Case Study

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ROLE OF AGNILEPA IN PAKSHAGHATA (ISCHEMIC STROKE): A CASE STUDY

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ABSTRACT

Stroke is defined as the rapid onset of focal neurological deficit resulting from diseases of the cerebral vasculature and its contents. Stroke represents the third most common cause of death in the developed nations. The prevalence of stroke in India is approximately 200 per 100,000 persons and 9.94% of total deaths. The present article deals with a diagnosed case of ischemic stroke presenting with left sided hemiplegia Acute infarct in the right temporo-parieto-frontal lobe and right ganglio-capsular region with haemorrhagic transformation. The Ayurvedic diagnosis of vama Pakshaghata was made and managed with shamana aushadhi and agnilepa (bahirparimarjana chikitsa). Two assessments were made before and after treatment using the National Institute of Health Stroke Scale (NIH-SS) and CT scan. Maximum improvement was noticed in the symptoms of Stambha, Ruja, Supti, Shotha, Sparsha hani. Even there was also improvement in left upper and lower extremity functions. At the end of the treatment the patient could be able to walk without support. After treatment CT scan showed considerable recovery. Agnilepa plays a major role in the management of Margavaranajanya pakshaghata (acute ischemic stroke) if associated with saama condition, in acute condition. The drugs used for Agnilepa are having Katu Rasa Pradhana, ruksha, teekshna, lekhana guna, ushna veerya, katu vipaka and kaphavataghna, vedanasthapaka, Shothahara, Stambhahara, Suptihara and helpful in regaining of Sparshana. Agnilepa can be practiced as bahirparimarjana chikitsa in pakshaghata, as many Salvana upanaha are mentioned in the chikitsa.

Keywords: Pakshaghata, Stroke, temporo-parito-frontal lobe, Avarana, Agnilepa

INTRODUCTION

The word Pakshaghata reveals the definition that Paksha means half of the body, aghata means loss or injury[1]. Pakshaghata is vata vikara of rapidly or gradual developing clinical signs of focal or global disturbances of limbs movements and sensations and symmetrical loss of body functions. It manifests due to disturbances in the vatavaha samsthana i.e., mastishka, leading to impairments of functions of vata i.e., chestahani either in left or right of the body. Pakshaghata is one among the 80 vata vikaras and being one among Mahagadas[2]. Acharya Madhavakara says that vata vyadhis are ati-balayukta, duschikitsa and ashukari. Pakshaghata manifests in two ways either as dhatukshaya or margavarana janya[3]. Dhamanyaupalepa means formation of fibro - fatty plaques in the internal layer of the dhamanis with loss of elasticity. Dhamanipratichaya i.e., atherosclerosis means hardening of the arteries characterized by the formation of atheroma, medical calcific sclerosis leading to thickening and loss of elasticity of arterial walls. It is included in kaphaja nanatmaja vikara by Charaka, Cakrapanidatta and Ganghadara the commentators of Charaka used the term dhamanyauplepa as synonym or precursor to dhamanipratichaya[4]. The inner layers of the dhamanis normally protect them from friction due to their continuous wave like contraction and relaxation. Hence, the inner layer can be regarded as a phenomenon of kapha in general and Avalambaka Shleshma. The dhamanikudyas must withstand to this friction in addition to the pressure of the blood thrown by the contraction of the left ventricle by the initiation of hyperlipidemia, low density lipoproteins and hypertriglyceridemia accelerate this process the kapha provocation factors, diets etc. contribute to this process leading to kapha dushti, vata prakopa factors like friction, wear, and tear of dhamanis make them to lose their elasticity. The loss of elasticity compels the heart to thrust, much pressure to maintain raktaparibhramana resulting into increase of blood pressure which precipitate further load on the vessel walls promoting the process further. The damage of protective phenomenon Avalambaka Kapha provoke vata make the inner surfaces roughened leading to sticking up of fibro - fatty constituents of blood in the form of a plaque. These changes in cerebral vessels leads to ischemia, infarction and thrombo- embolism the atherosclerotic changes make the mastishka dhamanis move fragile and promote aneurysms at vulnerable parts thereby making the individual more prone to mastishka Srava (cerebral hemorrhage).

