

## The paradox of primary amoebic meningoencephalitis — a rare disease, but commonly misdiagnosed

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Madam, the colossal expansion of the world's population in recent times has observed a proportional increase in the incidence of rare parasitic diseases such as primary amoebic meningoencephalitis (PAM). The paucity of available data on the disease can be judged by the fact that there have been fewer than 500 confirmed cases up till now. However, newly diagnosed cases of PAM are increasingly being reported worldwide which reflects the ubiquity of the disease.<sup>1</sup> Most of these cases have been reported from developed regions such as USA, Australia and Europe. However, advances in diagnostic protocols in developing countries such as Pakistan have also led to a few reports being published from these regions. Examples include the recent reports of four fatal cases of PAM from Karachi, in the month of July 2012.<sup>2</sup>

Amoebic meningoencephalitis is a rare, sporadic, central nervous system infection, caused by free-living amoeba, specifically *Naegleria fowleri*, *Balamuthia mandrillaris*, and certain species of *Acanthamoeba* and *Sappinia*. The lethal PAM is typically caused by *N. fowleri*, whose pathogenic potential was first described in 1965.<sup>3</sup> Patients with PAM may have a history of swimming, diving, bathing, or playing in warm, generally stagnant, freshwater during the previous few days to two weeks. The disease occurs more commonly during the warmer months of the year. The patient may present with high fever, photophobia, stiff neck, mental status changes, and seizures and, rarely, may complain of abnormal smell or

taste. The parasite enters the human body through infected water. It enters the nose and traverses the cribriform plate to enter the brain, causing acute meningoencephalitis. Currently, no effective treatment regimens have been defined for PAM. Patients have been reported to respond positively to surgical drainage and a 6-week course of amphotericin B, rifampicin and chloramphenicol, but successful eradication of the parasite still remains somewhat elusive.<sup>4</sup>

Clinicians should therefore include amoebic meningoencephalitis in their differentials, especially in cases of pyogenic meningitis and when other fungal and bacterial causes have been ruled out. It is essential for doctors to expand their index of suspicion, and order appropriate investigations, as it can easily be detected by microscopy, MRI, CT scan or a spinal tap. Thus, the only possible way to curb this menace is to promote awareness and encourage doctors and trainees to update their knowledge. Furthermore, large-scale measures must be taken to ensure disinfection of sources and stores of water supplies to minimise the contraction of this parasitic disease.

### References

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