



# Effective Treatment Approaches for Tic Disorder: A Clinical Analysis of 60 Cases

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## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

**Objective:** To investigate the treatment effect of traditional Chinese medicine and massage application in children.

**Methods:** 60 children with Tourette syndrome from three different hospitals were recruited in this study, with 36 males and 24 females. The children were divided into three groups: massage group (20 people), Chinese medicine group (20 people), and massage + Chinese medicine group (20 people). Descriptive statistic and paired t-test were used to analyse the results.

**Results:** The significant efficiency for massage group (group A) accounted for 35%, effective efficiency accounted for 15%, and inefficiency was 65%; the Chinese medicine group (group B) significant efficiency accounted for 75%, effective rate 60%, inefficiency 25%. In massage group

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combined with traditional Chinese medicine group(group C) , the significant efficiency accounted for 95%, the effective efficiency accounted for 75%, and the inefficiency accounted for 5%.

**Conclusion:** The combination of traditional Chinese medicine and massage is a safe and effective new method for treating Tic disorder, with a significant efficiency of 95% and no obvious side effects.

*Keywords: Tic disorder; massage treatment; traditional Chinese medicine.*

## 1. INTRODUCTION

Pediatric Tic syndrome (Transient Tic disorder, TD) , also known as Tourette syndrome, is a condition characterized by multiple involuntary tics, speech, or behavior disorders<sup>1</sup>. It typically affects children between the ages of 3 and 15, with a higher incidence in boys than girls (4~6):<sup>12</sup>. Among childhood diseases, TD is relatively common and its prevalence is increasing yearly. Recent studies indicate that at least 21% of school-age children have Tourette syndrome, although most cases are transient. However, a small number of children experience persistent tics and behavioral problems<sup>[3,4]</sup>.

With the advancement of nerve biochemistry, physiology, and pharmacology, a growing trend understanding of the disorder is presented <sup>[5,6]</sup>. There are also more treatments for this disorder, and many of the Chinese medicine treatments have been utilized for the treatment of TD <sup>7</sup>. For instance, a network meta-analysis summarized the clinical efficacy of acupuncture and other traditional Chinese medicine therapy when treating with children, which revealed that the mixed utilization of traditional Chinese herb and acupunctural could significantly improve scores on the Yale Global Tic Severity Scale (YGTSS), and TCM syndrome score scales. Moreover, this review suggested that the combination of acupuncture and tuina therapy may have similar efficacy in treating TD in children <sup>[8]</sup>.

Tuina, or massage therapy, has also been included in the clinical diagnosis and treatment guideline for Tourette's syndrome. However, the recommendation for massage therapy is relatively low, and clinical efficacy still requires more clinical studies to provide evidence of efficacy <sup>8</sup>.

This study aims to examine the clinical efficacy of massage therapy and its combination with traditional Chinese medicine in treating TD in the clinic settings. By conducting clinical trials on a group of patients, it seeks to provide valuable

clinical evidence supporting the use of massage therapy and traditional Chinese medicine in treating TD. The results of clinical and laboratory-related tests, along with diagnostic treatments, will be reported for 60 TD patients.

## 2. DATA AND METHODS

In July and August of 2023, a retrospective analysis was conducted on a group of 60 children who received various treatments for investigation and study purposes. The treatments included massage therapy, traditional Chinese medicine, and a combination of the two. The study was conducted at Xi'an children rehabilitation hospital, Chengdu Southwest Children's Rehabilitation Hospital and Chengdu Southwest Children's Hospital. Of the 60 children, 36 were male, accounting for 60% of the total, and 24 were female. The children were divided into three groups: Group A received massage therapy (20 cases), Group B received traditional Chinese medicine (20 cases), and Group C received a combination of massage therapy and traditional Chinese medicine (20 cases).

In this study, 60 children with Tic disorder were divided into three groups (A, B, and C) based on their age, symptoms, and treatment methods. Each group had 20 children.. Group A was given massage treatment, group B was given traditional Chinese medicine treatment, and Group C was given a combination of massage and traditional Chinese medicine treatment. The aim of the study was to analyze and determine which treatment method was more effective.

