

Case Report

Efficacy of *Guduchyadi Leha* along with tongue exercises in *Gadgada* (stammering) in 6 year old female child: A case study

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Abstract

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Introduction: Life of human beings is prestigious as humans can express their limitless opinions and beliefs. There is huge potential and power to express his thoughts in the form of words, syllables converting into speech, which makes him too easy to deal with life. Generally speech develops rapidly in 2 to 5 1/2 age group. In this learning age of speech, child starts repetition in pronouncing consonants, and also few words while speaking. If this condition remains same then may the child suffer from disability of speech or fluency disruption. Stammering is disease related to speech of human beings. Stammering or stuttering is defined as interruption in fluency of speech, facial expressions and spasmodic repetition of and prolongation of sound by fear or anxiety, which leads child to avoid speak for hiding error in speech. Aim- To observe the result of *Guduchyadi leha* on stammering. Case scenario: A 6 year female child, complaining about unclear speech (*Aspashta vaak*), blocks and prolongation in pronunciation of words (*Avyakt vaak*), error-full broken words (*Sphuta vaak*) was treated by *Guduchyadi Leha* and changes were noted after assessing the condition of stammering by using Stammering Severity Instrument – 4 (SSI-4). Observation: symptoms like unclear speech, prolongation time, blocks were reduced. Results- Improvement in stammering has been seen as discussed below in the report.

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Keywords: Stammering, *Gadgada*, *Guduchyadi Leha*, *Vaak*, SSI-4

Introduction

In *Ayurved* literature, there is no specific category enclosing diseases related to speech. There are only references regarding fluency, developmental delay in speech, voice problems, etc. The speech problems related conditions mentioned in the *Ayurveda* literature are *Mukatva* (Muteness), repetition of spoken words, difficulty in speaking, *Minmin* (nasal sound), and broken sound while pronunciation. The above conditions of speech come under fluency problem, articulation and voice problem. The ratio prevalence of stammering in India is much higher in preschoolers as compared to school going children and adults, the studied prevalence rate of stammering for above groups are 2.5%, 1% and less than 1 % respectively (1). In *Ayurveda* classics the causes, etiology and symptoms of stuttering are not explained thoroughly. *Acharya Charaka* (2) and *Acharya Sushruta* (3) has explained stuttering in *Vatavyaadhi Avarana* chapter. *Vruddha Vagbhata* stated that stuttering causes due to aggraVataion of *Vata* by

consuming *Vata* provoking diet and regime by pregnant women (4). Manifestation of speech disorder was stated by *Acharya Sushruta* that *Vata* gets covered by *Kapha* in sound carrying tubes which produces muteness, repetition of spoken words, (stammering) (5). *Acharya Charaka*, in *Aavarana prakarana* stated that by the covering of *Samana Vata* by *Prana Vata* cause stuttering (6).

Signs: The symptomatology of *Gadgada* explained in *Ayurveda* texts are *Luptapada vyanjanaadi* (Missing nouns, proverbs) (6), *Avyakt Vaak* (Devoid of speech) (7), *Aspasht Vachan* (Unclear speech) (8), *GardhabaVata Swar* (Unclear pronunciation) (8), *Sphut Vaak* (Broken words) (9), *Swalpa Asambaddha Vaak* (limited speaking because of hesitation) (10), *Gharaghara Shabda* (Gurgling words).

Case Report

A 6-year-old female child was brought by her parents, complaining for stammered speech pronunciation, prolongation in uttering words.

Past History: No significant illnesses or drug allergies have been recorded.

Antenatal History: No history of major illness during the antenatal period.

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Birth History: Full-term normal vaginal delivery, with no history of birth injury or asphyxia.

Developmental Milestones: All milestones, like gross motor, fine motor, and social development, were achieved on time as per age, except language. Monosyllabic speech developed at 13 months, and disyllabic speech at 18 months.

Immunisation history – As per the recommended schedule, all vaccines were received timely.