Stroke is defined as rapid onset of focal neurological deficit resulting from diseases of the cerebral vasculature and its contents. Stroke represents third most common cause of death in developed nations. The prevalence rate of stroke in India, total population including urban and rural population varies from 44.54 to 150/100000[5]. Stroke, sometimes referred as a cerebro – vascular accident (CVA) or cerebro vascular insult (CVI), is the loss of brain function due to a disturbance in the blood supply to the brain. This disturbance is either due to ischemia or hemorrhage. Hemiplegia is one of the most frequent clinical presentation of the stroke. It has been rising in India because the life expectancy has increased, and urbanization has changed the lifestyle. This changing lifestyle leads to vitiation of vata, most important among three doshas and dynamic entity of life and

locomotion. Acharya Charaka explains the Pakshaghata as morbid vata on either side of the body dries up sira and snayu of that part rendering it dead and manifests chesta nivrutti along with Ruja and Vak Stambha[6]. Acharya Sushruta as described this aliment more precisely, considered the pathological involvement of the joints of one half of the body along with sensory loss of affected part in pakshaghata[7]. Due to involvement of brain, depending upon the lesions the presentations vary[8]. Patients having presentations with Karmahani, Sparshanasha, Supti, Ruja, Stambha, Shotha and Gauravata in affected side of the body may be treated with Bahirparimarjana chikitsa Agni lepa containing the drugs having ushna veerya, teekshna, ruksha guna Amapachana sothahara and vedana sthapaka in nature. Drugs used for agnilepa are veerya pradhana.

MATERIALS AND METHODS

Case Report

A 45-year-old male patient visited Pandith Taranath Government Ayurvedic Medical College and Hospital, Bellary on 07/12/2020 with a complaint of weakness in left upper and lower limb including mukha vakrata to right side, Vak kruchrata, Ruja and Stambha in left upper limb and lower limb for 6 months, patient was brought in wheelchair. Time of onset was on evening while doing work in paddy field. The subject was a previously diagnosed case of Acute infarct in the right temporo-parieto-frontal lobe and right ganglio-capsular region with haemorrhagic transformation. Compression at ipsilateral, lateral ventricle and mid brain peduncle associated with right to left subclavian herniation of 7 mm, mass effect and midline shift. While admission patient GCS was 13, B. P. = 140/90 mmHg.

History

On 22/06/2020 the subject observed a sudden unconsciousness for about 4-5 minutes while working in the paddy field followed by slight deviation the angle of the mouth, associated with slurred speech, weakness of the left upper and lower limbs and inability to stand and work. Patient was admitted at an allopathic hospital and was diagnosed as CVA for which he treated. He didn't get satisfactory relief and due to lockdown issues, he got admitted after 6 months from 7/12/2020 to 28/12/2020 underwent Ayurvedic treatment for the same and was discharged after remarkable improvement.

On the day of admission, the subject was drowsy, responding only to deep stimulation and not responding to oral commands. His blood pressure was 140/90 mmHg temperature 98-degree Fahrenheit, with only flickering movements observed in the left limbs (power 4/0) and unaffected right limbs (power 0/4). The subject is known case of HTN but discontinued the Antihypertensive drugs. Hematological and biochemical investigation reports were within the normal limits, but PTINR was high. past history of stroke 1 year back was elicited.

Diagnosis

Cerebro-vascular accident was diagnosed by history and clinical examination.

CT Head shows (23/6/2020)

- Acute infarct in the right temporo-parieto-frontal lobe and right ganglio-capsular region with haemorrhagic transformation.
- Compression at ipsilateral, lateral ventricle and mid brain peduncle associated with right to left subclavian herniation of 7 mm.
- Mass midline shift

Before starting the treatment patient's and patient's attender's informed consent was taken as per ICH-GCP and institutional ethical clearance was obtained.

Treatment

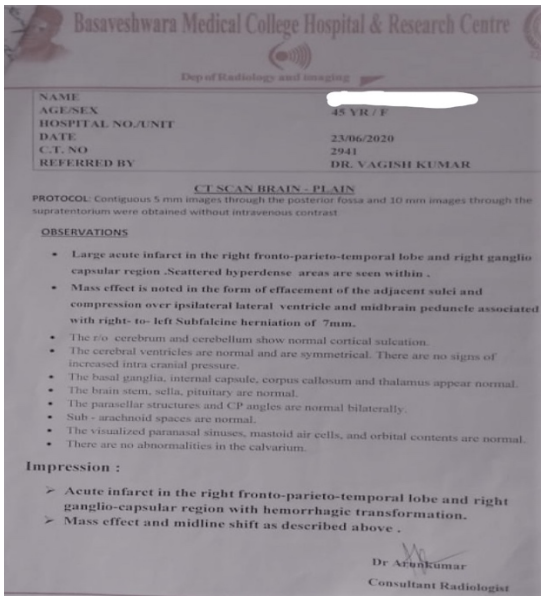
- Deepana Pachana with Panchakola Churna given for 3 days from 07/12/20 to 09/12/20.