## 3. RESULTS

According to the study, Group A (massage group) had a 35% efficiency rate, 15% showed some improvement, and 65% reported no improvement. Group B (Chinese medicine group) had a 75% significant efficiency rate,, efficiency rate for 60%, inefficiency rate for 25%. In Group C (massage group + traditional Chinese medicine group), the significant efficiency accounted for 95%, the effective efficiency accounted for 75%,

and the inefficiency accounted for 5%. Based on these findings, It can be concluded that the most effective treatment method of children with Tic

syndrome is a combination of massage and Chinese medicine. The joint application of these therapies results in better treatment outcomes.

**Table 1. Group A: 20 children with TD (massage group)**

	Yea age (7-14year)	Symptoms (eye- blinks)	Treatment (Massage)	excellence	valid	of no avail
Number/ person	11	17	20	7	3	13
Number / person	20	20	20	20	20	20
As a percentage of /%	55%	85%	100%	35%	15%	65%

**Table 2. Group B: 20 children with TD (TCM group)**

	Yea age (7-14 Year)	Symptoms (eye- blinks)	Treatment (drug)	Excellence	valid	of noavail
Number / person	12	19	20	15	12	5
Number / person	20	20	20	20	20	20
As a percent age of /%	60%	95%	100%	75%	60%	25%

**Table 3. Group C: 20 children with TD (massage group + traditional Chinese medicine group)**

	Yea age (7-14 year)	Symptoms (eye- blinks)	Treatment (Massage +medicine)	Excellence	valid	of noavail
Number /person	13	20	20	19	15	1
Number /person	20	20	20	20	20	20
account for... /%	65%	100%	100%	95%	75%	5%

**Table 4. Curative effect of Groups A, B and C**

	Age (7-14 years old) / person of /%	Symptoms (eye blinks) /person /%	Treatment /human/%	Significant /human/%	Curative effect		T	P
					Effective / human /%	Invalid /person /%		
<b>A</b>	11 55%	17 85%	20 100%	7 35%	3 15%	13 65%	0.51	>0.05
<b>B</b>	12 60%	19 95%	20 100%	15 75%	12 60%	5 25%	0.55	>0.05
<b>C</b>	13 65%	20 100%	20 100%	19 95%	15 75%	1 5%	0.88	<0.05
<b>Total Number of people:/%</b>	36 60%	56 93%	60 100%	41 68%	30 50%	19 31%		

**Table 5. Data statistics**

	Mean	N	Standard deviation	T	p
manipulation	7.66	3	5.03		0.55
Traditional Chinese medicine +massage	11.66	3	9.45		
	mean	N	Standard deviation	T	
Traditional Chinese medicine	10.66	3	5.13		0.87
Traditional Chinese medicine +massage	11.66	3	9.45		

#### 4. DISCUSSION

To the best of our knowledge, the current study is the first to investigate the effectiveness of traditional Chinese medicine and massage therapy in children with Tic disorder. The results support the hypothesis that the combination of traditional Chinese medical herbs and massage therapy has significant clinical efficacy in the treatment of Tic disorders, which is in line with existing research [8]. Massage therapy for Tic disorders has been used to some extent in China and South Korea. Meta-analytical studies have shown that compared with conventional therapies, Massage therapy possesses unique advantages such as low pain, significant clinical efficacy, and reduced likelihood of recurrence [10,11]. The results provide clinical evidence for the use of traditional Chinese medicine and massage in the treatment of Tic disorders.

##### 4.1 Cause

Tourette disease is mainly caused by the incomplete development of the prefrontal lobe, excessive dopamine secretion in the hypothalamus, and the imbalance of the motor nerve nerves in the extra-pyramidal system. The disease in 3-15-year-old children, more men than women, the proportion is about (4-6): 1, more think is caused by mental factors, family factors, environmental factors, psychological factors, such as children frightened, emotional, parental tension, parents scold children, often bullied by classmates, boring, noisy environment, locked psychology, overweight, various factors, can affect the brain development, neurotransmitter secretion, and cause coryramidal system motor nerve disorders[8].

