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ORIGINAL RESEARCH ARTICLE

Ayurvedic Management in Post-Operative Case of Arnold *Chiari* Malformation Type-1 with Hydrosyringomyelia – A Case Report

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ABSTRACT

BACKGROUND: Chiari malformation is a congenital deformity of para-axial mesoderm, which subsequently results in formation of a small posterior fossa. Surgery is only treatment which may not be successful even for symptomatic relief.

CASE PRESENTATION: A 43years old patient pre-diagnosed with Arnold chiari malformation type 1 came to the hospital due to reappearance and increase of the symptoms after the 3 years of surgery. He was hospitalized and treated with *Sarvanga abhyanga* with *Narayana taila* and *Sarvanga bashpa svedana* with *nirgundi patra* followed by *mrudu virechana* with *eranda taila.* Orally *Balamoola kvatha*, *Kaishora guggulu* and *Ashvagandha churna* and externally *griva basti* as well as *nasya* with *narayana taila* were administered for next three weeks period. *Matra basti* was given every day with *narayana taila* in evening after the food. Patient's general condition was improved and was able to perform his routine activities. Good improvement noticed in slurred speech, imbalance in walking, neck pain and headache. Clinodactyly in hands was moderately relieved and numbness and tingling sensation was absent.

Key Words *Case report, Chiari syndrome, Hydrosyringomyalia, Ayurveda*

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INTRODUCTION

Chiari malformations, type's I-IV, refer to a spectrum of congenital hindbrain abnormalities affecting the structural relationships between the cerebellum, brainstem, the upper cervical cord, and the bony cranial base[1]. Chiari type I malformation is the most common and the least severe of the spectrum, often diagnosed in adulthood with or without syringomyelia. It has been estimated to occur in 1 in 1000 births[2]. The majority of these cases are asymptomatic. There is a slight female predominance of 1.3:1[3]. Recent studies suggest linkage to chromosomes 9 and 15[4]. It originates as a disorder of para-axial mesoderm, which subsequently results in formation of a small posterior fossa.

CASE DESCRIPTION

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A 43years old, male patient, farmer at occupation came to the OPD of the Kayachikitsa Department of the P D Patel Ayurvedic Hospital with the complaint of clinodactyly of both the hands, slurred speech, numbness and tingling sensation in both the arms and hiccups since 15days, headache on and off and neck pain since 6months.

According to patient he was without symptoms before 6 years. In 2014 he had neck pain and headache with numbness and tingling sensation in both arms and clinodactyly of right hand. So he consulted neurophysician and was diagnosed by MRI of brain to have Arnold Chiari Malformation type 1 with hydrosyringomyelia. According to reports and clinical presentation he was suggested for surgery, which he had on 21/12/2016. After surgery he got mild relief from above symptoms. But, since last 1year gradually his complaint reappeared and got severe. Left hand clinodactyly was also observed. He was hospitalized in our P D Patel Ayurveda hospital Nadiad on 14-12-2020 with these clinical presentations. No family history was observed. Chronological manifestation and presentation of diseases are given in [Table 1].

Table 1 Timeline

TIMELINE	PROGRESSION OF DISEASES
2014	Numbness and tingling sensation in right hand and right hand clinodactyly started.
2014	MRI brain was suggested and he was radiological and clinical diagnosed with Arnold Chiari Malformation type 1with Cervical Dorsal Syring.
2015	Disease got progressed with often neck pain and headache and left hand clawing.
2016	Suggested for surgery for foramen magnum decompression, which was operated on 21/12/2016.
2017	Mild relief with symptoms, but headache and neck pain was severe when he does coughing or lifts weight.
2018-2020	Progression of disease developed
14/12/2020	He came to P D Patel Ayurvedic hospital for further management and got hospitalized

CLINICAL FINDING

Patient was having symptoms like Hiccups, Headache, Neck pain, Tingling sensation, weakness and numbness in upper extremity, slurred speech, imbalance in walking and clinodactyly of both hands. Nervous system examination of patient is given in [Table 2].

INVESTIGATION

On 6th December 2016 before surgery patient did MRI cervical spine which concluded as cerebellar tonsilar herniation and hydrosyringomyelia in the central part of the spinal cord starting from cervico-medullary junction upto mid brain of D11 levels.

Table 2 Examination

Higher center	Patient was well oriented to time, place and person.
Speech	Slurred staccato speech
Motor examination	
Inspection	No wasting seen.
Tone	Mild Hypotonia

Power	Normal grade 5- movement possible against gravity and full resistence.
Rebound phenomenon	Negative
Co-ordination	
finger to nose	Exaggerated
heel to shin	Exaggerated
Dysdiadochokinesia	Negative
Sensory examination	
Superficial and deep sensation	Normal to touch, pain and temperature.
Romberg's sign	Positive
Reflexes	Superficial and deep reflexes except knee reflex are normal. Knee reflex was hyporeflexia.
Gait	Tandem gait – Open eye – negative Close eye - positive
Nystagmus	Downbeat nystagmus seen.

