

Letter to the Editor

Risks in teaching manipulation techniques in master programmes



A B S T R A C T

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High Velocity Techniques (HVT) in the (high) cervical spine are part of the standard curricula of manual therapy educational programmes. Little is known about the risk or the presence of adverse events during skills training sessions. This article describes two cases of students with both being at risk for an adverse event; one with a congenital artery aberration and one with cancer in the high cervical region. Teachers and educational programme developers should take risk management into account when teaching HVT.

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1. Introduction

The safety of upper cervical manipulation techniques has been a big issue over the past years. To help clinicians in making a risk benefit analysis prior to using cervical manipulation the International Federation of Orthopedic Manipulative Physical Therapists (IFOMPT) developed a clinical guideline for assessment of the high cervical region for potential risk of Cervical Artery Dissection (CAD) and Cervical Instability (Rushton et al., 2014). Many countries have adopted this IFOMPT guideline and clinicians use the risk benefit analysis prior to applying cervical manipulations when treating patients. However, it is equally important to have knowledge of the risks associated with the learning of skills during manual therapy education and in particular those skills for the cervical spine.

The students in Belgium and the Netherlands are graduated physical therapists. Beside the fact that a lot of contact hours are spent at teaching spinal manipulations, the students are encouraged to develop their skills further in small groups outside the Universities. Students are registered physical therapists working in a primary care setting. Teachers are experienced registered manual therapists working in a primary care setting and part time involved in the Master Orthopedic Manipulative Therapy (OMT) programmes.

This paper describes two incidents that happened during the three year OMT programme at two different Universities. The aim of this paper is to give insight in the mechanism of these adverse effects and to question if it was possible to avoid the risk. Furthermore it will emphasis the need to use the guideline based on the IFOMPT framework also during the education of OMT and to implement a pre-manipulative checklist that can be used for each student.

2. Case 1

A 21 years old female physical therapist started the OMT programme in 2000. During the practical skills classes in 2002, she

experienced some problems during cervical examination and specific mobilization techniques, especially in extension and rotation. These problems existed as pins and needles in the left arm and fingers and a “weird” feeling in the left side of the neck. Furthermore she experienced some symptoms like sweating, palpitations and dizziness. During the skills training, these symptoms were frequently present. Symptoms occurred during the Spurling Test (Tong et al., 2002), both sides but left more than right, and the tests for Vertebrobasilar Insufficiency (VBI) (Kerry et al., 2008). Especially forced rotation techniques gave the strongest kind of response with radiation to both extremities. Each time after training HVT techniques, the pins and needles appeared as well as a slight headache. After a while and a short break these symptoms disappeared spontaneously. She was not too concerned about this, because most students suffered some headache after HVT in the cervical spine. As she did not want to be regarded as a complainer, she hardly told anyone about her complaints. One teacher recognized the symptoms and told her to avoid end range positions during the assessment and treatment skills. Also in the study group outside the University she avoided these end range positions as much as possible. Apart from her study, she worked as a Physical Therapist (PT) in primary care and played basketball.

After finishing her study in 2004, she didn't have symptoms until 2007. In 2007 she collapsed in the morning, experiencing a ‘give way’ in the left lower extremity and a weird feeling on the left side of the neck and face. She ignored it because she thought it was associated with a low sugar level, which she was familiar with, and the symptoms would fade after 15 min. A few months later, she collapsed with paresis in the left leg, trunk, left arm and face. She couldn't sit straight and felt a weird feeling in her head. She was hyperventilating along with palpitations. She was moved to a local hospital where hyperventilation was diagnosed. Fortunately her friend did not trust this diagnosis and asked for a neurologist. An X-ray computed tomography (CT-scan) was made, which ruled out a stroke. After that, she was moved to an academic hospital.

Two days later, after a lot of neurological tests and technical investigations: CT-scan with contrast, angiography, Electroencephalography (EEG) and Magnetic Resonance Imaging (MRI), she was diagnosed with Transient Ischemic Attacks (TIA) due to a stenosis of the medial cerebral artery on the right side with a secondary stenosis of the right internal carotid artery (see Fig. 1). She was first treated with Ascal and Persantin. Due to recurrences in 2008 a stent was placed in the medial cerebral artery. The stent in combination with the drugs gave no further incidents.

Following the insertion of the stent, all neurological tests were negative and the patient recovered approximately 80%. She is married and has two young children (aged 1 and 4 years old) and she works 32 h a week. She can run, cycle and skate, but the power, the sensibility and the balance in her left leg is less than before. Because of this she has slight problems with stairs, tilted surfaces, contact and winter sports. In her left arm and hand there are some spots with less sensibility. Her biggest problem remains her energy level; as for example she has to sleep before going out at night, being hypersensitive for moving images and sound.

Although the direct relation between symptoms and the HVT techniques in this case is difficult to prove, it is conceivable that the frequent use of the HVT techniques during her training and the existing congenital problems would appear to put her at risk for a major problem.

