

# CLASSIC MIGRAINE OR NOT CLASSIC MIGRAINE

## That Is The Question

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### **Abstract:**

**Objective:** To identify the main characteristics of classic migraine, with specific regard to diagnostic criteria for manual therapy practitioners, including chiropractors and osteopaths.

**Method:** Ten case studies on migraine were reviewed for the symptoms and clinical features.

**Results:** The majority of cases reviewed as classic migraines were in reality not correct diagnoses in accordance with standard classification systems. Some cases had classic signs which may have been misinterpreted, whilst other cases had possible inconsistent symptoms making diagnosis difficult.

**Discussion:** The various classification systems are presented with guidelines for diagnosis to assist practitioners making the accurate diagnosis.

**Key Indexing Terms:** Migraine, diagnosis, manual therapy

### **INTRODUCTION**

Migraine is probably a very old condition. During the second century, Galen (AD 138-210) was the first to use the term hemicrania which was later changed to hemigranea, and from this "megrim" and migraine developed. Galen also postulated a sympathetic connecting system between the stomach and the brain after observing the nausea and vomiting associated with migraine (1).

Migraine is still a common disorder in society, with an estimated incidence in the USA of 6% of males and 18% of females (2). A study in Australia found the incidence of migraine is estimated at 12%, with the cost to industry an estimated \$250 million (3). Linet et al found migraine is one of the most frequent reasons for consultations with general practitioners, affecting between 12 million (4) to 18 million (5) people each year in the USA.

The estimated cost in USA is \$25 billion in lost productivity due to 156 million full time work days being lost each year (5, 6).

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One classification of migraine was based on a definition from the research group on migraine and headache of the World Federation of Neurology in 1969: "A familial disorder characterised by recurrent attacks of headache widely variable in intensity, frequency and duration. Attacks are commonly unilateral and are usually associated with anorexia, nausea and vomiting. In some cases they are preceded by, or associated with neurological and mood disturbances. All of the above characteristics are not necessarily present in each attack or in each patient" (7).

Another classification of migraine headaches is based on symptoms. For example, facial migraine; vertebra basillar migraine; complicated migraine; ophthalmoplegic migraine; hemiplegic migraine and retinal migraine (8).

The traditional categories of migraine headaches are common and classical. The common or non-classical migraine is the more common type and is not associated with sharply defined neurological disturbances. Classic migraine is defined as a recurrent periodic headache which is preceded or accompanied by transient visual, sensory, motor or other focal cerebral symptoms (9).

A new classification system of chronic headaches has been provided by the Headache Classification Committee of the International Headache Society (IHS). The IHS classify headaches in 13 categories including several sub-categories. These include: migraine, tension, cluster and a sub- category 11.2.1- cervicogenic headache (10) (See Table 1.).

The following table is the sub-classification of migraine based on Headache Classification Committee of the IHS. The IHS classify migraine in 18 sub- categories (See Table 2).

Migraine has been shown to be a recurrent and disabling problem which often does not respond favourably with treatment. However, some studies have demonstrated significant reduction in migraines following chiropractic intervention (6,11,12,13,14,15,16,17,18). A misdiagnosis of migraine or cervicogenic headache could give a misleading positive result for improvement (19). Therefore, an accurate diagnosis needs to be made, based on standard accepted taxonomy.

This paper will identify the main characteristics of classic migraine, with specific regard to diagnostic criteria for other headaches relevant to practitioners. In addition it will review ten case studies on so-called migraine in

accordance with standard classification systems, for their symptoms, clinical features and accuracy in diagnoses.

Table 1 - Headache Classifications

|             |   |
|-------------|---|
| Category 1  | Migraine  |
| Category 2  | Tension-type headache   |
| Category 3  | Cluster headache and chronic paroxysmal hemicrania  |
| Category 4  | Miscellaneous headaches un-associated with structural lesion  |
| Category 5  | Headache associated with head trauma  |
| Category 6  | Headache associated with vascular disorder  |
| Category 7  | Headache associated with non-vascular intracranial disorder   |
| Category 8  | Headache associated with substances or their withdrawal   |
| Category 9  | Headache associated with non-cephalic infection   |
| Category 10 | Headache associated with metabolic disorder   |
| Category 11 | Headache or neck pain associated with disorder of cranium, neck, eyes, nose, sinuses, teeth, mouth, or other facial or cranial structures |
| Category 12 | Cranial neuralgia's   |
| Category 13 | Headache not classifiable   |