After surgery on 18 January 2017, MRI brain was done which was concluded as, changes of intra-cranial hypotension in form of 1) CSF density collection in right fronto-tempro- parietal region, bilateral cerebellar region and retro-cerebellar region extending upto upper cervical region. 2) Cerebellar tonsillar herniation.

On 13 April 2020, MRI cervical spine with whole spine screening concluded as, large cystic collection within the spinal cord extending from C1 to D11 levels suggesting of syringohydromyelia. CSF intensity collection in retro-cerebellar region extending upto upper cervical region and cerebellar tonsillar herniation. On 3rd December 2020, 3T MRI cervical spine with flexion and extension was concluded as, no significant changes as compared to previous MRI on 13 April 2020.

INTERVENTION

During 29 days of IPD stay patient was given *Sarvanga Abhyanga* with *Narayana Taila* and *Sarvanga Mrudu Svedana* with *Nirgundi patra* for 2 days followed by *Virechan* with *Eranda Sneha* 50ml and *Dinadayala Churna* 5gm. Following treatment was given after *Virechana*[5].

Orally patient was given *Balamoola Kvatha* 40ml twice a day empty stomach, *Kaishora guggulu* 3 tablets thrice a day after meal with lukewarm water and *Ashvagandha Churna* 3gms twice a day with milk for 25 days.

Externally *Griva Basti* was done with *Narayana Taila* for 30min, *Nasya* with *Narayana taila* 8-8 drops in each nostrils for 24 days. Patient was given 1st day *Niruha basti* with *Dashmoola Kvatha* on empty stomach and then for 23 days *Matra Basti* was given with *Narayana Taila* 40 ml in evening after food[6]. Medical intervention is shown in [Table 3].

Table 3 Intervention

DAYS	PROCEDURE/ TREATMENT	OTHER DETAILS
1st and 2nd day	*Sarvanga Abhyanga* with *Narayana Taila* and *Sarvanga Bashpa Svedana* with *Nirgundi Patra*	For 30 min. For 10 min.
3rd day	*Mrudu Virechana* with *Eranda Taila* 50ml and *Dinadayala Churna* 5gm.	With lukewarm water
4th day	*Samsarjana Karma*	

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For next 25 days	Oral medicine like		
	1)	*Balamoola Kvatha*	40ml twice a day empty stomach
	2)	*Kaishora Guggulu*	3tab(250 mg each) thrice a day with lukewarm water
	3)	*Ashvagandha Churna*	3gm twice a day with milk
	Panchakarma procedures done as:-		
	1)	1st day *Niruha Basti* with *Dashmoola Kvatha*	320ml -On empty stomach
	2)	*Matra Basti* with *Narayana Taila*	40ml after food
	3)	*Griva Basti* with *Narayana Taila*	30min.
	4)	*Nasya* with *Narayana Taila*	8-8 drops in each nostrils

OUTCOME Assessment of outcome was done on basis of clinical and systemic examination of patient before and after treatment as shown in [Table-4].

Table 4 Outcome

BEFORE TREATMENT	AFTER TREATMENT
Numbness and tingling sensation in both arms continued for whole day and was unable to lift any heavy object	Numbness and tingling sensation in both arms was absent and was able to lift some heavy object.
There was continues neck pain which was severe while coughing, sneezing and lifting any heavy object	Reduced to mild and occasional while coughing
Headache was severe while coughing, sneezing and lifting any heavy object	Reduced to mild and occasional while coughing
Clawing in both hands and he was unable to write and grip a pen	Clawing in both hands fingers was moderately good and was able to grip a pen and was able to write.
Slurred speech	Speech was understandable
Imbalance in walking	No imbalance while walking but tandem gait while eyes closed was positive
Romberg sign positive	Romberg sign positive
Hiccups continued for 3 –4 days	Hiccups was completely stop

DISCUSSION

There is as such no precise equivalent disease for Arnold Chiari Malformation in *Ayurveda* but it can be considered as *Vata* predominance disease. It can be consider under congenital malformation, there is probable hypothesis that due to chromosomes 9 and 15, Chiari type I originate as a disorder of para-axial mesoderm, which subsequently results in formation of a small posterior fossa. The development of the cerebellum within this small compartment results in overcrowding of the posterior fossa, herniation of the cerebellar tonsils, and impaction of the foramen magnum and syringomyelia. Surgery is only treatment for this. The main *Dosha* for chromosome deformity is consider as *Vata Dosha*[7,8]. *Vatashamana Chikitsa* is done in patient of chiari malformation. *Abhyanga*, *Matra Basti* and *Griva Basti* with *Narayana taila* will have *Vatashamana* and *Shothahara* properties. *Ashvagandha churna* and *Balamoola kvatha* is *Balya* and *Bruhaniya*. *Nasya* will increase the blood circulation and stimulate the nervous system. *Kaishora Guggulu* is *Shotha*, *Vata* and *Shula Hara.*

LIMITATIONS AND LESSON

As patient was not affordable we were unable to take MRI of brain after treatment but this case

study can be the base for Ayurveda management in most rare and congenital deformity chiari malformation.

PATIENT'S CONSENT: Written consent of the patient was taken for the case presentation and publication.

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