Application of mesenchymal stem cells in a dog with brain injury: case report

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Abstract

Mesenchymal stem cells (MSCs) are undifferentiated stromal cells that can be isolated from different tissues, and the most commonly sources are the bone marrow and the adipose tissue. These cells have the potential to differentiate into bone, cartilage, fat, tendon, vascular endothelium and hematopoietic tissues. Recent studies have also demonstrated the therapeutic potential of MSCs to treat nervous system diseases, especially due to its regenerative, anti-inflammatory and immunomodulatory properties. Aiming better results and an efficient actuation on the nervous system, perineural application has being used because of its practicality and low level of difficulty and risks. The objective of this study was to report the effects of the application of mesenchymal stem cells derived from adipose tissue in an 8 years old dog attended at a private practice for treatment of distemper and later directed to the service of Veterinary Neurology of UNESP – Botucatu. After additional tests to rule out infectious and neoplastic diseases, the animal was driven to the Acupuncture and Chronic Pain service in the same unit for rehabilitation purposes. Physical examination revealed tetraparesis, decreased reflexes and intention tremor, with a clinical condition compatible with the one caused by the canine distemper virus. Acupuncture and physiotherapy treatments were performed, with partial improvement of the animal. Thus, we opted for the complementary treatment with epidural application of mesenchymal stem cells. For such, it was performed one application of 10 million cells every 20 days, in four applications. By the second application the animal had regained the ability to walk. We concluded that the cell therapy with mesenchymal stem cells from adipose tissue was effective on helping to reverse the brain condition caused by the canine distemper virus.