On Examination: Speech pronunciation was unclear, with instances of blocking and prolonged articulation of words. Words appeared fragmented, and the strength of vowels and consonants during speech was reduced. Mild involuntary facial movements, such as eye closure, were observed. The patient lacked eye contact, and facial grimacing was noted.

Systemic & Muscular Examination: No systemic abnormalities or any nervous dysfunction, neurohormonal or local muscular dysfunction were detected.

Dietary History: The patient follows a mixed diet, including both vegetarian and non-vegetarian food.

Past Treatment History: No specific medications have been taken for speech disfluency.

Type of Study: Case Study.

Study Location: Kaumarbhritya OPD, MGACH & RC, Salod (Hi), Wardha.

Ashtavidha Pariksha

Table 1: Ashtavidha Pariksha (11)

S.No	Ashtavidha Pariksha	
1	<i>Nadi</i> (pulse)	74/min
2	<i>Mutra</i> (urine)	5-6 times/day
3	<i>Purish</i> (stool)	Irregular bowel
4	<i>Jihva</i> -tongue	<i>Niram</i>
5	<i>Shabda</i> /speech	Unclear, with instances of blocking and prolonged articulation of words
6	<i>Sparsha</i> -touch	Normal temperature
7	<i>Drik</i> -vision	Normal
8	<i>Akruti</i>	<i>Madhyam</i>

Dasavidha Pariksha

Table 2: Dashvidha pariksha (12)

S. No	Dashvidha Pariksha	Case 1
1	<i>Prakriti</i> (<i>Sharirika</i>)	<i>Vataja-Pittaja</i>
	<i>Vikriti</i>	
	a. <i>Dosha</i>	<i>Udaan-Praan Vaayu, Kaph</i>
2	b. <i>Dushya</i>	<i>Rasa, Udag, Mamsa, Majavaha, Manovaha</i>
	c. <i>Adhisthana</i>	<i>Kantha, Mukha</i>
	d. <i>Srotodushti</i>	<i>Vimarga-gamana</i>
3	<i>Sara</i>	<i>Rasa sarata</i>
4	<i>Samhanana</i>	<i>Pravar</i>
5	<i>Pramana</i>	<i>Madhyam</i>
6	<i>Satmya</i>	<i>Pravar</i>
7	<i>Satva</i>	<i>Madhyam</i>
8	<i>Aharashakti</i>	<i>Madhyam</i>
9	<i>Vyayam Shakti</i>	<i>Madhyam</i>
10	<i>Vaya</i>	<i>Baalaavastha</i>
11	<i>Vyadhivinishchay</i>	<i>Gadgada (Stuttering)</i>

After assessing speech by SSI-4 scale, diagnosis mad as *Gadgada* as per *Ayurveda* and Stuttering as per modern. Line of treatment for *Gadgada* was planned with herbal drug combination of *Guduchyadi Leha*, along with tongue exercises to break down the *Samprapti* was planned.

Nidaan Panchak

- **Nidaan**- Idiopathic
- **Lakshan**- *Gadgada*
- **Samprapti**: Consuming causes creates vitiation of *Pran Vayu* (*Manodharan*) and *Udan Vayu*, which is responsible for the development of speech and *Pran*. *Udan Vayu* obstruction by *Kapha* in *Shabdavahini Dhamni* causes dysfunction of speech and Stuttering occurs.

Materials and Methods

Materials

As per quote mentioned in Vangsen Samhita, *Guduchyadi Leha* (13) is quoted for *Gadgada*, which contains *Guduchi*, *Apamarga*, *Vidanga*, *Shankhapushpi*, *Vacha*, *Shatavari*, *Haritaki*, *Shunthi*, *Ghrita*.

Methods

Counselling: Counselling was done to boost the confidence and positivity of child by loud reading in front of mirror and advised giving reward by mother after completion of task.

Tongue exercises: Tongue exercises were explained to the child and mother, to rotate tongue up and down, left to right- vice versa and rotating tongue clockwise and anti-clockwise.

