

# The Treatment of Pediatric Migraine with Acupuncture

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## ABSTRACT

**Background:** Migraine headaches are a common childhood ailment with a higher prevalence in adolescence. Acupuncture has gained popularity for treating migraine headaches.

**Objectives:** The aim of this article is to introduce a five-step system to guide practitioners through the diagnosis, point selection, and treatment process for migraine headaches within the Traditional Chinese Medicine framework.

**Methods:** Five steps, according to Traditional Chinese Medicine theory, are introduced that might assist a practitioner with diagnosis and treatment of a pediatric patient experiencing migraine headaches. The five steps are as follows: (1) clarify the location of the head pain; (2) understand how the patient's symptoms fit into pattern differentials; (3) choose a tolerable number of needles to use according to the patient's age and sensitivity level; (4) select effective acupuncture points; and (5) administer the acupuncture treatment safely. A case study is presented to illustrate the application of these five steps.

**Conclusion:** The five steps outlined comprise a simple system that can be used as a guide for practitioners for treating pediatric migraine headache with acupuncture in the majority of cases.

**Key Words:** Acupuncture, Traditional Chinese Medicine, Migraine Headache, Primary Chronic Headache, Pattern Discrimination

## INTRODUCTION

HEADACHE, INCLUDING MIGRAINE HEADACHE, is a common human ailment from which children are not spared.<sup>1</sup> Migraine headaches tend to start during childhood and become more severe in adolescence until the frequency or intensity reaches levels that conform to the primary chronic headache criteria.<sup>2</sup> The National Survey of Children's Health reported that 5.3% of children ages 6–17 in the United States experience frequent and severe headaches, including migraines.<sup>3</sup> The cause of migraine headaches is unknown. The common belief in Western medicine is that migraine headaches are a type of neurovascular headache, caused by an interaction between blood vessels and nerve abnormalities.<sup>2</sup> Children who experience weekly headaches often miss school and visit emergency departments more than children without headaches.<sup>3,4</sup>

Acupuncture is effective for treating chronic pain conditions.<sup>5</sup> A 2009 Cochrane review concluded that patients

receiving 3–4 months of acupuncture treatment had fewer headaches and side-effects of medications than children who did not receive this therapy.<sup>6</sup> One study showed that verum acupuncture reduced the frequency and intensity of migraine attacks significantly in patients between ages 7 and 15, compared to placebo.<sup>7</sup> These findings suggest that acupuncture may be an effective treatment option for migraine headache.

This article introduces a five-step system wherein acupuncture treatment philosophy can be applied to aspects of migraine headache and that can be used to help guide practitioners in selecting accurate points for each treatment.

## MIGRAINE HEADACHE IN TRADITIONAL CHINESE MEDICINE

Traditional Chinese Medicine (TCM) recognizes that all illnesses are caused by abnormal patterns in the flow of

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energy or Qi throughout the body.<sup>8</sup> The saying is: “If there is pain, there is no free flow; if there is free flow, there is no pain.”<sup>9</sup> This lack of free flow of Qi can be caused by or result from the Qi being Deficient or Excessive, Stagnant or Blocked, or Rebellious (by flowing in an opposing direction). Qi flows within the human body’s meridian system, which is made up of twelve major meridians, eight extraordinary meridians, and numerous minor meridians.

In TCM, the Head is nourished by all the organs, is closely connected to other parts of the body, and is where “the confluence of Yang” and “the dwelling of lucid Yang” resides.<sup>10</sup> The head encircles the brain, which is derived from Kidney essence and nourished by food nutrients. Migraine headaches occur when external and/or internal factors impede the flow of Qi to the Head, disturb the nutrient supply, and block the face orifices (mouth, ears, eyes, and nose).

