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Microbiology: Test Selection

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HOW TO USE THIS SECTION

This section displays information about clinically important infectious diseases in tabular form. Included in these tables are the *Organisms* involved in the disease/syndrome listed; *Specimens/Diagnostic Tests* that are useful in the evaluation; and *Comments* regarding the tests and diagnoses discussed. Topics are listed by body area/organ system: Central Nervous System, Eye, Ear, Sinus, Upper Airway, Lung, Heart and Vessels, Abdomen, Genitourinary, Bone, Joint, Muscle, Skin, and Blood.

Organisms

This column lists organisms that are known to cause the stated illness. Scientific names are abbreviated according to common usage (eg, *Streptococcus pneumoniae* as *S pneumoniae* or pneumococcus). Specific age or risk groups are listed in order of increasing age or frequency (eg, Infant, Child, Adult, AIDS).

When bacteria are listed, Gram's stain characteristics follow the organism name in parentheses—eg, "*S pneumoniae* (GPDC)." The following abbreviations are used:

| | | | |
|-------------|----------------------------|-------------|----------------------------|
| GPC | Gram-positive cocci | GNC | Gram-negative cocci |
| GPDC | Gram-positive diplococci | GNDC | Gram-negative diplococci |
| GPCB | Gram-positive coccobacilli | GNCB | Gram-negative coccobacilli |
| GPR | Gram-positive rods | GNR | Gram-negative rods |
| GVCB | Gram-variable coccobacilli | AFB | Acid-fast bacilli |

| Organism | Specimens/Diagnostic Tests | Comments |
|---|---|--|
| <p>Brain Abscess</p> <p>Usually polymicrobial: Viridans group and anaerobic streptococci (GPC in chains) (60–70%), <i>Bacteroides</i> (20–40%), Enterobacteriaceae (GNR) (23–33%), <i>S aureus</i> (GPC) (10–15%), fungus (10–15%), cysticercosis.</p> <p>HIV infection: <i>Toxoplasma gondii</i>.</p> <p>Post-traumatic: <i>S aureus</i> (GPC), Enterobacteriaceae (GNR).</p> | <p>Blood for bacterial cultures.</p> <p>Brain abscess aspirate for Gram's stain (82%), bacterial (88%), AFB, fungal cultures, and cytology. CSF profile is nonspecific, resembling that of aseptic meningitis (10% have normal CSF). Lumbar puncture is potentially dangerous.</p> <p>Sources of infection in the ears, sinuses, lungs or bloodstream should be sought for culture when abscess is found.</p> <p>CT scan and MRI are the most valuable imaging procedures and can guide biopsy if a specimen is needed. (See CT scan, MRI of head, p 243.)</p> <p>Serum <i>Toxoplasma</i> antibody in HIV-infected patients may not be positive at outset of presumptive therapy. If negative or if no response to empiric therapy, biopsy may be needed to rule out lymphoma or tuberculosis. Biopsy material should be sent for <i>Toxoplasma</i> antigen (DFA).</p> <p>Detection of <i>Toxoplasma</i> DNA in blood or CSF samples by PCR techniques is now available from specialized or reference laboratories. A positive PCR result must be interpreted in the context of the clinical presentation. Active or recent infection is indicated by a positive IgM antibody test. (See also <i>Toxoplasma</i> antibody, p 176.)</p> | <p>Common in patients with cyanotic congenital heart disease and right-to-left shunting (eg, tetralogy of Fallot) or arteriovenous vascular abnormalities of the lung (eg, Osler-Weber-Rendu).</p> <p>Majority of toxoplasmosis abscesses are multiple and are best seen on MRI in the basal ganglia, parietal and frontal lobes.</p> <p>^{99m}Tc brain scan is a very sensitive test for abscess and the test of choice where CT or MRI are unavailable.</p> <p>Ref: J Med Microbiol 1993;38:187. Ref: J Clin Microbiol 1993;31:1866. Ref: Clin Infect Dis 1993;16:661.</p> |

Brain Abscess

CENTRAL NERVOUS SYSTEM