acid fast smear examination.
2.Para Nitro Benzoic Acid (PNB) test is used for differentiating between Mycobacterium-tuberculosis complex and Mycobacterium other than tuberculosis (MOTT).Growth of the Mycobacterium tuberculosis complex (MTC) is inhibited by p-nitrobenzoicacid (PNB),whereas Mycobacterium other than Tuberculosis (MOTT) are resistant.
3.Recovery of Mycobacteria is dependent on the number of organisms present in the specimen, sample collection technique, clinical symptoms & treatment and Mycobacteria species.
4.Positive culture reported immediately.

PRINCIPLE:

BACTEC MGIT 960 system is designed and optimized for the rapid detection of mycobacteria and continuous monitoring using non radiometric fluorescence technology. Microorganisms present in specimens metabolize nutrients and oxygen in the culture tube. The culture tubes contain a fluorescent sensor that responds to the concentration of oxygen in the culture medium. The instrument's photo detectors measure the level of fluorescence, which corresponds to the amount of oxygen consumed by organisms.

ASSOCIATED TESTS:

1.AFB – Xpert panel : For rapid identification of M.tuberculosis complex and detection of Rifampicin resistance.
2.AFB MDR-screen Hain's Line probe assay from all pulmonary Specimen (smear positive and Negative).
3.AFB- XDR-screen Hain's Line probe assay for patients diagnosed as MDR-TB.

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Test Name	Value	Unit	Biological Reference interval

MOLECULAR PATHOLOGY

GENE XPERT FOR MYCOBACTERIUM TUBERCULOSIS (MTB)

TYPE OF SAMPLE — SPUTUM

by RT-PCR (REAL TIME-POLYMERASE CHAIN REACTION)

MYCOBACTERIUM TUBERCULOSIS COMPLEX — NEGATIVE (-ve)

by RT-PCR (REAL TIME-POLYMERASE CHAIN REACTION)

INTERPRETATION:

RESULT	REMARKS
Mycobacterium Tuberculosis Complex (MTB): **DETECTED (High/Medium/Low/Very low** Rifampicin Resistance: **DETECTED**	MTB target is present within sample: Considered positive for use in clinical decision A Mutation in the rpoB gene target sequence has been detected implicating resistance to rifampicin
Mycobacterium Tuberculosis Complex (MTB): **DETECTED (High/Medium/Low/Very low** Rifampicin Resistance: **INTERMEDIATE**	MTB target is present within sample: Considered positive for use in clinical decision Rifampicin Resistance could not be determined due to invalid melt peaks. Intermediate result of Rifampicin resistance should be subjected to culture bases drug sensitivity testing
Mycobacterium Tuberculosis Complex (MTB): **DETECTED (High/Medium/Low/Very low** Rifampicin Resistance: **NOT DETECTED**	MTB target is present within sample: Considered positive for use in clinical decision No mutation in the rpoB gene target has been detected
Mycobacterium Tuberculosis Complex (MTB): **NOT DETECTED**	MTB target is not detected present within sample: Considered negative for use in clinical decision
Mycobacterium Tuberculosis Complex (MTB): **DETECTED TRACE**	Low levels of MTB are detected but Rifampicin resistance could not be determined due to insufficient signal detection because of too low concentration of bacilli. This occurs due to the increased sensitivity of TB detection using multi copy targets IS6110 and IS1081 as opposed to Rifampicin resistance detection using the single copy rpoB gene. Trace positive Result of MTB is true positive and is sufficient treatment in those with known or suspected HIV

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Test Name	Value	Unit	Biological Reference interval
	inspection, children and for extra pulmonary samples		

NOTE:

1. This is a rapid semi quantitative DNA based real time PCR & melt peak detection which detects the nucleic acid of Mycobacterium tuberculosis complex DNA signifying that infection is likely with any of the following species namely M. tuberculosis, M. africanum, M. bovis, M. canettii, M. microti, M. caprae or M. pinnipedii forming the Mycobacterium tuberculosis complex and Rifampicin susceptibility qualitatively.
2. Primers in the Xpert MTB/RIF Ultra Assay amplify a portion of the rpoB gene containing the 81 base pair "core" region and portions of the multi-copy IS1081 and IS6110 insertion elements target sequences. The melt analysis with four rpoB probes is able to differentiate between the conserved wild-type sequence and mutations in the core region that are associated with Rifampicin resistance.
3. Mutations or polymorphisms in primer or probe binding regions may affect detection of new or unknown MDR-MTB or Rifampicin resistant strains resulting in a false Rifampicin-sensitive result.
4. This assay does not provide confirmation of Rifampicin susceptibility since mechanisms of Rifampicin Resistance other than those detected by this device may exist that may be associated with a lack of clinical response to treatment.
5. Limit of detection is approximately 11.8 CFU/ mL with sensitivity of smear positive / culture positive cases 99.5%, smear negative culture positive cases 73.3%; and specificity of 95.5%.
6. It does not distinguish between species of Mycobacteria tuberculosis complex nor detects atypical Mycobacteria.
7. This assay should not be used for monitoring the efficacy of anti-tubercular treatment.
8. Negative result does not rule out the presence of Mycobacterium tuberculosis complex or active disease because the organism may be present at levels below the limit of detection of this assay.

COMMENTS

The World Health Organization (WHO) has recommended the use of this assay in all settings for semi-quantitative detection of Mycobacterium tuberculosis complex and Rifampicin susceptibility. The recommendation on the Ultra cartridge is based on a recent WHO Expert Group evaluation of data from a study coordinated by FIND, in collaboration with the Tuberculosis Clinical Diagnostics Research Consortium (CDRC). The increased sensitivity of the Ultra assay is almost exclusively due to its low TB detection limit. The improved sensitivity of the Ultra assay is specially seen in children and individuals with HIV infection. This method ensures a better performance of the assay for detecting Rifampicin resistance without compromising

*** End Of Report ***

DR.VINAY CHOPRA
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DR.YUGAM CHOPRA
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