*Migraine* is not a TCM term. Instead, *chronic or re-occurring head pain* is used. When a patient is evaluated by a TCM practitioner for chronic or re-occurring head pain, the practitioner will not only ask questions about the patient’s head pain but will also ask other questions about the patient’s health and well-being. TCM diagnosis is based on pattern discrimination. Flaws stated: “Treatment is not based on the disease, but on what is called the patient’s pattern...what is causing the issue looking at the totality of the person and [the] symptoms as a unique individual. The treatment is then designed to rebalance the entire pattern of imbalance and this will address their main complaint or disease.”<sup>9</sup>

In treating chronic or re-occurring head pain with acupuncture, the *first question* a practitioner must ask is about the location of the pain. Pain location relates to the distribution of the meridians on the Head, which are summarized in Table 1.<sup>11–15</sup> The *second and third questions* are: “What is the duration of the Head pain?” and “What are its

characteristics?” As shown in Table 2, this information is categorized along with the correlating eight main TCM patterns: Liver Yang and/or Fire Rising, Liver Qi Stagnation, Blood Stasis, Phlegm Damp, Spleen Qi Deficiency, Blood Deficiency, Kidney Yin and Yang Imbalance, and Liver Yin Deficiency.<sup>12–15</sup> The combination of pattern diagnosis and location of the Head pain will guide the practitioner to a pool of points that can be used, as shown in the right column of Table 2.

The *fourth question* is how many needles are to be used? In general, pediatric patients warrant fewer needles and careful point selections.<sup>11</sup> Once a practitioner has decided on how many needles to use, that practitioner must choose which acupuncture points, from points that were pooled earlier from Tables 1 and 2, to address the pain.

Finally, a practitioner needs to determine how long the needles should be retained. The duration depends on the patient’s age, sensitivities, and comfort level at the time of treatment. Most younger children have less tolerance for needle stimulation.

The five-step process to answer these questions is illustrated in the next section by using them on a patient with migraine headaches.

## METHODS

This article presents a single case of a patient for whom the five-step system was used to diagnose and treat recurring Head pain.

Treatment of pediatric chronic or re-occurring Head pain with acupuncture can be simplified into the following steps:

- Step 1—Locate the pain (Table 1).
- Step 2—Place the symptoms into a pattern diagnosis (Table 2)
- Step 3—Decide how many needles to use and the duration of use.
- Step 4—Select the optimum points from the pooled points in the right column in Tables 1 and 2.
- Step 5—Administer the treatment.

## CASE STUDY EXAMPLE

### First Treatment Session

*Step 1—Pain location:* A 14-year-old male presents with frontal right-sided headache.

*Step 2—Pattern diagnosis:* According to this patient’s history, he was in a motor vehicle accident, 6 weeks prior to initial treatment, and experienced a loss of consciousness and amnesia. He has persistent photosensitivity and problems with ambulating. His Head pain returns during or after intense exercise. The pain is sharp and then becomes a dull throb that lingers for 4 days. He is often sleepy, but he has a happy disposition with a good appetite and frequently eats a

TABLE 1. LOCATE THE PAIN<sup>11–15</sup>

Location	Meridians	Points
Occipital	<i>Tai Yang:</i> Small Intestine & Bladder	GB 20, BL 10, BL 60, SI 3, GV 16
Side of the head	<i>Shao Yang:</i> Triple Warmer & Gall Bladder	GV 20, SI 3, BL 67, LR 3, <i>Tai</i> <i>Yang</i> , GB 8, TE 5, GB 41
Forehead	<i>Yang Ming:</i> Large Intestine & Stomach	LI 4, ST 36, ST 8, GV 23, <i>Yin</i> <i>Tang</i> , BL 2, ST 41
Inside the head	<i>Shao Yin:</i> Kidney & Heart	GV 20, GV 16, LI 4, GB 20, BL 40, BL 60
Tight band	<i>Tai Yin:</i> Lung & Spleen	SP 3, SP 6, LU 7, BL 21, BL 14, SI 3, TE 3, LI 4
Top of head	<i>Jue Yin:</i> Liver & Pericardium	GV 20, GB 20, KI 1, KI 3, LI 4

