The \textit{Qi}-regulating Massotherapy for Treatment of Tonic Headache in 150 Cases

TAN Tao 谭涛, WANG Jin-gui 王金贵, SUN Qing 孙庆 & SHI Yu-sheng 石玉生

Department of Orthopedics and Massotherapy, the First Hospital Affiliated to Tianjin University of Traditional Chinese Medicine, Tianjin 300193, China

\textbf{Objective:} To observe the therapeutic effects of the \textit{qi}-regulating massotherapy (通脉调气推拿法) for treatment of tonic headache. \textbf{Methods:} According to different clinical types, 150 cases of tonic headache were treated by the \textit{qi}-regulating massotherapy. Evaluations were done according to the scores for physiology, behavior, intensity of pain, and the therapeutic effects. \textbf{Results:} After treatment, the total score in the 150 cases significantly decreased as compared with that before treatment ($P<0.01$). The total effective rate was 93.3\%, and the effective rates for all the types were over 90\%. \textbf{Conclusion:} The \textit{qi}-regulating massotherapy is indicated for all types of tonic headache with obvious therapeutic effects.

\textbf{Key words:} tonic headache; massage therapy; \textit{qi}-regulating massotherapy

Tonic headache (TH), also called catatonic headache or muscular contraction headache, is the most common kind of chronic headache, covering about 40\% of the headache patients.\(^1\) In China, the morbidity of tonic headache is now on the rise, which seriously affects people’s daily life and their work. It is generally acknowledged that abnormal contraction of the peripheral muscles in the skull is one of the main causative factors for tonic headache.\(^2\) According to the pathogenesis of tonic headache, the \textit{qi}-regulating massotherapy (通脉调气推拿法) was adopted in the present study for the treatment, which was applied on the head and in the abdominal region as well. In this series, 150 cases of tonic headache were treated, with the effects evaluated as reported below.

\textbf{CLINICAL MATERIALS}

\textbf{Criteria for diagnosis}

The western diagnostic criteria are based on the \textit{Diagnostic Criteria for TH} set by International Headache Society\(^3\) that the patient must have two of the following features: 1) the headache is characterized by pressure pain or tightness (without pulsatile headache); 2) light or moderate pain (probably limiting movement but not prohibit movement); 3) bilateral headache; 4) the headache is not aggravated by climbing the stairs or the same daily activities. The patient also meets the following two criteria: 1) not having nausea or vomiting (probably having anorexia); 2) not having aversion to light and sound, or having one of the two. Moreover, the patient meets at least one of the following criteria: 1) having been excluded by case history and the systemic and nervous examinations from the secondary headache due to organic diseases or systemic metabolic diseases; 2) Probable existence of such kind of diseases suggested by case history, the systemic or nervous examinations, but it is excluded by corresponding examinations; 3) there actually exists such kind of systemic or nervous diseases, yet the first attack of tonic headache has no close relationship in time with the organic pathologic changes.

The diagnostic criteria for the TCM type-differentiation were set in referring to \textit{Criteria for TCM Diagnosis and Therapeutic Effects},\(^4\) Internal
The headache of blood stasis type: it is characterized by repeated attacks of headache, and lingering and intractable, and the pain is fixed like needle pricking, purple-dark tongue proper or with petechiae, thin-white tongue coating, and thready-wiry or thready-hesitant pulse. 2) The headache of blood-deficiency type: it is characterized by lingering headache, aversion to light of the eyes (worse in the afternoon), lassitude, pale complexion, palpitation and little sleep, pale tongue proper with thin coating, and weak pulse. 3) The headache of turbid phlegm type: it is characterized by pain with distending sensation in the head, blurred vision, chest distress and epigastric distention, nausea with little food intake, profuse sticky-white sputum, whit-sticky tongue coating, and wiry-slippery pulse. 4) The headache with liver-yang hyperactivity: it is characterized by pain with distending sensation in the head, or the tic pain accompanied with hot sensation, irritability and peevishness, bitter taste in the mouth, flushed face and red eyes, tinnitus, red tongue proper with little saliva, thin-yellow tongue coating, and wiry-thready pulse.