- Internal Medications-
  Yogaraja Guggulu 1–1–1 A/F
  Balarishta 10 ml–10 ml–10 ml A/F
  Abhaya Churna 5 gm–0–5 gm B/F

- Externally Agnilepa for 7 days

Table 1: Intervention and Observations

Lakshanas	Day- 01 (09/12/20)	Day– 02 (10/12/20)	Day– 03 (11/12/20)	Day- 04 (12/12/20)	Day- 05 (13/12/20)	Day- 06 (14/12/20)	Day– 07 (15/12/20)
Chesta Nivrutti in LUL, LLL	++	+	able to lift LUL	able to lift LUL	able to lift LUL without much difficulty	able to lift LUL and LLL	able to lift and walk
Ruja in LUL, LLL	++	++	+	+	Reduced	Reduced	Reduced
Stambha in LUL, LLL	+++	+++	++	+	Reduced	Reduced	Reduced
Shotha in LUL, LLL	++	++	+	+	Reduced	Reduced	Complete remission
Sparshahani in LUL, LLL	++	++	+	+	Improved	Improved	Improved
Supti in LUL, LLL	+	+	+	+	Mildly reduced	Mildly reduced	Mildly reduced



Basaveshwara Medical College Hospital & Research Centre

Dep of Radiology and imaging

NAME [redacted]
AGE/SEX 45 YR / F
HOSPITAL NO./UNIT
DATE 23/06/2020
C.T. NO 2941
REFERRED BY DR. YAGISH KUMAR

CT SCAN BRAIN - PLAIN

PROTOCOL: Contiguous 5 mm images through the posterior fossa and 10 mm images through the supratentorium were obtained without intravenous contrast

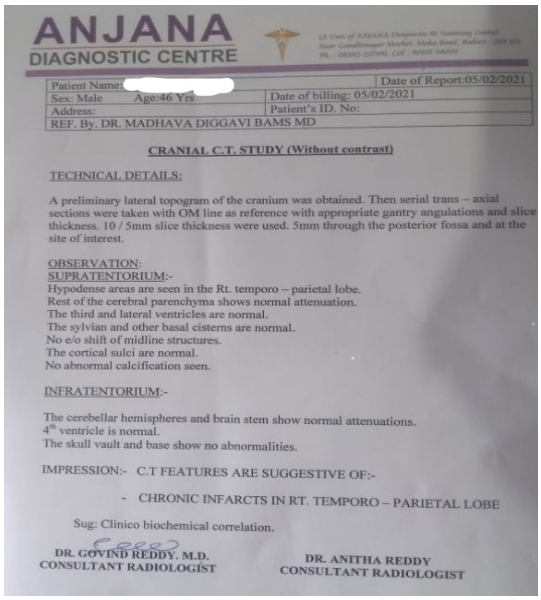
OBSERVATIONS

- Large acute infarct in the right fronto-parieto-temporal lobe and right ganglio capsular region .Scattered hyperdense areas are seen within .
- Mass effect is noted in the form of effacement of the adjacent sulci and compression over ipsilateral lateral ventricle and midbrain peduncle associated with right- to- left Subfalcine herniation of 7mm.
- The r/o cerebrum and cerebellum show normal cortical sulcation.
- The cerebral ventricles are normal and are symmetrical. There are no signs of increased intra cranial pressure.
- The basal ganglia, internal capsule, corpus callosum and thalamus appear normal.
- The brain stem, sella, pituitary are normal.
- The parasellar structures and CP angles are normal bilaterally.
- Sub - arachnoid spaces are normal.
- The visualized paranasal sinuses, mastoid air cells, and orbital contents are normal.
- There are no abnormalities in the calvarium.

