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## APPLICATION OF BRIAN MULLIGAN MANUAL THERAPY METHOD IN HEADACHE TREATMENT – CASE STUDY

## ZASTOSOWANIE METODY BRIANA MULLIGANA W TERAPII BÓLU GŁOWY – OPIS PRZYPADKU

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### Summary

Headache is a common occurrence in modern society. International Headache Society (IHS) classifies over 80 different kinds of headache. Spontaneous headaches might indicate dysfunction or disorder of cervical spine. The article presents the case of a 17-year-old patient suffering from cervicogenic headache. Diagnostic and therapeutic procedures using the Mulligan method have been discussed on the basis of the case study. The results, possibilities and unique biomechanical effect of SNAG (sustained natural apophyseal glides) techniques has also been presented.

### Streszczenie

Bóle głowy są powszechnym zjawiskiem obserwowanym we współczesnym społeczeństwie. Klasyfikacja International Headache Society (IHS) wyróżnia ponad 80 różnych rodzajów bólów głowy. Szczególną uwagę należy zwrócić na samoistne bóle głowy, które mogą być związane z dysfunkcjami i zaburzeniami kręgosłupa w odcinku szyjnym. W pracy przedstawiono przypadek 17-letniego pacjenta z bólem głowy pochodzenia szyjnego. Na przykładzie opisanego przypadku omówiono postępowanie diagnostyczne i terapeutyczne z wykorzystaniem metody Mulligana. Zwrócono szczególną uwagę na efekty, możliwości oraz unikalny efekt biomechaniczny technik „SNAG” (sustained natural apophyseal glides).

**Key words: headache, Mulligan method, SNAG techniques.**

**Słowa kluczowe: ból głowy, Metoda Mulligana, techniki SNAG.**

### **Introduction.**

Headaches affect people of all ages, including children, teenagers, adults and elderly ones [1,2,3]. According to the statistics, about 90% of population suffers from headache at least once a year, whilst 2-5% of people suffer from regular headaches [4,5]. Headache is a serious medical and economic problem, which causes decrease both in quality of life and effectiveness of executing everyday's tasks [6,7]. One of the reasons for headache may be disfunctions and disorders of cervical spine. They may be caused by structural changes of intervertebral disc and other articular parts, degenerative disc disease, vascular disorders, instability and muscle tone disorders. Among cervicogenic headaches, one may distinguish atypical facial pain, tension headache, migraine and cluster headache [5,8].

### **Brian Mulligan Method.**

Mulligan Method was discovered and developed by Brian Mulligan, a physiotherapist from New Zealand. The concept uses over 150 therapeutic techniques and is widely applied in modern rehabilitation. The Method demands all the techniques and procedures to be applied according to the PILL rule – pain-free, instant results, long lasting effect. It is also crucial to have proper moderation, maintain proper joint mobilisation and to perform the techniques in a weight-bearing position, i.e. standing or sitting. According to the method's author, effective therapy is mainly based on therapist's knowledge, proper therapist-patient communication, right choice of the number of repetitions and applying pressure whilst performing the procedures [9,10].

### **Case study.**

A 17-year-old patient, a technical college student. The patient suffers from continuous, strong headache, located in the area of cutaneous innervation of the greater occipital nerve. The headache first occurred a year before and the patient claims it is connected with prolonged sitting position during him studying. The patient also suffers from unpleasant feeling of increased muscle tone in the area of nuchal line. The medical history of the patient indicates overall good condition.

The patient has not have any accidents or injuries all well as any significant weight loss, has suffered neither from nocturnal pains nor any serious co-existent diseases. The patient describes his medical state as very good, besides his headaches. X-Ray examination of the cervical spine showed no abnormalities. So far the patient has undergone many forms of physiotherapy, including manual therapy. He believes the procedures were performed too forcefully and caused either deterioration of his condition or gave no results at all. Physical examination showed no abnormalities. The ranges of cervical spine's flexion, extension, rotation, lateral bending, retraction and protrusion were normal. The motion of the cervical spine did not influence headache. Palpation examination of the spine showed slight C2 rigidity and its localised pain. Neurological examination showed no irregularities. The diagnostic and therapeutic procedures were based on Brian Mulligan's concept. The patient was applied headache techniques according to the method's guidelines and directions. Headache SNAG (sustained natural apophyseal glides) technique was applied to C2's spinous process (Fig.1.).



**Fig. 1. Headache SNAG technique applied to C2. Photo courtesy of the author.**

**Ryc. 1. Technika SNAG na bóle głowy na wysokości C2. Archiwum własne.**

During the SNAG application the patient must be sitting. The therapist stands beside of the patient, which enables them to reach the head and cervical spine with ease. The therapist wraps the patient's occiput with their right hand. Therapist's middle and ring fingers touch patient's sub-occipital area, whilst their little finger's middle phalanx lies over the spinous process of C2. The lateral side of the left thumb's thenar lies over the right little finger. The mobilising pressure motion comes from left arm and is directed ventrally at the spinous process of C2. According to Mulligan method's directions the position should be maintained for 10 seconds. The technique must not be painful and cause any deterioration of the patient's state. Applying pressure to the spinous process of C2 causes C2's forward movement in relation to C1 and C3 [10]. When being applied the first repetition of the technique, the patient felt immediate headache relief, with the pain being 70-80% less severe in comparison to the initial one. After the mobilising pressure had ceased, headache returned with the same level of pain as before the technique's application. The headache SNAG was repeated in the same manner as before, with the position maintained for 60 seconds. The procedure was repeated 3 more times, during which the patient did not feel any pain. The therapeutic effect, i.e. complete pain relief lasted for the next 21 days. The procedures were repeated during the next appointment with the patient. The patient was released from hospital and asked to come back immediately should any symptoms of headache return. After 3 months the patient confirmed complete pain relief that had lasted from the last appointment.

### **Discussion.**

Headache therapy in modern medicine includes pharmacotherapy, massage, muscle-energy techniques, manual therapy and the trigger point therapy, and more [11,12,13]. The patient described in this article used many of those techniques but to no effect. Applying gentle and painless mobilisation of C2 caused complete and long-lasting relief of pain, before which the headache lasted for over a year. Using headache SNAG technique gives a unique biomechanical effect, which is based on prolonged spinal mobilisation [14]. SNAG application, according to Brian Mulligan, influences correcting irregular or wrong position of articular elements and achieving right biomechanics of the given area [10]. High effectiveness of the method might be explained as the possible placebo effect, however Bogduk's research results [11] suggest that the technique's mechanism may be completely different.

According to Borduk, SNAG techniques application may cause decrease in excessive reactivity of cervical nuclei of the trigeminal nerve. Blocking A-beta fibres stimuli conduction for a short period of time may result in pain relief. A-beta fibres are stimulated mainly by gentle pressure and touch, and both of them are used in SNAG techniques. Stimulating A-beta fibres does not cause any negative reaction of the central nervous system but induces 'medullar control gate' regulation and deactivation of centrally stimulated cells after about 30 seconds of maintaining the pressure. It may turn out that various other therapeutical techniques were not very effective due to too energetic way of application stimulating central nervous system's irritability [14]. The case described in this article proves that applying gentle and painless therapeutic techniques is purposeful and may cause major improvement in life quality if patients suffering from headaches.

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