

Billed : 03/05/2024 11:15 ld : OAPR-1169142 Age : 26 years **Collected On** : 03/05/2024 08:50 Gender : M Reported : 03/05/2024 11:52 **Phone** : 0000000000 Vid : OAPR2425-6026

Test Result Units Biological Reference Interval

DE	PARTMENT OF MOLECULARE	SIOLOGY - CSF			
ORBITO CNS INFECTION PRIME (1652) (Method: RT PCR)					
SPECIMEN	CSF				
GRAM-POSITIVE BACTERIA					
Staphylococcus spp.	NOT DETECTED				
Streptococcus spp.	NOT DETECTED				
Staphyloccus aureus	NOT DETECTED				
Streptococcus pneumoniae	NOT DETECTED				
Enterococcus faecium	NOT DETECTED		V/		
Enterococcus faecalis	NOT DETECTED				
Listeria monocytogenes	NOT DETECTED				
FUNGI					
Candida albicans	NOT DETECTED				
Candida tropicalis	NOT DETECTED				
Candida parapsilosis	NOT DETECTED				
Candida glabrata	NOT DETECTED				
Candida krusei	NOT DETECTED				
Cryptococcus neoformans	NOT DETECTED		/		
GRAM-NEGATIVE BACTERIA			7		
Stenotrophomonas maltophilia	NOT DETECTED				
Neisseria meningitidis	NOT DETECTED				
Enterobacteriaceae spp.	NOT DETECTED				
Klebsiella pneumoniae	NOT DETECTED				
Klebsiella oxytoca	NOT DETECTED				
Pseudomonas aeruginosa	NOT DETECTED				
Pseudomonas spp.	NOT DETECTED				
Escherichia coli	NOT DETECTED				
Haemophilus influenzae	NOT DETECTED				
Acinetobacter baumannii	NOT DETECTED				
VIRUSES					
Human adenovirus (HAdV)	NOT DETECTED				



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Test	Result	Units	Biological Reference Interval
Human cytomegalovirus (HCMV)	NOT DETECTED		
Epstein-Barr virus (EBV)	NOT DETECTED		
Herpes simplex viruses (HSV) 1	NOT DETECTED		
Herpes simplex viruses (HSV) 2	NOT DETECTED		
Varicella zoster virus (VZV)	NOT DETECTED		
Enterovirus (EV)	NOT DETECTED		
Human parechovirus (HpeV)	NOT DETECTED		
Human herpesviruses (HHV) 6	NOT DETECTED		
Human herpesviruses (HHV) 7	NOT DETECTED		
Human parvovirus B19 (B19V)	NOT DETECTED		
ACID FAST BACILLI			
Mycobacterium tuberculosis	NOT DETECTED		
ANTIMICROBIAL RESISTANCE GENES			
IMP	NOT APPLICABLE		
KPC	NOT APPLICABLE		
New Delhi metallo-beta-lactamase (NDM)	NOT APPLICABLE		
OXA 48	NOT APPLICABLE		
OXA 1	NOT APPLICABLE		
VIM	NOT APPLICABLE		
beta-lactamases TEM, SHV	NOT APPLICABLE		
DHA	NOT APPLICABLE		
СТХМ	NOT APPLICABLE		
Vancomycin A/B	NOT APPLICABLE		
MRSA	NOT APPLICABLE		

I NTERPRETATION

- Human Cytomegalovirus: Cytomegalovirus (CMV) formally designated as Human Herpes Virus 5 (HHV-5) belongs to the family Herpes viridae. It has a worldwide distribution and infects humans of all ages with no seasonal or epidemic patterns of transmission. Seroprevalence of CMV increases with age ranging from 40-100%; highest being among lower socioeconomic groups. The infections can be congenital, perinatal or postnatal.
- Epstein Barr virus: Epstein Barr virus (EBV) is the causative agent of Infectious mononucleosis (Glandular fever), Burkitt's lymphoma and Nasopharyngeal carcinoma. Symptoms of Infectious mononucleosis are fever, sore throat and swollen lymph glands. It may involve spleen or liver also. EBV associated central nervous system (CNS)disease is most commonly associated with Primary CNS Lymphoma in patients with AIDS. CNS infection may also be detected in immunocompetent patients.
- Human Adenovirus: Adenoviruses (HAdV) consist of non-enveloped dsDNA and are a common cause of respiratory illness. The symptoms can range from the common cold to pneumonia, croup and bronchitis.