The positive Spurling test is somewhat strange although the single test is not valid for radiculopathy (Wainner et al., 2003;

Rubinstein et al., 2006). The position of the cervical spine during the test resembles the position during the VBI test, which can explain the symptoms experienced. Considering the IFOMPT framework in this case the student showed a clear positive risk factor and she should not have been a recipient of cervical spine procedures during the skills education.

3. Case 2

A 45 year old female physical therapist started the OMT Master programme in 2009. Since 2010 she complained of episodes of right-sided upper cervical pain. According to her peers and teachers, this was attributed to stress and working position during the study. She was successfully treated several times with three-dimensional mobilization techniques, but sometimes a painkiller was sufficient to diminish her complaints. During the master programme (2009–2011) she tested negative on the high cervical instability tests. During the practical sessions, different manipulation and mobilization techniques were performed. As a result of practicing the upper cervical techniques, her complaints progressed, whereas techniques performed below the level of C3 eased the pain. In June 2011 she refused to participate in a reliability study on high cervical tests from the University due to intermittent pain complaints.

Since January 2012, her complaints have become worse with pain located in the upper cervical spine and with irradiation to the right neck-shoulder region (active triggerpoint levator scapula) However,

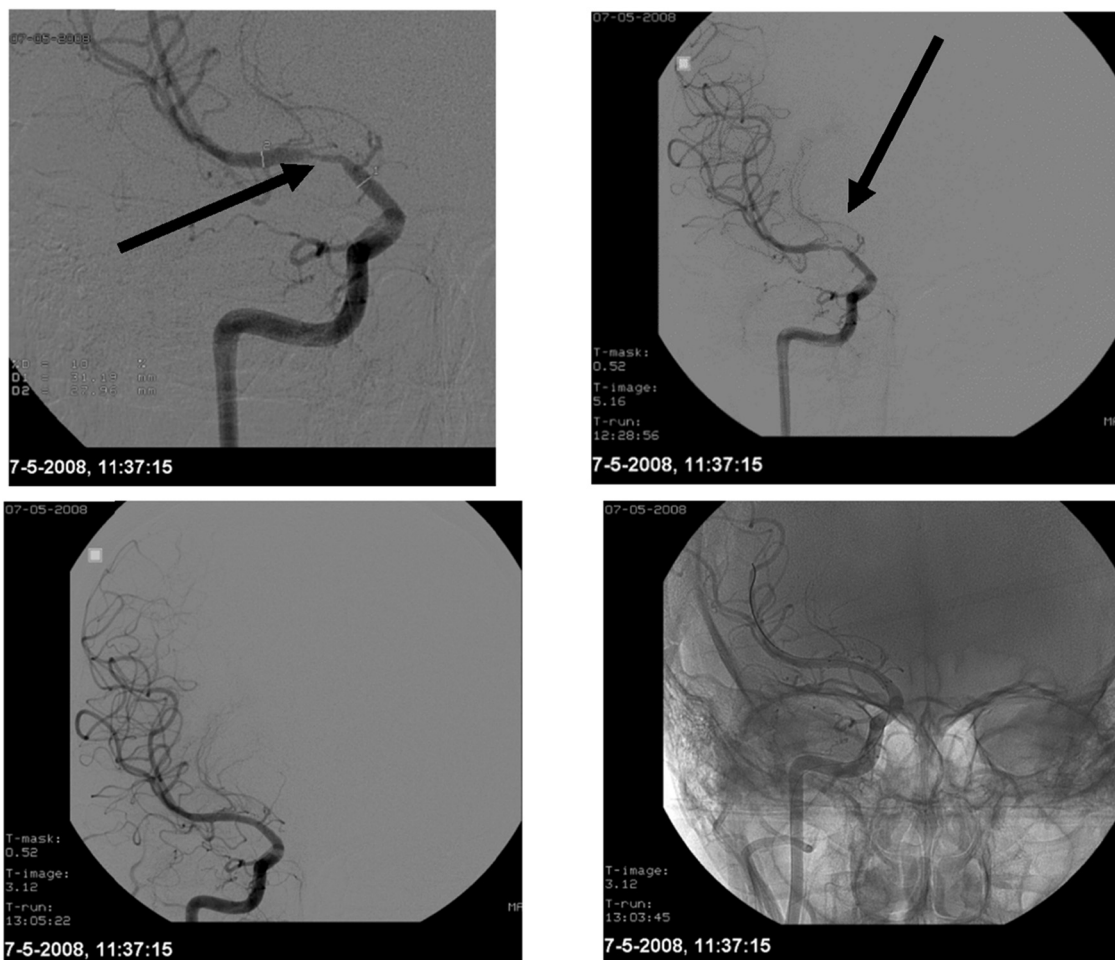


Fig. 1. Before placing a stent, stenosis of the medial cerebral artery. After surgery, vascularization is improved.

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