TABLE 2. MIGRAINE HEADACHE TCM PATTERN DIAGNOSES<sup>12-15</sup>

<i>Pattern diagnosis</i>	<i>Pain sensation</i>	<i>Corresponding symptoms</i>	<i>Points</i>
Liver Yang &/or Fire Rising	Pain on top or at the vertex of the head, tender to the touch or dull and achy	Dizziness, blurred vision, high blood pressure; increased anger or agitation might accompany the headache symptoms	GB 20, LR 3, LR 2, GB 9, SP 6, LR 8, KI 3, TE 5, GB 41, LI 4
Liver Qi Stagnation	Throbbing pain on the sides of the head or temple area	Increased sensitivity to light, smells & sounds, moving sharp pains that stop and recur, muscle cramps & moodiness; most common diagnosis for menstrual migraines	LR 3, LI 4, GB 34, GB 41, BL 18, SP 6, TE 5
Blood Stasis	Sharp stabbing, splitting, or boring pain, usually in a fixed location	Might be a single area or many small areas spread out over the head; most commonly caused by a trauma to the head	Scalp <i>Ashi</i> Point, BL 17, LI 4, SP 6, TE 5, LR 3
Phlegm Damp	Heavy, fuzzy or stuffy sensations in the head that do not resolve	Foggy thinking, dizziness, worse nausea, chest oppression, extreme fatigue, digestive issues, heavy limbs; symptoms might be worse during rainy weather	GV 20, CV 12, ST 25, SP 9, SP 6, CV 6, PC 6, LI 4, ST 40
Spleen Qi Deficiency	Empty feeling or a dull achy headache all over	Tires easily, feels weak, decreased appetite, pale complexion, sweats easily & loose stools	PC 6, GV 20, CV 6, BL 20, ST 36, SP 3, KI 3, LU 7
Blood Deficiency	Light-headed	Poor vision, poor sleep, ashen complexion, craves meat or iron, anemia, easily startled or quick to cry & may experience heart palpitations	GV 20, BL 15, BL 18, ST 36, SP 6
Kidney Yin & Yang Imbalance	Dull pain deep inside the head or a feeling of emptiness	Dizziness, easily fatigued, sore low back or knees, tinnitus, amnesia & feelings of both hot and cold that stop & recur	GV 20, GB 19, BL 23, GB 39, KI 3, KI 7, KI 10, ST 36, SP 6
Liver Yin Deficiency	Dull ache on sides of head	Dryness, poor sleep, night sweats, constipation, hot hands & feet; most common with chronic illness from long-term depletion of important nutrients	LR 5, LR 8, SP 6, BL 18

TCM, Traditional Chinese Medicine.

traditional American diet. He has healthy regular bowel movements and urination.

**TCM Diagnosis:** Frontal Headaches due to Blood Stasis with Qi Stagnation and Dampness.

**Treatment Principles:** Move Qi, relieve Stasis, and dispel Damp.

*Step 3—Number of needles and duration of stimulation:* Six needles are used for this patient's first treatment, and they are to be retained for 10 minutes.

*Step 4—Point selections:* The forehead is *Yang Ming* and relates to the Large Intestine and Stomach meridians. The acupuncture points listed for this location are: LI 4; LI 11; ST 36; ST 8; GV 23; Yin Tang; BL 2; and ST 43 (Table 1).

A motor vehicle accident leading to Head trauma and sharp pain suggests the diagnosis of Blood Stasis. Point selections may include: BL 17; LI 4; SP 6; TE 5; and LR 3 (Table 2).

Lingering dull pain, bad diet choices, fatigue, and recurring symptoms with exercise suggest the diagnosis of Phlegm Damp. Point selections may include: GV 20; CV 12; ST 25; SP 3; SP 9; PC 6; CV 6; ST 25; LI 4; and ST 40 (Table 2).

Worse pain with or after exercise, hormone changes, and photosensitivity suggest the diagnosis of Liver Qi Stagnation. Point selections may include: LR 3; LR 8; LI 4; GB 34; GB 41; BL 18; SP 6; and TE 5 (Table 2).

**Final Acupuncture Points Selected:** Left = ST 40, GB 34, and PC 6; Right = LI 4, SP 9, and SP 6.

*Step 5—Administer treatment:* Treatment is administered with red SEIRIN (0.16 × 30 mm; SEIRIN,<sup>®</sup> Japan) needles and are retained for 10 minutes without manipulation.

### Additional Treatment Sessions

The patient returns for seven additional sessions over the following 2 months. He receives similar treatments each time, although the point selections vary somewhat, depending on his daily complaints, presenting TCM diagnosis, and increasing needle tolerance. In the section below, the five-step system is used again to explain his fourth treatment session.

### Fourth Treatment Session

*Step 1—Pain location:* The patient presents without a headache. He reports having one frontal right-sided headache lasting for 1 full day during the current week.