The theory of“unity of form and spirit” suggests that TIC syndrome belongs to the category of“both form and spirit fall ill simultaneously”, which is a syndrome of deficiency and excess. Weak physique, insufficient qi and blood, and disharmony among the five organs are referred

to as“insufficient qi and form”; The child’s strange cries, obscene language, and willful impulses are causing the mind (brain) to lose control. The treatment of Tic disorder by pediatric massage is a form and spirit co-regulation. By pounding the small heart of the sky, pinching the spine, rubbing the Hundred Hubs, and other techniques, the internal and external organs are adjusted together, and the internal organs are treated at the same time. Studies have uncovered that massage possesses the ability to unclog the meridians, regulate blood flow, and promote relaxation by pacifying the nerves[12]. It can calm the child, relieve anxiety, and stop twitching, which is a form-spirit co-regulation12. Besides, A network meta-analysis has indicated that the implementation of acupuncture and massage therapy (tuina) can effectively alleviate the symptoms of Tourette syndrome and reduce the incidence of adverse reactions, showing better clinical safety and increasing patient compliance[9]. Thus, this therapy not only seeks to alleviate the tic symptoms but also endeavors to optimize the overall health status of patients.

##### 4.2 Clinical Characteristics

The disease is up and down and develops slowly. Very delicate: in the emotional tension, cold weather, mental fatigue, diarrhea, watching TV aggravation, disappear after sleep, often easy to be misdiagnosed: conjunctivitis, rhinitis, pharyngitis parents think it is a bad habit. Tic symptoms, proportion: blink accounted for 56.04%, mouth and mouth accounted for 23.07%. Nodding or shaking accounted for 56.04%, shoulder shrugging 39.56, trunk twitching 6.5%, abdominal muscles 2.02%, and inspiration. Most children start from the eyes, face, and gradually to the distal development[14].

##### 4.3 Differential Diagnosis

Clinical need to combine symptoms and laboratory, EEG examination to identify pediatric psychosis, post-infection encephalitis, epilepsy,

chorea (Rheumatism), Wilson disease, pediatric attention deficit hyperactivity disorder and other diseases [8].

#### 4.4 Dopamine Action

Dopamine: Dopamine is an important neural mediator, involved in the regulation of various spirits, exercise, blood pressure, and heart in the brain. It belongs to catecholamine nerve media, which is related to people's emotions and feelings, and transmits excitement, and happy information in the brain, which is very related to people's pleasure. If lacking or disorder, it will lead to mental and emotional changes[15].

#### 4.5 Treatment

##### 4.5.1 General treatment

Children should eliminate the inferiority complex, and establish the confidence to overcome the disease. Coordinate family relations, create a good environment for children to grow up, and do not excessively blame, or abuse children. Should inform the teacher of the relevant doctor-patient knowledge, and the teacher to teach other students not because of the strange actions of children and ridicule, Sision or discrimination, but care for classmates<sup>14</sup>.

#### 4.6 Medication

Commonly used drugs: risperidone tablets, clonidine transdermal patch, phosphide hydrochloride, topiramate, calamus hemp wind tablets, aripiprazole, foperidol, sodium valproate, etc[16].

##### 4.6.1 Mental intervention

Behavioral therapy: reward patients' good behavior, correct and strengthen bad behavior, and replace bad behavior with new effective behavior. Educate children and parents, adjust mentality, eliminate stigma, correct understanding of the disease, do not pay too much attention to children's syndrome Form, reasonable arrangement of daily life. Education and family intervention therapy Parents should coordinate the family relationship, especially the parent-child relationship with their children, to give a harmonious family growth environment for children. Give parents the necessary guidance to avoid conflicts and contradictions with their children, and get along harmoniously with their children[14].

#### 4.6.2 Chinese traditional treatment

In the treatment of multiple syndrome, more Chinese medicine is used, commonly used Chinese medicine: "hook vine, white peony root, licorice, Gastrodia elata, silkworm, scorpion, pinellia, Poria, pleurum, chrysanthemum, oyster, bamboo ru, jujube, jujube, gold, Dendrobium, endrobium, rushes" and so on. According to different symptoms of different Chinese medicine compatibility. As well as massage, brain tai, ear acupoint, meridian embedding treatment, Chinese medicinedecocton with treatment [8].

#### 4.7 Other Treatments

Transcranial magnetic stimulation therapy, multiparameter biofeedback, current stimulation and other brain neuroregulation therapy.

#### 4.8 Prevention and Prognosis

Eliminate all kinds of tension factors and local irritation stimulation, eliminate the factors that induce TIC. This symptom has a good prognosis, mostly a short process, lasting for several months, and a few can become habitual and persistent, but it has no effect on daily activities [17].

### 5. CONCLUSION

Through research and analysis, it is shown that the best effective treatment of children with syndrome is: massage + Chinese medicine, the two are used together, the treatment effect is better.

#### CONSENT

It is not applicable.

#### ETHICAL APPROVAL

It is not applicable.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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