Guduchyadi leha twice a day, dose was decided as according to the age, weight and *prakriti* of the child. Patients follow up was taken after every 15 days, with dose of $\frac{1}{2}$ tsf (10 grams)

Grading and Assessment of speech was done by using Stammering Severity Instrument – 4 (SSI-4)(14).

Stammering severity instrument – 4 (SSI-4)

SSI-4 scale is a tool that is used for the assessment of the severity of stammering in various aspects of reading, speaking, facial expression, time duration of stammering, involvement of physical concomitants, etc, as per the given scale. Total score was calculated after assessment of frequency, duration, and physical concomitants, and percentile score was calculated as per the total score and percentile table given in the scale. The SSI-4 scale is given below.

Frequency - (use Readers table or Nonreaders table, not both)

Reader table – (% SS– moments of stammering)

Table 3: Readers table of SSI- 4

Reading task		Speaking task	
% SS	Task score	% SS	Task score
1	2	1	2
2	4	2	3
3 – 4	5	3	4
5 – 7	6	4 -5	5
8 – 12	7	6- 7	6
13 – 20	8	8 – 11	7
21 & up	9	12 – 21	8
		22 & up	9

Frequency score = Before treatment -13, After treatment- 7

Duration**Table 4: Duration table of SSI- 4 scale**

Average length of three longest stammering events timed to the	Scale score
Fleeting (0.5 sec or less)	2
Half second (0.5 – 0.9 sec)	4
1 full second (1.0 – 1.9 sec)	6
2 seconds (2.0 – 2.9 sec)	8
3 seconds (3.0 – 4.9 sec)	10
5 seconds (5.0 – 9.9 sec)	12
10 seconds (10.0 – 29.9 sec)	14
30 seconds (30.0 – 59.9 sec)	16
1 minute (60 sec or more)	18

Duration score = Before treatment-8; After treatment- 4

Physical Concomitants**Evaluating Scale**

- 0 = none
- 1= not noticeable unless looking for it
- 2 = barely noticeable to casual observer
- 3 = distracting
- 4 = very distracting
- 5 = severe & painful looking

Distracting sounds: Noisy breathing, whistling, sniffing, blowing, clicking sounds - Before – 2, after - 1

Facial grimaces: Jaw jerking, tongue protruding, lip pressing, jaw muscles tense - Nil

Head movements: Back, forward, turning away, poor eye contact, constant looking around - Nil

Movements of extremities: Arm and hand movement, hands about face, torso movement, leg movements, foot – tapping, or swinging - Nil

Physical concomitants score = before treatment 2, after treatment 1

Before treatment, total score

Frequency + duration + physical concomitants = percentile.

$$13+8+2=23$$

After treatment, total score

Frequency + duration + physical concomitants = percentile.

$$7+4+1=12$$

Percentile ranks and severity equivalents of SSI – 4**Table 5: Total scores for school-age children**

Total score	Percentile score	Severity equivalent
6 – 8	1 – 4	
9 – 10	5 – 11	Very mild
11 – 15	12 – 23	
16 – 20	24 – 40	Mild
21 – 23	41 – 60	
24 – 27	61 – 77	Moderate
28 – 31	78 – 88	
32 – 35	89 – 95	Severe
36 and up	96 – 99	Very severe

Results before treatment – Moderate stammering.

Speech naturalness -

Highly natural Sound speech		Highly unnatural Sound speech						
1	2	3	4	5	6	7	8	9

Speech naturalness, as 9 9-point scale, was 5 before treatment, and after treatment, the speech naturalness was 2.