Impression :

- Acute infarct in the right fronto-parieto-temporal lobe and right ganglio-capsular region with hemorrhagic transformation.
- Mass effect and midline shift as described above .

Dr Arunkumar
Consultant Radiologist



ANJANA
DIAGNOSTIC CENTRE

Patient Name: [redacted] Date of Report:05/02/2021
Sex: Male Age:46 Yrs Date of billing: 05/02/2021
Address: Patient's ID. No:
REF. By: DR. MADHAVA DIGGAVI BAMS MD

CRANIAL C.T. STUDY (Without contrast)

TECHNICAL DETAILS:

A preliminary lateral topogram of the cranium was obtained. Then serial trans – axial sections were taken with OM line as reference with appropriate gantry angulations and slice thickness. 10 / 5mm slice thickness were used. 5mm through the posterior fossa and at the site of interest.

OBSERVATION:
SUPRATENTORIUM:-
Hypodense areas are seen in the Rt. temporo – parietal lobe.
Rest of the cerebral parenchyma shows normal attenuation.
The third and lateral ventricles are normal.
The sylvian and other basal cisterns are normal.
No e/o shift of midline structures.
The cortical sulci are normal.
No abnormal calcification seen.

INFRATENTORIUM:-

The cerebellar hemispheres and brain stem show normal attenuations.
4th ventricle is normal.
The skull vault and base show no abnormalities.

IMPRESSION:- C.T FEATURES ARE SUGGESTIVE OF:-

- CHRONIC INFARCTS IN RT. TEMPORO – PARIETAL LOBE

Sug: Clinico biochemical correlation.

DR. GOVIND REDDY. M.D.
CONSULTANT RADIOLOGIST

DR. ANITHA REDDY
CONSULTANT RADIOLOGIST

Before treatment CT SCAN **After treatment CT SCAN**

Table 2: Assessment Scale

NIH Scale	Range of score	Before treatment score	After treatment score
Level of consciousness	0 to 3	2	0
LOC QUESTIONS	0 to 2	2	0
LOC commands	0 to 2	1	0
Best gaze	0 to 2	1	0
Visual	0 to 3	1	1
Facial palsy	0 to 3	2	1
Motor arm	0 to 4	4	1
Motor leg	0 to 4	3	1
Limb ataxia	0 to 2	1	1
Sensory	0 to 2	2	0
Best language	0 to 3	1	0
Dysarthria	0 to 2	1	1
Extinction and inattention	0 to 2	2	1
Total	**42**	**23**	**7**

0 = no stroke symptoms, 1-4 = minor stroke, 5-15 moderate stroke, 16-20 moderate to severe stroke, 21-42 severe stroke

Table 3: Ingredients of Agnilepa

Drug	Botanical name	Rasa	Guna	Veerya	Vipaka	Doshaghnata	Karma
Lashuna	*Allium sativum*	Amla varjita Pancha rasa	Teekshna Sara	Ushna	Katu	Vata Kapha hara	Medhya, Swarya, Varnya, Asthi bhagna Sandhanakara
Lavanga	*Syzygium aromaticum*	Tikta Katu	Laghu	Sheeta	Katu	Kaphapitta hara	Hridya, Pachana, Murdha Roga hara
Maricha	*Piper nigrum*	Katu	Laghu, Teekshna	Ushna	Katu	Kapha Vata hara	Deepana, Rochana
Sarshapa	*Brassica campestris*	Katu, Tikta	Laghu, Snigdha	Ushna	Katu	Kapha Vata hara	Ushna, Raktapitta abhivardhana
Tulsi	*Osmium sanctum*	Katu, Tikta	Laghu, Ruksha	Ushna	Katu	Kapha Vata hara	Deepana, Ruchikara, Shothahara
Arka	*Calotropis gigantea*	Katu, Tikta	Laghu, Ruksha, Teekshna	Ushna	Katu	Vatahara	Shopha, Vrana hara
Karanja	*Pongamia pinnata*	Katu, Tikta, Kashaya	Laghu, Teekshna	Ushna	Katu	Kapha Vata hara	Shothahara
Dhattura	*Datura metel*	Tikta, Katu	Laghu, Ruksha	Ushna	Katu	Kapha Vatahara	Kandu Twak doshahara
Haridra	*Curcuma longa*	Tikta, Katu	Laghu, Ruksha	Ushna	Katu	Kapha Vata hara	Shopha Kandu hara Varnya
Saindhava Lavana	-	Lavana/ Kshara	Laghu, Snigdha	Sheeta	Madhura	Tridoshahara	Pachana

RESULT AND DISCUSSION

After 7 days of agnilepa chikitsa patient had remarkable changes in Ruja, Shotha, Sparsha hani, Supti, Stambha and Karmahani. Patient was able to walk alone after the completion of treatment duration.