Table 2 - Category 1: Migraine

|       |   |
|-------|---|
| 1.1   | Migraine without aura   |
| 1.2   | Migraine with aura  |
| 1.2.1 | Migraine with typical aura                                      |
| 1.2.2 | Migraine with prolonged aura                                    |
| 1.2.3 | Facial hemiplegic migraine                                      |
| 1.2.4 | Basilar migraine  |
| 1.2.5 | Migraine aura without headache                                  |
| 1.2.6 | Migraine with acute onset aura                                  |
| 1.3   | Ophthalmoplegic migraine  |
| 1.4   | Retinal migraine  |
| 1.5   | Childhood periodic syndromes that may be precursors to migraine |
| 1.5.1 | Benign paroxysmal vertigo                                       |
| 1.5.2 | Alternating hemiplegia  |
| 1.6   | Complications of migraine                                       |
| 1.6.1 | Status migrainous   |
| 1.6.2 | Migrainous infarction   |
| 1.7   | Migrainous disorder not fulfilling above criteria               |

### FEATURES OF CLASSIC MIGRAINE

The aura is perhaps the most common feature of the classic migraine and is the distinguishing feature between common and classic migraine (20, 21). It has been described by migraine sufferers as an opaque object, or a zigzag line around a cloud, even cases of tactile ACO

hallucinations have been recorded (22).

Migraines are always accompanied by a characteristic pain site, usually unilateral, but may change sides. The pain is felt deeply behind the eye and it may involve the temporal and frontal lobes, and may extend down the shoulder and neck (20, 21). The disorder characterized by recurrent attacks of headaches widely variable in intensity, frequency and duration (20).

Depending on the severity of a megrimous attack it is apparent that most, if not all of the body systems can be affected. Consequently migraine poses an horrific threat which debilitates the regular sufferer to varying degrees. Some of the effects of migraine include headaches, an observable hazy aura or scotoma, photophobia, scintillations, nausea and unsteadiness (22).

Headaches are just one of the sources of pain from migraine (19). They may occur unilaterally, centrally, or universally, and are not limited to one location. The pain may shift position during a migraine, or shift position from attack to attack. The onset of headache is an early warning sign which can start out mildly, as a dull ache, and progress to a throbbing vascular headache. In some documented case studies sleep was able to avert a migraine if the sufferer slept in the early stages of onset of the headache (22).

Hypersensitivity to light, scintillations that move about the field of view, and feelings of vertigo. This group of symptoms is by no means an exhaustive representation of the discomforts migraine can cause (20,21,22).

### CASE 1

A 68-year-old-female, 165cm tall Caucasian who weighed 63kg presented with a chief complaint of severe migraine episodes. Each episode lasting the duration of three days at a frequency of one episode per week for many years. The patient reported moderate to severe transient posterior neck and shoulder pain. There was also a history of benign positional hypotension, which seemed to be induced and aggravated by emotional stress. The patient incurred trauma of the left ear, fractured nose, mouth and teeth from a fall down a flight of stairs seven years ago. No other health problems were reported.

The patient's migraines were located in the frontal, temporal and occipital regions bilaterally. No symptoms occurred to the onset of her migraines, nor did she experience visual disturbances prior to or during the migraine episodes. Neck pain, normally intermittent, became constant when a migraine occurred. At the initial visit, she had a experienced a migraine for the duration of three days without remittance. She rated the migraine 9 and the neck pain between 4 and 5 on an increasing pain analogue scale of 1-10.

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The cervical ranges of motion were restricted, predominantly in right rotation. Palpation findings were obvious at trapezius, suboccipital and supra scapulae muscles due to increased tone, colour and temperature. Motion palpation indicated restricted movement of the C5-6 facet joint on the right side. Further palpation of the supra scapular and suboccipital indicated myofibrotic tissue. Neurological tests such as Rhomberts, and vertebrobasilar (Maines) test, were negative.

**Treatment:** The initial treatment was muscle stripping technique aided by a masseter machine massage across the muscle fibres of the trapezius, suprascapularis and temporal regions. The patient also had a cervical adjustment of C5-6.

