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Editorial Note on Medical Microbiology & Diagnosis – Clinical Microbial Pathology

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Editorial

Clinical pathology is concerned with the diagnosis of disease based on laboratory analysis of body fluids like urine and blood. It deals with the tools of microbiology like macroscopic, microscopic, analyzers and cultures. It covers microbiology, host-pathogen interaction and immunology related to infectious agents, including bacteria, fungi, viruses and protozoa. It also accepts papers in the field of clinical microbiology, with the exception of case reports. The pathogenesis of a disease is the biological mechanism that leads to the diseased state. It also describes the origin and development of the disease, and whether it is acute, chronic, or recurrent.

Medical microbiology involves the identification of microorganisms for the diagnosis of infectious diseases and the assessment of likely response to specific therapeutic interventions. Major categories of organisms include bacteria, mycobacteria, fungi, viruses, and parasites. Microbiological methods combined with clinical symptoms, additional laboratory tests, and imaging techniques are used in combination to distinguish a true disease-associated infection from colonization with normal flora or other conditions, such as malignancies, inflammatory disorders, or autoimmune disorders, all of which have unique therapies and prognoses for the patient. Laboratories combine the use of traditional microscopy and culture methods, with a rapidly evolving set of molecular and proteomic techniques. Given the increase in immunocompromised patients due to an increase in transplantations, the human immunodeficiency virus epidemic, and the use of immunosuppressive agents to treat autoimmune disorders, diagnosis of microbial infections continues to be essential for many patients.

The very small size of viruses (most are 20–400 nm) and their dependence on host cells for replication drive the methods used to detect them. Viruses typically carry DNA or RNA, not both, surrounded by a protein shell and in some viruses, a lipid coat. Viral infections may be acute or chronic and clinical symptoms of viral infection may be florid or absent. Viruses may cause rapid death of a host cell or integrate viral genetic material into the host genome. Viral infections can be mild and common, such as rhinovirus causing colds, or rare and devastating, such as Ebola virus causing hemorrhagic fever. Viruses may be highly contagious, such as influenza, or have limited transmission capability, such as the human immunodeficiency virus (HIV).

Bacteria

Bacteria are unicellular organisms lacking a nuclear membrane. The cell wall may have a thick peptidoglycan layer or a thin peptidoglycan layer along with a lipid-containing outer membrane.

Fungi

Fungi are eukaryotic organisms that exist as a unicellular yeast or a filamentous mold. Yeast replicate asexually, whereas mold may replicate sexually or asexually. A class of fungi called dimorphic fungi have two forms, a yeast form and a mold form. The dimorphic molds *Histoplasma*, *Blastomyces*, and *Coccidioides* are prominent pathogens.

Parasites

Parasites are eukaryotic microbes of vastly diverse forms. Protozoa are quite small, while some parasitic worms are very large.

Related Journals of Clinical Microbial Pathology

Journal of Medical Microbiology & Diagnosis, Translational Medicine, Journal of Blood Disorders & Transfusion, Journal of Forensic Research, Journal of Clinical & Experimental Pathology, Microbial Pathogenesis, Clinical Journal of Microbiology and Pathology, Journal of Clinical & Experimental Pathology, Medical microbiology Journals, Journal of Clinical Pathology, Indian Journal of Pathology and Microbiology.