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- Depending on the type, adenoviruses can cause other illnesses such as gastroenteritis, conjunctivitis, cystitis, and less commonly neurological diseases. Adenoviral infections affect infants and young children much more frequently than adults. Severe disseminated infection can occur in immunocompromised subjects.
- Herpes Simplex virus: Herpes simplex virus (HSV) Type 1 belongs to the family Herpes viridae. HSV infections occur
 worldwide with no seasonal distribution. The prevalence of HSV-1 infection increases gradually from childhood, reaching
 80%or more in later years. A large percentage of individuals seropositive for HSV-1 are unaware of the infection, thereby
 comprising an important reservoir of infection. HSV-1 infections are characterized by oral lesions like gingivostomatitis &
 pharyngitis.
- Human Parechovirus: HPeV belongs to the family Picornaviridae and is currently divided into 19 genotypes. HPeV-1 is the
 most prevalent genotype and most commonly causes gastrointestinal and respiratory disease. HPeV causes systemic illness
 by spreading hematogenously to other organs, including the brain or liver, that may act as secondary replication sites in a
 minority of cases.
- Varicella-Zoster virus: Varicella-zoster virus (VZV) causes both Varicella (Chickenpox) and Herpes zoster (Shingles). VZV
 produces a generalized vesicular rash on the dermis (Chickenpox) in normal children, usually before 10 years of age. After
 primary infection with VZV, the virus persists in latent form and may emerge, usually in adults 50 years of age and older
 clinically to cause a unilateral vesicular eruption.
- Human Parvovirus B19: Parvovirus infection is a common and highly contagious childhood illness. It's sometimes called slapped-cheek disease .Parvovirus infection in people with anemia may stop the production of red blood cells and cause an anemia crisis. People with sickle cell anemia are at particular risk.
- Enteroviruses: Enteroviruses are positive-sense RNA viruses in the Picornaviridae family. These viruses were initially classified by serotype as Polioviruses (3 types), Echoviruses (31 types, including types 22 and 23, which are now classified as Parechoviruses), Coxsackie virus A (23 types), and Coxsackie virus B (6 types). The normal site of enterovirus replication is the gastrointestinal tract where the infection is typically subclinical. However, in a proportion of cases, the virus spreads to other organs, causing systemic manifestations, including mild respiratory disease (eg, the common cold); conjunctivitis; hand, foot, and mouth disease; aseptic meningitis; myocarditis; and acute flaccid paralysis. Collectively, enteroviruses are the most common cause of upper respiratory tract disease in children. In addition, the enteroviruses are the most common cause of central nervous system (CNS) disease; they account for almost all viruses recovered in culture from spinal fluid. Detection of enterovirus nucleic acid by PCR is also the most sensitive diagnostic method for the diagnosis of CNS Infection caused by these viruses.
- Human herpes viruses 6 & 7: The genome of Human herpes virus 7 (HHV7) is very similar to that of HHV6. Both HHV7 and HHV6appear to cause ubiquitous infections in early childhood, yet primary HHV7 infections are rarely recognized. HHV7 infection is associated with a number of other symptoms, including acute febrile respiratory disease, fever, rash, vomiting, diarrhea, low lymphocyte counts and febrile seizures though most often no symptoms.
- Enterobacteriaceae are a large family of Gram-negative bacteria that includes a number of bacteria such as Klebsiella, Enterobacter, Citrobacter, Salmonella, Escherichia coli, Shigella, Proteus, Serratia and other species. These pathogens are present in the human intestinal tract and are a normal part of the gut flora. They are a common cause of urinary tract infections (UTIs), and some species can also cause diarrhoea. These pathogens can spread to the bloodstream resulting in life-threatening complications. Enterobacteriaceae, like all bacteria, can develop resistance to antibiotics, including the carbapenem group of antibiotics, which are sometimes referred to as the last line of antibiotic treatment against resistant organisms.
- Serratia marcescens: Serratia marcescens is an opportunistic, gram negative, nosocomial pathogen which belongs to family, Enterobacteriaceae. It is associated with urinary and respiratory infections, endocarditis, osteomylitis, septicemia, wound infections, eye infections, and meningitis. Transmission is by direct contact.
- Escherichia coli: Escherichia coli (E. coli) bacteria normally live in the intestines of people and animals. MostE. coli are harmless and actually are an important part of a healthy human intestinal tract. However, some E. coli are pathogenic, meaning they can cause illness, either diarrhea or illness outside of the intestinal tract. The types of E. coli that can cause diarrhea can be transmitted through contaminated water or food, or through contact with animals or persons.
- Haemophilus influenzae: H. influenzae can cause severe infections of both the lining of the brain and spinal cord (meningitis) and the bloodstream. These bacteria live in people's nose and throat, and usually cause no harm. However, the bacteria can sometimes move to other parts of the body and cause infection.
- Neisseria meningitidis: Neisseria meningitidis