The patient was seen four days later, at which point she reported that her neck was less painful. However, she still complained of right neck pain and dizziness. Examination revealed passive motion restriction at C5-6 motion segment. Her thoracic spine was found to be restricted at segment T5-6. In addition, she had mild to moderate hypertonicity in suboccipital and cervical paraspinal muscles and supra scapular area. She was again treated with adjustment and soft tissue technique. The C5-6 restriction to the right was adjusted with a cervical adjustment. The T5-6 restriction was also adjusted and the myofibrotic tissues were treated with the masseter.

The patient returned four days later. She reported that her migraine had improved. She no longer experienced the symptoms of a non-classical migraine. However, the pressure sensation was still present around her head, but less so than prior to the commencement of treatment. No neck pain was reported. Examination revealed a passive motion restriction of C1-2 motion segment. There was hypertonicity in the suboccipital and supra scapular muscles. The patient was treated with a cervical adjustment at C1-2 and muscle work on the above muscle groups. Neck stretching exercises were also advised.

The patient was seen one week later, and stated that her migraine episodes had disappeared completely after the last treatment. In addition, she was no longer experiencing neck pain. Examination revealed passive motion restriction at the C1-2 motion segment, which was reduced by adjustment.

The patient was contacted by telephone four weeks later for a follow-up, at which point she reported she had no return of migraine episodes or neck pain.

**Diagnosis:** The patient had a migraine without aura (previously called common migraine)- Category 1.1 secondary to moderate cervical segmental dysfunction with mild to moderate suboccipital and cervical paraspinal and supra scapular myofibrosis.

## CASE 2

A 38 year old female school teacher presented complaining of chronic recurring headaches each lasting twenty four hours, sinus trouble due to allergy, and difficulty in sleeping. The patient stated she experienced "migraines" which had been occurring for years. During the migraines she experienced numbing of the fingers and nose with a feeling of heavy fatigue. She had not noted nausea, visual disturbances or throbbing sensations.

She also complained of low back pain when on her feet all day and pain in the left and right hip alternately when lying on her side. Her right arm had experienced bouts of aching that would return sporadically and last for a few days at a time. Bilateral toe tingling was also reported at times.

Her past history reported that she had experienced a bad fall while horse riding as a teenager. However, no bones were broken at the time of the fall. She had four children and was active with her current sports being swimming and golf. Her past treatment included drugs "Cordoral and aspirin" for relief of pain as well as prescription pain killers which appeared to have no effect. She had visited an allergist for her sinus trouble and allergy problems, however no abnormality was detected.

On examination she had an increased thoracic kyphosis that gave her trouble breathing and prevented her straightening her thoracic region. She exhibited a obvious idiopathic scoliosis in the lumbar and thoracic regions.

**Treatment:** Treatment consisted of diversified adjustments to the C1-2, T5-6, L4-5 joints to correct the restriction of movement. Vibrator massage, and infra-red therapy were used to complement the treatment, releasing muscles spasm of the region before the adjustments were delivered. The patient was given 13 treatments over the next two months and four treatments in the two months following.

Two weeks into the treatment the patient's headaches disappeared and she noticed remarkable improvement in her sleeping. Her headaches did not return until after the first month following a trip in which she had driven from Sydney to Melbourne and back. During the four months of treatment the patient experienced only two headaches and she reduced her medication to nil.

**Diagnosis:** The patient had possible "Headache or neck pain associated with disorder of cranium, neck, eyes, nose, sinuses, teeth, mouth, or other facial or cranial structures"- Category 11 or 11.2.1 Cervicogenic Headache.

### CASE 3

A 25 year old woman presented with neck pain which had commenced with slow onset (overnight) 2 days previous to her initial consultation. During the history the patient stated that she suffered a regular weekly headache which she supposed was from eye strain and tension as a result of her clerical computer terminal work. She reported that she wears glasses when she is working and recently had upgraded her prescription glasses to a stronger lens. Whilst questioning her about "migraine" symptoms she described suffering from a unilateral throbbing headache, an aura or haziness, and photophobia. Sleep tended to alleviate or decrease the symptoms and paracetamol did nothing to help.

On examination, she was found to have sensitive suboccipital and upper cervical musculature, and decreased range of motion at the joint between the occiput and first cervical vertebra, the atlanto-occipital facet joint (Occ-C1), coupled with pain on flexion and extension of the cervical spine.