**Criteria for enrollment**

1) The patients, aged 20–50 years, meet the above-mentioned western and TCM diagnostic criteria. 2) The Stead score >100, the 6-behavior score >2, and the score for pain intensity >2. 3) Having no history of severe cerebral organic diseases and somatic diseases. 4) Having no history of psychosis. 5) The patients who agree to participate.

**Criteria for exclusion**

1) The headache due to intracranial space occupying lesions (such as cerebral hernia, hemorrhage in the inferior cavity of cranial arachnoid, and intracranial hematoma) or with infection; the angioneurotic headache; migraine; and the plexiform headache. 2) The headache caused by subdislocation of the atlantoaxial joint, and the headache induced by anxiety neurosis or depression. 3) The patients who have long-term administration of drugs (such as fenbid and brufen) and can not suspend the medication. 4) The patients complicated with severe primary diseases of the liver and kidney, the disorders in the hematopoietic system, or with psychotics. 5) The headache induced by diseases of the ear, eye, nose, or teeth. 6) The headache caused by the invasion of the six exopathogenic factors in TCM differentiation. 7) The patients over-excited during the treatment.

**General data**

The 161 cases enrolled were in- and out- patients of the First Affiliated Hospital of Tianjin TCM University in the period from 2001–2003. Of them, 63 cases were male and 98 female, ranging in age from 20–50 years (mean, 39.4±8.52 years); and 14 cases aged 20–25 years, 10 cases aged 26–30 years, 25 cases aged 31–35 years, 33 cases aged 36–40 years, 36 cases aged 41–45 years, and 43 cases aged 46–50 years. But 6 cases dropped the treatment due to work, 2 cases due to financial problem, and 3 cases with reasons unknown. Finally, 150 cases of tonic headache had undergone the whole process of treatment; and 76 cases were the blood-stasis type, 24 the turbid-plegm type, 18 blood-deficiency type, and 32 hyperactivity of the liver-yang.

**METHODS**

**Methods of treatment**

All the cases in this series were treated by the following *qi*-regulating massotherapy (通脉调气推拿法). The treatment was given once daily, lasting 35–40 min each time, for 10 consecutive days as one treatment course. The main points were Fengchi (GB 20), Fengfu (GV 16), Yintang (EX-HN3), Touwei (ST 8), Neiguan (PC 6), Sanyinjiao (SP 6), and Zusanli (ST 36). The manipulations included arc-pushing, pressing, pushing, wiping, rubbing, and pushing with one-finger mediation.

The following are the treatment procedures:

1) The doctor applied the pressing-kneading
manipulation on the patient’s bilateral Fengchi (GB 20) with the middle fingers, making the distending sensation radiating along the lateral sides of the patient’s head to the anterior lateral sides of the head; then perpendicular pressing with tips of the middle fingers on the patient’s Fengfu (GV 16), making the distending sensation radiating to the vertex, one min for each point. After that, the doctor applied kneading-pressing or pinching-kneading on the bilateral muscles of the nape and cervico-occipital part, 3 min for each side, so as to make the patient’s tense muscles relax.

2) The doctor applied pressing-kneading on Yintang (EX-HN3) in clockwise and counter-clockwise directions respectively for 100 times. Then, pushing with one-finger mediation was applied along the Governor Channel from Yintang (EX-HN3) to Baihui (GV 20). The reducing method was used for the excess syndrome, and the reinforcing method for the deficiency syndrome. The pushing with one-finger mediation was also applied on Touwei (ST 8) for 1 min, followed by pushing with one finger mediation with the reducing method applied in counter-clockwise circle for 2 min with Touwei (ST 8) taken as the center and the radius broadening.

3) The doctor applied pushing-wiping with a little force from Zanzhu (BL 2) along the superciliary arch to Sizhukong (TE 23), which was repeated 6 times. Then, the doctor put his both major thenars in the mid forehead part of the patient and applied pushing-wiping with a little force respectively outward on the forehead, which was repeated 6 times. And then the doctor applied pressing from the anterior hair line to the posterior hair line, with the middle finger exerting force on the Governor Channel, the index and ring fingers on the Bladder Channel, and the thumb and little fingers on the Gallbladder Channel, which was done with two hands in alternation, and repeated 6 times.

