## Clinical Evaluation of Cervicogenic Headache: A Clinical Perspective

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commend the authors for this relevant manuscript about headache. Knowledge, of headache disorders is extremely important for manual therapists. Further, head pain is also common symptom to other musculoskeletal conditions (e.g. neck pain, fibromyalgia, temporomandibular disorders, whiplash-associated disorders). The authors have conducted an excellent review of the evaluation of a headache disorder seen in clinical practice by manual therapists, that is, cervicogenic headache. This manuscript summarizes both the subjective and the objective examination of a patient presenting with this pain condition. An important contribution of this manuscript is the integration of joint, muscle and neural system into the evaluation. Clinicians recognize that any structure (muscle, joint, nerve) receiving information from the trigeminal nucleus caudalis can refer pain to the head, contributing hence to headache<sup>1</sup>.

In the present manuscript the authors have outlined the scientific evidence about the exploration of a patient with cervicogenic headache. In that way, the treatment of a patient with headache would be conditioned by the examination. Nevertheless, manual therapists should consider that the pathogenesis of cervicogenic headache is different than that of tension type headache or migraine<sup>2</sup>. Therefore, evaluation of joint, muscle and neural systems in these other headaches would be also relevant for manual therapists. For instance, muscle trigger points have been related to chronic tension type headache<sup>3</sup>. Moreover, mechanical sensitization of neural tissues of

the head has been also involved in this condition<sup>4</sup>. These studies evidence the presence and the role of both muscle and neural impairments in this other primary headache.

Another relevant aspect to examine is the motor control involvement. Impairment of the deep cervical flexors has been found in patients with chronic tension type headache<sup>5</sup>. In addition, muscle atrophy is also present in the deep cervical extensors, particularly the rectus capitis posterior minor and major muscles, of these patients6. These findings agree with the clinical reasoning exposed in the current manuscript related to cervicogenic headache. Clinicians should integrate joint, muscle, neural and motor control systems into the physical examination of patients with either cervicogenic or tension type headache. Although in our clinical practice this reasoning should be also applied to patients presenting with migraine, there is not enough evidence associated with musculoskeletal impairments in this headache condition.

Finally, some aspects of the physical examination can assist clinicians to identify patients that are likely to respond to manual therapy intervention. Some preliminary predictor variables have been identified in chronic tension type headache<sup>7</sup> but not in cervicogenic headache<sup>8</sup>. Future studies are now guaranteed.

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