**Treatment:** She received chiropractic treatment to her Occ-C1 joint and the affected hypertonic musculature. The aim of treatment was to reduce the dysfunction of the upper cervical spine in an attempt to decrease the migraine frequency. Other investigations recommended were; to have diet assessed or possibly undertake a controlled prescribed elimination diet, also a further eye examination by an optometrist. She was shown some stretches and other exercises for her neck muscles and proved compliant. She was also asked to be aware of her own eye function and monitor that along with noting the frequency and duration of any migraines.

Over the next 6 consultations, she reported that she had suffered one migraine of several hours duration and that both her old and new glasses were not as good for seeing the computer screen at work as her unaided eyes. At subsequent 2 week and 4 week visits she reported no further headaches or migraines and she was still working without her prescription glasses. The patient reported feeling much better after the course of treatment and had noticeably reduced frequency and intensity of migraines.

**Diagnosis:** The patient had "migraine with aura"- Category 1.2 or 1.2.1 "migraine with typical aura".

### CASE 4

A 42 year old married female, was first examined in May 1995. Her symptoms included headaches every third day, which were unilateral, above the eyes in the temporal region. The quality of the headaches were described as tightness and banding across the head, constant, deep,

and sometimes referring to the shoulder region. The patient also complained of infrequent "migraines", which occurred approximately five times per year. The migraines were also in the temporal region, suboccipital and bilateral. The severity of the migraines was totally debilitating, lasting from one to three days. The patient described her migraines as deep, throbbing and consistent, and she believed them to be associated with the onset of her headaches. The patient suffered from unexplained infertility.

Her headaches occurred every third day, lasted for a day, and would disappear before morning. The patient also noticed that the headaches were aggravated by movement but there appeared to be no specific trigger factor. She had never had chiropractic treatment for her headaches, only medical treatment. She was currently taking paracetamol for her headaches and "migraines". There was a history of migraines in her family and the patient had suffered from pneumonia and Hepatitis B.

Examination revealed muscle hypertonicity of the levator scapulae, rhomboids, trapezius and anterior scalenes, with a trapezius trigger point. Motion palpation found a Occ-C1 restriction, C3-4 left side bend restriction, C6 left side restriction, T4 extension restriction, L1 extension with bilateral side bend restriction, and the cervical spine was tender on springing.

X-rays were reviewed and a left leg deficit of 9mm resulting in left pelvic tilt and compensatory lumbar levoscoliosis. Grade Two spondylolisthesis was evident, as well as mild mid-thoracic degeneration.

**Treatment:** On her first visit cervical adjustments were performed on C1-2 and T1-2 using the diversified approach. Over her course of treatment several other adjustments were made to correct the patient's condition. Acute management also involved cervical stretches, cervical trigger point release, as well as some postural advice.

A schedule of two visits per week continued for six weeks. The patient's symptoms improved tremendously, resulting in a reduction of her headaches to only one per week, and she suffered no migraines. The chiropractic treatment was reduced to once a fortnight. The chiropractor administered several ancillary therapies over the course of her treatment.

**Diagnosis:** The patient had "headache or neck pain associated with disorder of cranium, neck, eyes, nose, sinuses, teeth, mouth, or other facial or cranial structures"- Category 11 or 11.2.1 Cervicogenic Headache. A diagnosis of "migraine with aura"- Category 1.2 or 1.2.1 "migraine with typical aura" is not possible due to the lack of the presence of an aura.

## CASE 5

A 36 year-old female primary school teacher reported to the clinic initially complaining of bilateral suboccipital pain. The pain was constant, but there were periods (months) without pain. The pain was severe, punctuated by sharp stabs of focal pain upon head/neck movements. The patient denied any past history of neck or suboccipital pain or discomfort, but upon further questioning gave a much longer history of intermittent headaches which she described as “migraine”, which were bilateral, frontal, sometimes accompanied by nausea, but never accompanied by an aura or any other prodromal symptom. These headaches generally started as milder frontal pain with no posterior (occipital) pain. Less frequently the headache progressed in pain, still bilaterally, to a much more severe level of intensity, accompanied by nausea, which significantly distributed her activities of daily living and for which analgesic medications were often poorly effective.