4) The doctor applied pressing-kneading with the belly of the thumb respectively on Neiguan (PC 6) and Sanyinjiao (SP 6), during which the reducing method with the thumb tip pointing upward was used to make the qi sensation radiate upward above the elbow, then the reinforcing method with the thumb tip pointing downward was used to make the qi sensation radiate downward to the terminal end of the fingers. The pressing-kneading was applied 1 min for each point.

5) The doctor applied pressing-kneading with the belly of the thumb in clockwise circle on Zusanli (ST 36) for 1 min, making the qi sensation radiate to the dorsum of the foot.

For the blood-stasis type, Shenque (CV 8), Juque (CV 14), Taiyang (EX-HN5), Ganshu (BL 18) and Geshu (BL 17) were added. For the blood-deficiency type, Zhongwan (CV 12), Qihai (CV 6), Guanyuan (CV 4), Xinshu (BL 15), Geshu (BL 17) and Pishu (BL 20) were added. For the turbid-phlegm type, Tianshu (ST 25), Shenque (CV 8), Pishu (BL 20), Weishu (BL 21) and Dachangshu (BL 25) were added. For liver-yang hyperactivity, Qihai (CV 6), Guanyuan (CV 4), Qiaogong ( Projectile Point), Qimen (LR 14), Zhangmen (LR 13), Shenshu (BL 23), Baliao (eight-Liaos), Taichong (LR 3), and Yongquan (KI 1) were added.

The operation for the type of blood stasis: 1) palm arc-pushing at Shenque (CV 8); 2) Finger-pushing along the Conception Channel; and 3) pressing on Taiyang (EX-HN5), Ganshu (BL 18), and Geshu (BL 17), 2 min for each point; oblique scrubbing on both hypochondria till the patient’s skin becoming red with hot sensation.

The operation for the type of blood-deficiency: 1) palm-pressing on Zhongwan (CV 12), Qihai (CV 6), and Guanyuan (CV 4); 2) rubbing at Qihai (CV 6), and Guanyuan (CV 4); and 3) pressing-kneading on Xinshu (BL 15), Geshu (BL 17), and Pishu (BL 20), 2 min for each point; and spinal-pinching 6 times till the patient’s skin feeling warm.

The operation for the type of turbid phlegm: 1) double-palm kneading on Zhongwan (CV 12); 2)
palm circular rubbing at Tianshu (ST 25) and Shenque (CV 8); and 3) pressing-kneading at Pishu (BL 20), Weishu (BL 21) and Dachangshu (BL 25), 2 min for each point; followed by palm-scrubbing along the Governor Channel from below till the patient’s skin becoming red.

The operation for the type of liver-yang hyperactivity: 1) double-palm pressing on Qihai (CV 6) and Guanyuan (CV 4); 2) pushing on Qiaogong ( upholstery), palm-scrubbing respectively at bilateral Qimen (LR 14) and Zhangmen (LR 13) till the patient feeling comfortable, followed by the operator’s major-thenar scrubbing at the patient’s Shenshu (BL 23) and Baliao (eight-Liaos) till the patient’s skin becoming red and warm.; and 3) the doctor applied pressing Taichong (LR 3) and Yongquan (KI 1) at the same time by using the thumb and middle finger with an opposite force.

The evaluation method
Evaluations were done according to the changes in the symptoms and signs of the patients before and after the treatment by using the physiological and behavior scores, such as the Stead score, six-behavior score and pain intensity score.

The criteria for the Stead score:
a) The score was 40 for having frequent pressure or tense sensation; b) 40 for the headache occurring in the occipital or cervical region; c) 40 for the headache induced by emotional fluctuation; d) 20 for the pain that can be alleviated by local hot compress or massage; e) 20 for the headache that can be reduced after rest or sleep; f) –100 for the headache disappearing within 1 hour; g) –100 for having the typical eye symptoms of migraine; and h) –100 for the transient one-side hemiplegia of the upper and lower limbs or aphasia.