*Step 2—Pattern diagnosis:* This patient's pattern diagnosis is very similar to what was noted during his 1st session with some changes. His headache pain is initially throbbing and sensitive to light, and then it turns into a dull ache as the day progresses. The patient reports that he has been adhering to strict healthy eating guidelines 80% of the time, he sleeps well at night but fatigues easily during the day; and he has been participating in mild exercise daily. Because of his past experiences, the patient reports that he has fear with respect to his Head pain returning with high-level exercise, although he states that he played an intense game of basketball during the current week and did not get a headache during and immediately afterward; nor did he get a headache the next morning.

**TCM Diagnosis:** Frontal Headaches initially caused by Blood Stasis, now caused by Liver Qi Stagnation and Phlegm Dampness.

**Treatment Principles:** Move Qi, relieve Stasis and dispel Damp.

*Step 3—Number of needles and duration of stimulation:* Ten needles are to be used and retained for 20 minutes.

*Step 4—Point selections:* See Step 4 in 1st session, for the same pool of points.

**Final Acupuncture Points Selected:** Left = ST 36, ST 40, GB 34, and PC 6; Right = SP 9, LR 8, LR 3, LI 4, LI 11, and TE 5.

*Step 5—Administer treatment:* Treatment is administered with red SEIRIN (0.16×30 mm; SEIRIN, Japan) needles and are retained for 20 minutes.

### Last Treatment Sessions

At the patient's fifth visit, he reports being headache-free for 7 days. At the sixth session, the patient reports having had another week without head pain. He returns for two more sessions and then requests to be discharged from care.

## DISCUSSION

As a single-case retrospective chart review, there are limitations. No single table can include all the possible points that could be used for a single symptom or TCM diagnosis. Different texts, teachers, and resources suggest varying acupuncture points for treatment of specific symptoms.

Not all symptoms will fit into one single TCM pattern diagnosis, but a patient might have symptoms related to a compilation of pattern diagnoses. In addition, symptoms may change between sessions; therefore, their TCM pattern diagnoses will vary as well. This patient communicated symptoms associated with three TCM patterns: Blood Stasis (Head trauma), Liver Qi Stagnation (balance issues and throbbing pain) and Phlegm Damp (fatigue, digestive issues, and worse headaches with exercise).

Selecting the most effective points becomes harder when more meridians and pattern diagnoses are involved. This is

especially true with children, because fewer needles are used per treatment and the needles are retained for a shorter duration, compared to what is typically used with adults. A child under age 5 may tolerate up to 4 needles (0.16 or 0.18×15 mm) administered with a superficial in-and-out technique or with no retention time in the patient's skin. At ages 6–11, patients may tolerate 6–8 needles (0.16 or 0.18×15mm), for a few minutes at age 6, up to 10 minutes at age 11. From ages 12 to 18, tolerance of needles may increase to 12+ needles (0.16×15 mm or 30 mm, depending on point location depth) and might find a 15–20-minute session relaxing when it is supervised by an adult. Needles can be placed bilaterally or unilaterally. Unilateral application of points was used in the presented case study because the practitioner wanted to incorporate the most acupuncture points into each session while using the fewest needles possible.

Interpretation varies among practitioners, as they are taught to treat what is presented to them. Diagnosis is based on what is heard, felt, observed, and perceived. There are no laboratory tests to confirm a diagnosis of Spleen Qi Deficiency or Liver Qi Stagnation. Thus, a practitioner must rely on education, experience, and understanding of a patient's main complaint to diagnose that patient properly. In many cases, patients do not share pertinent information with their practitioners until a high level of trust is developed. Not knowing a key piece of a patient's history, the family's history, belief system, or current health state can limit a practitioner's ability to assess that patient's pattern correctly. Incorrect diagnosis leads a practitioner to choose points that are less beneficial for the patient resulting in a less-effective treatment. Correct diagnosis, insightful acupuncture-point selection, and safe administration of the acupuncture treatment are the optimal ways to generate positive clinical results.

## CONCLUSIONS

This five-step process is one example of a guide to treat pediatric migraine headaches. Studies are needed to show its utility and to understand better how TCM and acupuncture can be integrated into treatment plans for migraine headache for pediatric patients.

## AUTHOR DISCLOSURE STATEMENT

No competing financial interests exist.

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