Past history of treatment involved seeing chiropractors for the past 15 years. Patient has also had treatment for lower back pain and headaches, also mid-thoracic muscle pain. Medical history involved severe bronchitis 1991-1992, secondary ear infection 1991-1992. The patient was involved in a motor vehicle accident in 1990, where she was a front seat passenger in a head-on collision.

On physical examination, the patient had bilateral trapezius muscles spasm, and bilateral levator scapular with a slight fibrous feel. Specific static, motion palpation, showed that Occ-C1, T1-2, and T4-5 restriction. Radiological findings were a military cervical spine with slight kyphosis, apexing at the C5 and a minimal scoliosis present.

**Treatment:** Acute management included trigger-point therapy, chiropractic adjustments to Occ-C1, rolled towel cervical extension exercise, acquire an adequate pillow, adjust sleeping habit from stomach to side posture, and adjust current reading posture. The management plan was one treatment per week for the first 4 weeks, then reassess the situation. Followed by decreasing the number of treatments per month for maintenance care.

In subsequent visits, the patient explained that she experienced a ‘dull ache’, which she classified as a ‘tension headache’. For this headache she usually took analgesics, relieving to a low ‘dull ache’. She had also noticed an increase in her cervical ROM, and her use of analgesic medication similarly decreased.

**Diagnosis:** The patient had a migraine without aura (previously called common migraine) - Category 1.1 secondary to moderate cervical segmental dysfunction with mild to moderate suboccipital and cervical paraspinal

and supra scapular myofibrosis.

## CASE 6

A 28-year-old female archivist presented with complaints of severe “migraine” that prevented activity. The pain started at the front of her head and radiated posteriorly and could be very severe at the peak of an attack. The migraine headaches initially started 9 years ago and were only intermittent, although they had been worse in the past few weeks and usually occurred only during the day. The headache became more severe as it progressed and was aggravated by humidity, bright lights, fixed posture, stressful situations and alcohol. At home she relieved the pain by lying down isolated in a dark room with a damp towel over her eyes and forehead. The initial consultation had to be performed in a darkened room for patient comfort. The patient had childhood epilepsy that was treated until the age of 22 years and had no other illnesses although the medication she was taking included: pethidine, norsondoff, antihistamines, triptonol (anti-depressant), contraceptive pill, and inderal (for high blood pressure). She had consulted four general practitioners and one neurologist in an attempt to relieve the headaches but they were unsuccessful. There was no family history of migraine, only an incidence of arthritis.

The physical examination revealed reduced joint mobility at C2-3 and T5-6 vertebrae, decreased mobility in the mid-thoracic and lower lumbar regions. There was bilateral hypertonicity in the trapezius muscle with referred pain into the cranium. A radiological assessment indicated a decrease in intervertebral disc height at C2-3 and between T5-6. Neurological and orthopaedic examination was unremarkable although she had a positive compression and cervical Kemp’s test.

**Treatment:** The treatment consisted of an adjustment of the C2-3 vertebra and other vertebrae. Myofascial trigger point therapy using ischaemic compression to the tight cervical and thoracic musculature was employed. Ongoing management included stretching exercise for cervical spine region to provide increased mobility and decrease muscle hypertonicity.

**Diagnosis:** The patient had a migraine without aura - Category 1.1 secondary to cervical segmental dysfunction.

## CASE 7

A 27 year old female patient, who worked as a secretary, presented to the clinic with neck pain. She complained of lower neck pain on the right hand side which referred down to the shoulder and lead to blurred vision, some temporary loss of vision and then to migraines. The patient also stated that she noted “a bright spot that sparkled”. The neck pain occurred sharply when rotating

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the neck to the right. The onset of migraines had been five years ago, since she started working as a secretary, at a desk, using a computer. They were however, irregular, occurring approximately once a month.

The patient stated that since being in a car accident and suffering “whiplash”, two months prior to chiropractic treatment, the migraine and neck pain occurred more frequently (once or twice a week) and were more severe.

Hot showers and massage gave her relief from her symptoms. She found that working with a computer for hours at a time aggravated her neck pain, causing the onset of migraines. She was taking medication (paracetamol) for her migraines as required and was also using a contraceptive pill. Previous medical examination had found swollen glands in her neck.