The criteria for the six-behavior score:
a) The score was 0 for no pain at all; b) 1 for the pain easy to be ignored; c) 2 for the pain unable to be ignored, but not interrupting normal life; d) 3 for the pain unable to be ignored, and interrupting attention; e) 4 for the pain unable to be ignored, which affects all the daily activities; but the patient can have food intake and bowel movements; and f) 5 for the sharp pain unable to be ignored, and the patient needs rest or bed rest.

The criteria for pain intensity score:
a) The score was 1 for no pain or just little pain; b) 2 for a very weak pain; c) 3 for slightly weak pain; d) 4 for a slight pain; e) 5 for a moderate pain; f) 6 for a strong pain; g) 7 for a stronger pain; h) 8 for a severe pain; i) 9 for a very strong pain; and j) 10 for an extremely sharp pain.

The following formula was used to calculate the total score. The total score = Stead score × 0.1 + six-behavior score + pain intensity score.

Criteria for the therapeutic effects
Cured: The symptom of headache disappeared, with no recurrence in a 3-month follow-up survey; the six-behavior score was 0, the Stead score <60, the score for pain intensity <2, and the total score <8.

Markedly relieved: The symptom of headache was obviously alleviated, and the time was shortened or the frequency reduced by 2/3; the six-behavior score was 1, the Stead score 60–80, the pain intensity score ≥2 but <4, and the total score ≥8 but <12.

Improved: The symptom of headache was alleviated, and the time was shortened by the six-behavior score was 2, the Stead score 80–100, the pain intensity score ≥4 but <6, and the total score ≥12 but <16.

Failed: The symptom of headache was not alleviated; the six-behavior score was over 2, the Stead score > 100, the pain intensity score ≥6 but <10, and the total score ≥16.

The statistical method
All the measurement data were expressed as . The software SPSS10.0 was used for the statistical single-factor variance analysis and the t test. And the
enumeration data were tested by $\chi^2$.

**RESULTS**

**Comparison of the evaluation score before and after treatment**

As shown in table 1, the total scores for all the types in the 150 cases were decreased after treatment, with significant differences as compared with the scores before treatment ($P<0.01$), suggesting that the qi-regulating massotherapy can significantly improve the clinical symptoms.

<table>
<thead>
<tr>
<th>Type</th>
<th>Cases</th>
<th>Before treatment</th>
<th>After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood stasis</td>
<td>76</td>
<td>24.25±3.82</td>
<td>9.65±4.74*</td>
</tr>
<tr>
<td>Turbid phlegm</td>
<td>24</td>
<td>24.21±3.35</td>
<td>10.08±4.69*</td>
</tr>
<tr>
<td>Blood-deficiency</td>
<td>18</td>
<td>24.00±3.75</td>
<td>10.17±3.81*</td>
</tr>
<tr>
<td>Liver-yang hyperactivity</td>
<td>32</td>
<td>24.47±3.41</td>
<td>10.66±4.76*</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>24.26±3.65</td>
<td>10.22±4.63*</td>
</tr>
</tbody>
</table>

Note: *$P<0.01$ as compared with that before treatment in the same type.

<table>
<thead>
<tr>
<th>Type</th>
<th>Cases</th>
<th>Cured</th>
<th>Markedly relieved</th>
<th>Improved</th>
<th>Failed</th>
<th>Total effective rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood stasis</td>
<td>76</td>
<td>19 (25.00)</td>
<td>36 (47.37)</td>
<td>17 (22.37)</td>
<td>4 (5.26)</td>
<td>72 (94.74)</td>
</tr>
<tr>
<td>Turbid phlegm</td>
<td>24</td>
<td>4 (16.70)</td>
<td>13 (54.17)</td>
<td>5 (20.83)</td>
<td>2 (8.33)</td>
<td>22 (91.67)</td>
</tr>
<tr>
<td>Blood-deficiency</td>
<td>18</td>
<td>2 (11.11)</td>
<td>11 (61.11)</td>
<td>4 (22.22)</td>
<td>1 (5.56)</td>
<td>17 (94.44)</td>
</tr>
<tr>
<td>Liver-yang hyperactivity</td>
<td>32</td>
<td>5 (15.62)</td>
<td>15 (46.88)</td>
<td>9 (28.13)</td>
<td>3 (9.37)</td>
<td>29 (90.63)</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>30 (20.00)</td>
<td>75 (50.00)</td>
<td>35 (23.33)</td>
<td>10 (6.67)</td>
<td>140 (93.33)</td>
</tr>
</tbody>
</table>

