

Paediatric CNS Infection Including Immune Reconstitution Inflammatory Syndrome (IRIS)

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Imaging in pediatric central nervous system (CNS) infection has been challenging since the spectrum of neuroimaging findings are wide, from being normal findings to complicated imaging pattern. Nevertheless, neuroimaging plays an important and has growing role in the diagnosis and therapeutic management of pediatric CNS infections.

This lecture will describes the spectrum of imaging findings associated with major pediatric viral and bacterial brain infections, dividing the type of pediatric CNS infection to congenital and non-congenital. The spectrum of neuroimaging findings will be discussed based on the major intracranial compartments that are leptomeninges, intraparenchyma, major vessels and ventricular system. The role of different imaging techniques particularly ultrasound, CT and MRI will also be discussed highlighting on MRI as the tool of choice in the evaluation of brain infections with regards to the role of advanced MRI technique such as diffusion-weighted imaging. This lecture also considers mimics of CNS infection as well as pitfalls in diagnosis of CNS infection.

The lecture will ends by introducing IRIS, a disease entity known as immune reconstitution inflammatory syndrome which shows paradoxical infectious or inflammatory condition in patient who is recovering from severe immune deficiency such as HIV. Little is known regarding IRIS in children. We will go through the epidemiology of this disease and the neuroimaging findings that can be associated with this disease, which should be alerted in certain clinical condition that will also be discussed.

At the end of this lecture, it is hoped to provide a practical approach in dealing with CNS infection in pediatric age group emphasizing on recognizing certain neuroimaging pattern together with clinical history and biochemical information.