Physical examination revealed reduced range of motion in the neck and shoulders. The shoulders were not level with the right being superior to the left. The C6-7 facet was sensitive to springing on the right hand side. At T7-8 there was right sided paraspinal hypertonicity and there were suboccipital muscle spasms on the upper cervical spine.

The radiological assessment showed a reduced cervical lordosis, early signs of degeneration at C4-5 and C5-6, along with reduced intervertebral disc height and a slight roughening of the anterior, inferior endplate of C5. There was also some degeneration of T 8-9 with anterior disc loss.

**Treatment:** The patient had received physiotherapy two months prior to seeing the chiropractor. They used soft tissue work and manipulation which relieved the pain, but did not prevent the neck pain or migraines.

Chiropractic cervical and upper thoracic adjustments, occurred over a range of two months, one treatment per week. Soft tissue work and stretching was used on the upper trapezius to release the tension and restore shoulder levels to equilibrium. Further visits involved continued trapezius, sub-occipital muscle release with adjustments to specific vertebrae as were needed.

After two months the patient noted moderate reduction in the migraines and some changes in visual symptoms. The patient was referred to an optometrist for eye tests along with monitoring eye function.

**Diagnosis:** The patient possibly had a Retinal Migraine (Category 1.4) or possibly a migraine without aura - Category 1.1. This could also be classified as Menses Migraine, a subcategory of migraine without aura.

## CASE 8

An 11 year old boy presented to the Outpatients’ clinic with severe constant headaches. The child’s visual appearance revealed paleness, an apparent state of ill health, and in severe pain. The patient complained of severe headaches described as throbbing and stabbing which seemed to centralise behind the eyes, but the pain was throughout the entire head. He also complained of tiredness, weakness, neck stiffness and muscular soreness around the neck area. The headaches had been present for a period of 6 months with no relief. The patient could not tolerate daylight, the sheer act of movement, had a loss of appetite with subsequent weight loss, had not left the house for the most of these 6 months except for seeking healthcare, had not attended school for the later 4 months, and pain was disturbing his normal sleeping habits.

The patient first experienced these headaches after falling of a motorcycle and landing on his upper body (the patient could not remember whether or not he fell on his head or any other specific area). The patient otherwise had no previous history of headaches.

Past intervention revealed that the patient had been to a medical practitioner at the onset of the headaches and was put on medication which he had been taking for the whole 6 months (exact medication not available). The headaches persisted and the patient was referred to a neurologist who sent him for CT Scans, Electroencephalograms and MRI all of which returned no possible answers. The patient was then referred to the Camperdown Children’s Hospital where further tests presented negative. Lastly the patient was referred to a psychiatrist for examination.

Postural analysis of the upper body revealed a high right shoulder and a right low occiput, head slightly turned to the right and forward head carriage. X-ray films showed an absence of the normal cervical lordosis. Palpation revealed muscular spasms of the trapezius, levator scapulae and other smaller muscles of the neck. Spasms were present bilaterally but worse on the right side. Trigger points were widespread in many of the neck muscles and the rhomboids, cervical range of movement was greatly restricted due to pain in all directions (flexion, extension, lateral flexion, rotation). Intersegmental ROM was restricted at C1-2, C2-3, C5-6 and T5-6 levels.

**Treatment:** On the initial visit treatment approach consisted of extensive trigger point therapy in trapezius, levator scapulae, other smaller neck muscles and rhomboids followed by specific chiropractic adjustments to the Occ-C1, C1-2, C5-6, T4-5. On the second visit (3 days later) the patient’s headaches had diminished greatly

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in both intensity and frequency, he retained his appetite, energy level and could tolerate light. The same adjustments were needed on the second visit and more trigger point therapy was conducted. By this stage the patient had stopped taking all medications. The patient was then seen once a week for a further four weeks. By the fourth visit the patient had not had any headaches and was back at school and treatment was discontinued. The patient was given stretches and exercises to strengthen his shoulder and neck muscles and to promote a more normal cervical lordosis and general ROM.

**Diagnosis:** The patient probably had a migraine without aura - Category 1.1. A reasonable alternate diagnosis would be "Headache or neck pain associated with disorder of cranium, neck, eyes, nose, sinuses, teeth, mouth, or other facial or cranial structures"- Category 11 or 11.2.1 Cervicogenic Headache.