Before treatment – 5; After treatment - 2

Observation of Symptoms**Table 6: Symptomatic relief of Stuttering**

Sr. No.	Symptoms	Gradation		
		Before Treatment	Middle of treatment	After Treatment
1	Repetition of a word	7	5	4
2	Prolongation of a word	3	2	0
3	Hard blockings	0	0	0
4	Facial expression	2	1	0
5	Communication	4	2	2
6	Stutter words	9	7	3

Discussion

In the present study, depending on causes and symptoms like Unclear speech pronunciation problems, blocks, and prolongation in uttering words, broken words, the strength of words or vowels while speaking was decreased, mild assessor facial expressions like the closing of eyes involuntarily, no eye contact, the face was grimace; this case was diagnosed as Stammering. Acharya Sushrut and Charak stated that, due to the covering of *Vata* (*Udaan, Vyaan, Prana, Shamana*) by *Kapha Dosha*, stuttering occurs. In protein energy malnutrition, stammering may be found due to a similar pathology (15) That's why the treatment of stuttering was decided as per the general treatment of *Avrutta Vata*. In *Vangsen Samhita*, Acharya Vangsen mentioned *Guduchyadi Leha* for speech disorder (16)

Ingredients of *Guduchyadi Leha* are *Guduchi, Apamarga, Vidanga, Shankhapushpi, Vacha, Shatavari, Haritaki, Shunthi, and Ghrita*. *Vacha* exfoliates toxins from the understated channels of the mind and opens up tubes of the higher speech center, and it also encourages higher-level mental function, cerebral function, and its circulation, which induces improvement of memory. *Vacha* has the power to remove mucous from the throat, and it opens up the lungs, which promotes full expiration, which leads to flaws in speech fluency (17) and shows improved results in the signs of Repetition and prolongation of pronunciations while speaking, and broken words. *Vacha & Apamarga* are the ingredients of *Guduchyadi Leha* have the properties of spasmodic and smooth muscle relaxant activity and are also used in psychosomatic diseases (18). These qualities help reduce symptoms such as repetitive speech patterns, difficulty with fluid communication, anxiety, stress while speaking, and disruptions in the thought process (19). *Shankhapushpi, Shatavari, and Haritaki* have the properties of sweet taste and sourness, improve hunger and digestion, laxative, and *Rasayan*, which helps to keep *Vata* and *Kapha Dosha* in equilibrium.

Vidanga has properties of being spicy and digestive, which keep *Vata* and *Kapha* at normal levels. *Vidanga* has the property of *Sukshmata* (minuteness), which goes directly into the small vessels of the body and helps in the cleansing of body systems. Acharya Charaka has explained the common treatment principle

of covering. He explained that after the diagnosis of the diseased condition, treatment should be done by using drugs and cleansing treatment as per the treatment principle of covering *Vata*. *Guduchyadi Leha* has qualities like non-flowing, oleating, and cleansing properties, reducing *Vata Kapha* and *Vatanulomana*, which are mainly significant for the extraction of the covering of *Vata* by *Kapha* to break out the etiology of stuttering. Honey has the properties of minuteness and synergy in nature, which directly enters into sources that help to show improvement in symptoms of unclear speech, broken pronunciation, and broken sentences by pauses. Hence, honey was selected in this composition. Similar articles were also reviewed for studying other prognoses and other treatment conditions (20).

Counselling of the child and mother was done by boosting his confidence by reading in front of a mirror and positivity towards improving speech fluency, and advised to give rewards from the mother, which showed improvement of confidence and reduced hesitating while speaking.

Tongue exercises were told to the child, to rotate her tongue from left to right, right to left, up-down, clockwise-anticlockwise. This exercise showed good progress in stuttering and reduced spasm of tongue movement along with involuntary repetition of words. The tension of the Jaw muscle expelled for speech correction resulted in fluent speech (21).

Conclusion

This study showed that *Guduchyadi Leha* showed scientifically significant results in the reduction of symptoms of unclear speech, disturbed pronunciation, and broken words, and the efficacy of treatment was highly significant even during the follow-up period of treatment. In the above study, the child has completed the full drug course of treatment without any adverse drug reaction to the drug in the child. Hence, it can be advocated that *Guduchyadi leha* can be given to persons who are suffering from stuttering.

Abnormality in speech pronunciation underestimates the self-assurance and social life of a person. During this study, it was observed that there was an improvement in self-assurance and social life participation.

Conflict of interest: None declared

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