**The therapeutic effects in various clinical types**

As shown in Table 2, the total effective rate was 93.33%. And the effective rates for all the types were >90% with no significant differences ($P>0.05$), indicating that the qi-regulating massotherapy is effective for all the types of tonic headache.

**DISCUSSION**

Modern medicine holds that owing to various reasons, such as nervous and mental factors, occupation, chronic inflammation, traumatic injury, strain, or stimulation of nearby pathologic changes, the muscles in the parts of forehead, temple, occiput, nape, vertex, and scapula would have tonic spasm, vascular contraction, which may lead to persistent muscular pain in the head-nape part, resulting in tonic headache. Researches have shown that continuous contraction of skeletal muscles for 2 min can make the muscles contract automatically. When the muscles keep contracting for a certain period of time, even the causative factors have already disappeared, the over defensive reaction caused by the procedure of headache – muscular contraction – headache still exists. The automatic muscular contraction may continue, making the headache lingering and intractable. 

In TCM, it is considered that the head is the place where all the yang channels meet, and it is also the place where the sea of marrow locates. The normal physiological activities of the head depend on free flow of qi and blood in the channels and collaterals, which makes the sea of marrow able to be nourished. Over-strain and emotional disturbance may cause obstruction of the channels and collaterals with stagnation of qi and blood, making malnutrition of the brain and resulting in headache. For some cases with excessive blood stasis, the headache is due to persistent illness affecting the collaterals, leading to stagnation of qi and interior accumulation of blood stasis, which obstructs in the channels and collaterals. For those with excessive turbid phlegm, the headache is often due to irregular food intake and preference for fatty and sweet food, which makes dysfunction of
the spleen in transportation and interior formation of phlegm-damp, leading to turbid phlegm upwardly disturbing the clear mind, and failure of clear-yang in dispersing. For those with excessive liver-yang, the headache is due to failure of the liver in promoting free flow of qi and blood, and hyperactivity of the liver-yang, making adverse upward flow of yang-qi and derangement of qi and blood, which goes upward to disturb the clear mind. And for those with blood-deficiency, the headache is usually due to deficiency of qi and blood as a result of insufficient source of formation of qi and blood, which fail to go upward to nourish the brain marrow and channels and collaterals, leading to malnutrition of the heart, and in severe cases the upward flaming of deficient fire. Therefore, dysfunction of qi and blood is the main causative factor for TH, based on which the qi-regulating massotherapy developed.

Through clinical observation for treatment of tonic headache, the authors think that the mechanism of the qi-regulating masotherapy lies in the stimulation to the local points and the muscle-relaxing manipulations which directly give the effects of relieving the persistent muscular contraction, and dilating the blood vessels, so as to improve the local blood circulation, and promote a normal restoration of the spasmodic muscular tissues and blood supply. And the manipulations given on the abdomen can directly regulate the functions of the zang-fu organs, so as to ensure free flow of qi, and make the patient relax physically and mentally for elimination of anxiety and emotional tension with an alleviation or disappearance of headache. The good therapeutic effects in various types of tonic headache are also related with the quantitative indexes of the masotherapy. In view of the neurophysiology, the continuous mild and soft manipulations can give the effects of exciting the peripheral nerves but inhibiting the central nerve; whereas the quick, strong and short manipulations can excite the central nerves but inhibit the peripheral nerves. Therefore, only by giving different manipulations according to the type-differentiation, can the reinforcing or reducing effect be obtained. In this series of 150 cases, the total effective rate for TH was 93.33%, the authors think the qi-regulating masotherapy worthy to be popularized.

REFERENCES

(Translated by WANG Xin-zhong 王新中)