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- is an aerobic or facultative anaerobic, Gram-negative diplococcus t h a t exclusively infects humans. It is a human-specific bacterium that causes a multitude of illnesses, collectively termed meningococcal disease. Complications of meningococcal disease include chronic pain, skin scarring, limb amputation, and neurological impairment ranging from hearing and visual impairments to motor function impairments.
- Streptococcus pneumoniae: Streptococcus pneumoniae remains the leading cause of bacterial meningitis. It is the commonest cause of meningitis between the ages of 1 and 23 months, and above the age of 19. The nasopharynx is the primary site of colonization, and the vast majority of pneumococcal isolates are encapsulated. In the majority of these people, the bacteria is not growing or active and will not cause illness. However, anyone who carries this bacteria can transmit it to others, potentially causing any of the illnesses or pneumococcal meningitis.
- Streptococcus pyogenes: Streptococcus pyogenes, also known as group A streptococcus (GAS) is a leading cause of
 pharyngitis in children and adolescents. Clinicians should use clinical and epidemiological findings to determine the likelihood
 of GAS pharyngitis. S. pyogenes is a gram-positive, catalase-negative, oxidase negative, β-hemolytic streptococci.
 Streptococcus pyogenes is a major human-specific bacterial pathogen that causes a wide array of manifestations ranging
 from mild localized infections to life-threatening invasive infections. Ineffective treatment of S. pyogenes infections can result
 in the postinfectious sequela acute rheumatic fever and post-streptococcal glomerulonephritis.
- Pseudomonas aeruginosa: Pseudomonas aeruginosa is a Gram-negative, rod-shaped, asporogenous, and monoflagellated bacterium. It has a pearlescent appearance and grape-like or tortilla-like odour. P. aeruginosa has become an emerging opportunistic pathogen in the clinics. Recent epidemiological studies demonstrate its nosocomial pathogen status, particularly those strains with increased antibiotic resistance.
- Enterococci: Enterococci are gram-positive, facultative anaerobic organisms. Enterococcus faecalis and E. faecium cause a
 variety of infections, including endocarditis, urinary tract infections, prostatitis, intra-abdominal infection, cellulitis, and wound
 infection as well as concurrent bacteremia.
- Acinetobacter baumannii: Acinetobacter is a gram-negative coccobacillus that has emerged from an organism of
 questionable pathogenicity to an infectious agent of importance to hospitals worldwide. The organism has the ability to
 accumulate diverse mechanisms of resistance, leading to the emergence of strains that are resistant to all commercially
 available antibiotics. Acinetobacter baumannii is one of the ESCAPE organisms, a group of clinically important, predominantly
 health care-associated organisms that have the potential for substantial antimicrobial resistance.
- Proteus mirabilis: Proteus mirabilis, a Gram-negative rod-shaped bacterium, is well-known for its urease production and distinctive ability to differentiate into elongated swarm cells and characteristic bull's-eye pattern of motility on agar plates. P. mirabilis belongs to the class Gammaproteobacteria, and has long been recognized as a member of the order Enterobacteriales, family Enterobacteriaceae. Proteus mirabilis is the main pathogen causing complicated urinary tract infections (UTIs), especially catheter-associated urinary tract infections.
- Mycobacterium tuberculosis infection in the central nervous system (CNS) may manifest as meningitis, tuberculoma, and spinal arachnoiditis. Tuberculous meningitis (TBM) is caused by the seeding of the meninges with the bacilli of Mycobacterium tuberculosis (MTB) and is characterized by inflammation of the membranes (meninges) around the brain or spinal cord. In tuberculous meningitis, the meninges are seeded by MTB and form sub-ependymal collections called Rich foci.
- Candida ablicans: Candidiasis is a fungal infection caused by yeasts from the genus Candida, most commonly Candida albicans. Candida yeasts are normally present in small amounts on the skin and in the mouth, digestive tract, and genital area, but under certain conditions, they can grow and cause infections.
- Candida parapsilosis is a species of yeast that can cause opportunistic infections in humans, particularly in individuals with weakened immune systems or those undergoing medical procedures such as surgery or receiving intravenous therapies. Candida parapsilosis is clinically significant due to its ability to cause invasive infections, particularly in vulnerable patient populations, and its propensity for healthcare-associated transmission and antifungal resistance.
- Cryptococcus neoformans is a pathogenic yeast that can cause serious infections, particularly in individuals with weakened immune systems. It is a major cause of cryptococcal meningitis, an infection that affects the membranes surrounding the brain and spinal cord. This is the most severe manifestation of Cryptococcus neoformans infection. It can present with symptoms such as headache, fever, neck stiffness, and altered mental status. Without proper treatment, cryptococcal meningitis can be fatal.

Anti microbial resistance (AMR) Genes and Applicable Bacteria



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AMR Gene	Applicable Bacteria
van A/B	Enterococcus faecalis, Enterococcus faecium
Mec A/C and MREJ (MRSA)	Staphylococcus aureus
CTX-M,IMP, KPC, NDM,VIM	Acinetobacter baumannii complex, Enterobacterales,, Escherichia coli, Klebsiella aerogenes, Pseudomonas aeruginosa, Proteus spp., Salmonella spp., Serratia marcescens
OXA-48 like	Enterobacterales, Escherichia coli, Klebsiella pneumoniae group, Proteus spp., Salmonella spp., Serratia marcescens
OXA 1	Escherichia coli, Klebsiella pneumoniae group, Salmonella spp.

--- End of the Report ---