### CASE 9

A 65 year old female presented to the clinic as a last attempt for relief of chronic neck pain. She had neck problems for over forty years. Her chief complaint was constant radiating neck pain that was accompanied by crackling or ringing in the ears and "migraines".

She experienced headaches every few days in the frontal and temporal regions that would last from 4-6 hours during which ringing of the ears was most severe. The patient had experienced a swift loss of hearing at the age of seven and wore hearing aids on both ears. Her hearing acuity was extremely minimal and she was also troubled by sinus problems, blood shot eyes, bouts of blurry vision and felt very unsteady on her feet. She could not recall any serious falls, head or neck trauma. The only fall she remembered is off a ladder whilst cleaning windows for her mother at age 6 or 7.

Upon palpation severe spasm and palpable nodules were felt in the sub-occipital and cervical muscles. Range of motion was decreased in all directions. The most notable restrictions were C1-2 and C4. The patient had a scoliosis that was convex to the left.

Cervical range of motion was greatly decreased with cervical compression, Jackson's test (lat.flexion with compression, left & right), shoulder depression (left & right) also being positive. Cervical distraction gave the patient slight relief. Radiographs of the cervical region displayed narrowing of the joints C1-2 and C2-3, osteo-arthritic changes in the facet joints at the C4, C7 levels had developed, and a loss of the cervical lordosis.

**Treatment:** Treatments focused on increasing mobility to C1-2 segment, with ancillary procedures such as trigger point therapy and myofascial release techniques.

The patient was treated for five months and initially reported an increase in mobility in her neck, a reduction in the frequency of the headaches and eye irritation. After two months the patient noted her hearing had improved a little further and she felt more stable. The patient had a hearing test at her otologist and an improvement in hearing levels was demonstrated. After three months the patient has noticed that her bowel habits have become more regular, also her family noticed they can now talk to the patient more easily on the phone.

After four months the patient had another hearing test at otologist showing significant improvement and needed to have new hearing aids fitted. Her range of motion had increased and tests conducted earlier showed to be less significant. Muscle spasms and the presence of nodules were less severe and radiographs were not seen as necessary.

**Diagnosis:** The patient probably had a Basilar migraine - Category 1.2.4. It is also possible it was Migraine without aura- Category 1.1 or even 11.2.1 Cervicogenic Headache.

### CASE 10

A 20 year old female university student has been treated since August 1995. She presented with a constant dull ache in the neck and stated that she had recently suffered two severe migraine attacks. The patient revealed that she was involved in a major car accident in January 1995, in which her car had been hit from the rear. She stated that a week after the accident her dull neck ache began and after consulting her general practitioner, was sent for four months of physiotherapy treatment, which consisted mainly of soft-tissue techniques of the neck and shoulder regions.

In the four months of physiotherapy she obtained only little relief and became very concerned after having recently suffered the two severe migraine attacks. These attacks each lasted for about a day and involved a throbbing pain and accompanying symptoms such as blurred vision, nausea and vomiting. The pain was unilateral but did change sides. When asked about her families medical history, the patient revealed that both her mother and maternal grandmother suffer from migraine headaches.

Examination found a decreased cervical range of motion, especially in left rotation. There was considerable hypertonicity of the sternocleidomastoid and suboccipital muscles. In segmental range of motion there was significant occipital and atlas restriction, particularly on the left. Furthermore there was point tenderness over the left transverse process of the atlas. Finally a vertebral artery test was carried out, the result being negative. A  
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spinal radiograph of the patient showed a decreased cervical curve.

**Treatment:** The initial treatment consisted of a few soft-tissue techniques and a specific adjustment to remove the atlanto-occipital fixation. Suboccipital and sternocleidomastoid release techniques were used to relax these muscles and provided good relief for the patient.

The patient returned two days after the first treatment, with slight improvement of her symptoms. She stated that the upper cervical pain was less severe but that she was now feeling a little bit of tension in the lower cervical region. Motion palpation of the cervical spine revealed a subluxation of the fifth cervical vertebra (C5). The atlas was still restricted in left rotation but was a lot better than before the first adjustment. The second treatment consisted of some muscle release techniques and two cervical adjustments, one of the atlas and the other C5.