Agnilepa is a folklore treatment which is practiced in some parts of Karnataka. It is useful in conditions like Pakshaghata, amavata and neuromuscular diseases. Agnilepa can be considered as alepa[9] type of lepa which is explained in classical texts. As the name agnilepa indicates drugs having ushna Veerya Pradhana, possessing ruksha, teekshna, ushna guna, Katu Rasa Pradhana and having Shothahara, Stambhahara, Vedanasthapaka, Suptihara karmas, Vata kapha hara properties.

Pakshaghata is characterized by vikruta vata dosha afflicting the sira snayu of right or left half of the body presenting with inability to move limbs with Ruja, loss of sensation (vichetana), Shotha, Stambha in sandhi's. Drugs used for agnilepa in acute condition of treatment act as deepana, Amapachana. Pakshaghata caused due to kevala vata should be treated with snehanadi upakramas as mentioned in Charaka samhita[10]. But in case of Sama or avarana condition involving the kapha, medas measures to be taken for the correction of agni, ama, meda and kapha hara line of treatment should be adopted. Swedana is most suitable treatment in sama avastha, vata gets provoked mainly by sheeta guna[11]. Ama is having same properties as that of kapha and kapha having similar properties like Apa Mahabhuta. Drugs used lepa are having ushna, teekshna, ruksha, katu, tikta rasa, laghu guna all these properties are opposite in to ama and kapha. As there will be involvement of kapha medas in Pakshaghata Samprapti, Niragni Sweda is best line of treatment for Kaphameda avarana[12]. Swedana can be able to remove the blockage and can reverse the pathological process.

Agnilepa comes under Niragni type of Upanaha Sweda. Stambha, Shotha, Ruja are the common manifestation in pakshaghata, upanaha sweda are advised specifically in classics by Acharya Sushruta[13]. Descriptions regarding use of alepa / pradeha variety of upanaha in case of vata vikaras using gandha dravyas is available in brihat trayee texts. Chakrapani while commenting gandha dravya says that the drugs mentioned in agarvadhya taila to be used[14].

Twak (Sparshanendriya) is the seat of vata[15] and vichetana (loss of tactile perception) is one of the important lakshana in pakshaghata. According to anatomy the dermatomes are the part of skin which are innervated by each spinal segments separately hence they are responsible for the tactile sensation in body[16]. If any impairment in brain or spinal cord leads to loss of tactile sensation. Vyana vayu in its prakruta avastha it performs the circulation of rasa throughout the body and there is relationship between rasa and twak[17]. By applying the paste of agnilepa over the skin, vyana vayu which is chiefly involved in production of symptoms like Supti, and rasa dhatu which is dushya in case of pakshaghata can be brought into normalcy. In pakshaghata all the indriyas have either lost or decreased in functional capacity. Prana vayu governs all the indriyas including the sparshanendriya.

Probable mode of action

Acharya Sushruta in shareera sthana explains about Tiryak dhamani which divides into numerous branches and covers the body like a network and their openings are attached to Romakoopa[18], in contemporary science it can be taken as dermatomes. Through them only veeryas of Alepa, Abhyanga Udwartana etc. can enter the body, after undergoing Paka with Bhrajaka pitta in Twak. The main function of Bhrajaka pitta is the Pacana of drugs used in Abhyanga, Pariseka and Lepa[19]. This indicates the systemic absorption of drug applied over the skin.

CONCLUSION

Ischemic stroke can be taken as kapha Samsrutsa Pakshaghata, so Kapha Vatahara chikitsa should be adopted. Agnilepa is folklore treatment, the drugs which are used are easily available and can be collected freshly and prepared easily, applied over the affected part of the body. The drugs are having kapha Vatahara, meda hara, vedanasthapaka, Stambhahara, Shothahara properties and Sparsha jnana was also improved on application for 7 days. It is more effective in early stage of Pakshaghata associated with Sama condition.

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