By the patient's third visit the patient was feeling a lot better and seemed less distressed. Treatments from this point onwards were similar to the first two, with particular attention placed on the upper cervical spine. The

importance of maintaining a good posture was stressed in all the patient's visits to the clinic.

The patient was treated for a period of two months and in this time she did not have a recurrent migraine attack. Her dull neck ache slowly diminished with each treatment and was non-existent at the end of the two months. Not only did the patient become less distressed, she also stated that her general health improved dramatically.

**Diagnosis:** The patient had "migraine with aura"-Category 1.2 or 1.2.1 "migraine with typical aura".

**CONCLUSION**

These case studies highlight complaints made regarding a large degree of overlapping in the new classification system (15,23,24,25).

Practitioners need to be critically aware of diagnostic criteria when presenting studies or case studies on effectiveness of their treatment (26). This is especially important in presentation of migraine and manipulative therapy research (27,28,29,30).

Table 3 - Review of Selected Cases Presenting with Migraine

| CASE | MAJOR FINDINGS  | PATIENT FEATURES         | SUGGESTED DIAGNOSIS                        | TREATMENT  | RESULT  |
|------|---|--------------------------|--|--|---|
| 1    | Decreased ROM<br>Posterior neck & shoulder pain   | 68 y.o. F<br>home duties | Migraine without aura<br>(common migraine) | Soft tissue C5-6 & T5-6 adjustments  | Neck pain reduced, migraines not as frequent.   |
| 2    | Chronic recurring HA, sinus pain, lack of sleep   | 38 y.o. F<br>teacher     | Cervicogenic Headaches                     | C1-2, T5-6 & L4-5 adjustment, soft tissue and infra-red therapy                  | sleep improved, HA reduced, medication decreased  |
| 3    | Suboccipital & cervical pain, decreased ROM<br>Photophobia  | 25 y.o. F<br>clerk       | Migraine with aura                         | Occiput-C1 adjustments, stretches, diet modifications                            | decreased migraines, no longer uses eye-glasses   |
| 4    | Unilateral frontal headache decreased ROM<br>neck and shoulder pain   | 42 y.o. F<br>home duties | Cervicogenic headaches                     | C1-2 and T1-2 adjustments, stretching and heel lifts.                            | reduction of headaches, & migraines   |
| 5    | Suboccipital headaches with focal pain on head and neck movement, MVA 1990  | 36 y.o. F<br>teacher     | Migraine without aura<br>(common migraine) | Trigger point therapy, Occiput-C1 adjustments, cervical exercises                | Increase ROM, decrease in headaches only has a dull ache rarely                                     |
| 6    | Reduced cervical ROM, decreased thoracic and lumbar mobility  | 28 y.o. F<br>archivist   | Migraine without aura                      | C2-3 & 5-6 adjustments, Trigger point therapy, stretches                         | reduction in migraines  |
| 7    | "Whiplash" 2months prior, reduced cervical ROM, muscle spasm<br>Blurred or temporary loss of vision                             | 27 y.o. F<br>secretary   | Retinal Migraine / Menses Migraine         | C6-7 T8-9 adjustments, soft tissue therapy, stretching and cervical exercises    | Moderate reduction in migraines and slight changes in visual symptoms                               |
| 8    | Pale appearance, tired, weak, stiff cervicals, previous motorcycle accident, muscle spasms, absence of normal cervical lordosis | 11 y.o. M<br>student     | Cervicogenic headache                      | Trigger point therapy, cervical and thoracic adjustments, stretches and exercise | Reduced headaches, increased energy & appetite<br>better tolerance to light. All medication stopped |
| 9    | Loss of hearing, sinus problems, blurred vision. fall from ladder, cervical ROM reduced, DJD                                    | 65 y.o. F<br>retired     | Basilar Migraine, cervicogenic headaches   | Trigger point therapy, Myofascial release, activator adjustments                 | Reduced headaches and eye irritation, moderate hearing & ROM increase                               |
| 10   | MVA 1995, blurred vision, nausea, vomiting, family history of migraine, decreased cervical ROM                                  | 20 y.o. F,<br>student    | Migraine with aura                         | Soft tissue therapy, specific chiropractic adjustments                           | Decreased pain, reduced migraine frequency, improved general health                                 |



**CLASSIC MIGRAINE OR NOT CLASSIC MIGRAINE**  
**TUCHIN & BONELLO**

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