

STAND ALONE AYURVEDIC MANAGEMENT OF HIKKA (HICCUPS) ASSOCIATED WITH COVID-19 IN AN ELDERLY PATIENT: A SINGLE CASE STUDY

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Abstract- According to Ayurveda, Hikka is a serious disease in which the patient may die if not given the proper treatment. The main cause of Hikka is due to vitiation of vata and kapha dosha and also due to some unwholesome foods and regimen. The vitiated vata dosha along with kapha dosha causes obstruction to pranavaha, udakavaha and annavaha srotas and produces Hikka roga¹. Hikka can be correlated with Hiccup in modern science. Hiccups are the involuntary contraction of the diaphragm and intercostal muscles followed by an abrupt closure of the glottis, are a bothersome symptom that can be caused by a variety of illnesses or medications². Most hiccups are self-limiting but that which persists for more than 48 hours should raise the suspicion of an underlying cause. Recently in Covid-19 infected elderly patients, a growing number of cases pertained to persistent hiccups have been reported. According to modern medicine management of hiccups many drugs are being used but not particular treatment is known to be especially effective.³ This case study highlights the manifestation of persistent Hikka (Hiccups) associated with COVID-19 in an elderly patient and demonstrates the scope of Ayurvedic management of Hikka with Nayopayam kashayam with a successful outcome.

Keywords: Hikka, Hiccups, Covid-19, Ayurveda, Nayopayam Kashayam, Kashaya

Introduction

In Brihatrayis ,Hikka is mentioned under diseases of Pranavaha srotas(respiratory system). As compared to the other vyadhi's Hikka is considered as shighrapranahara vyadhi's. In hikka as it produces 'hik hik' sound, hence the disease is named as Hikka. Vitiated vata dosha along with kapha dosha obstructs the pranavaha, udakavaha and annavaha srotas and produces different types of hikka. Hikka can be correlated in modern science with hiccup. A hiccup is an involuntary contraction (myoclonic jerk) of the diaphragm that may repeat several times per minute⁴. Acharya charaka described five types of hikka viz. Maha, Gambhira, Vyapeta, Kshudra, and Annaja.⁵Yamala is mentioned by Madhavakara instead of vyapeta.⁶ Acharya Vagbhata had described kshudra and Annaja hikka are sadhya (curable) and Mahati and Gambhira are asadhya (uncurable) or presented with all symptoms in yamala it can be asadhya (uncurable).⁷ Ayurvedic classical texts had described different varieties of formulations for the management of hikka. But it is observed that many times hikka got relieved by certain Ayurvedic drugs and focused to find out effective management of hikka with Ayurvedic medicines.

Case History:

A 76-year-old male, diagnosed as Covid-19 in rapid antigen test. He was diabetic since past 12 years and no any history of any other illness or past surgical procedure. When he was diagnosed as Covid-19, his temperature was 102⁰ F with shivering, loss of appetite and tiredness was there for the first two days. On the third day onwards, fever got reduced with Ayurvedic medications. But in the evening, he started to get hikka and the frequency of attack was 1- 2 hikka in 4 hours. Apart from the intermittent hiccups, he had not shown any other symptoms of Covid-19.

On the fourth day, frequency and number of attacks of hikka got increased and 4-5 attacks of Hikka started to occur within 15 -30 minutes interval. This made the patient very much uncomfortable to sit or lie down. He felt discomfort in chest and throat due to hikka so that he was unable to talk, take food or drinks and not able to sleep. On general examination, he looked lean and tired with a body weight of 59 Kgs. His vital signs were within normal range with an oxygen saturation of 95% on room air. His heart rate, respiratory rate and pulse rate were found to be elevated. The chest examination revealed crackles at the base bilaterally. The rest of his physical examination was normal. Laboratory investigations had done, complete blood count (CBC) showed normal but Lymphocytes count was 19% and ESR was 35mm/hr. C-reactive protein (CRP) was elevated at 56 mg/L and D-dimer was high at 628.23ng/ml.

Materials and Methods:

Considering the history, clinical examinations and laboratory investigations started the treatment for hikka with Nayopayam kashayam and subjective criteria as per the symptoms were noted as given in the Table no:1.

Table 1. Treatment plan and subjective criteria for assessment as per the symptoms:

Days	Treatment given	Symptoms before treatment	Symptoms improved on each day
Day 1	Nayopayam kashayam-5 ml kashayam added with 10ml boiled and cooled water given 3 hourly for 12 hours	No: of attacks of Hikka-5 times/30 minutes Appetite- Very poor Bowel-Not passing stools Urine-3 times / day Sleep- Not able to sleep or lie down	Frequency of attack of hikka reduced from 30 minutes to 1 hour gap.ie.5times/ 1 hour gap Appetite- Very poor Bowel-Not passing stools Urine-3 times / day Sleep- Not able to sleep or lie down
Day 2	Nayopayam kashayam-5 ml kashayam added with 10ml boiled and cooled water given 3 hourly for 12 hours		No: of attacks of hikka-3 to 4 times /2 hours gap Appetite-Slightly improved Bowel- Passed once/ day Urine-3-4 times/day Sleep- Slept for 2 hours
Day 3	Nayopayam kashayam-10 ml kashayam added with 10ml boiled and cooled water given thrice daily before food		No: of attacks of hikka-1-2 times/1-2 hours gap Appetite-Slightly improved Bowel- Passed once/ day Urine-3-4 times/day Sleep-Improved(Slept for 5 hours)
Day 4	Nayopayam kashayam-15 ml kashayam added with 45 ml boiled and cooled water given thrice daily before food		No: of attacks of hikka-2 times /6 th hour Appetite-Slightly improved Bowel- Passed once/ day Urine-3-4 times/day Sleep-Improved(Slept for 5 hours)
Day 5	Nayopayam kashayam-10 ml kashayam added with 10ml boiled and cooled water given thrice daily before food		No: of attacks of hikka-1time in a day Appetite-Improved Bowel- Passed once/ day Urine-4-5 times/day Sleep-Good(Slept for 6 hours)
Day 6	Nayopayam kashayam-10 ml kashayam added with 10ml boiled and cooled water given thrice daily before food		No: of attacks of hikka-Nil Appetite-Good Bowel- Passed once/ day Urine-4-5 times/day Sleep-Good(Slept for 8 hours)
Day 7	Nayopayam kashayam-10 ml kashayam added with 10ml boiled and cooled water given thrice daily before food		No: of attacks of hikka- Appetite-Good Bowel- Passed once/ day Urine-4-5 times/day Sleep-Good (Slept for 8 hours)

On day 8, Laboratory investigations had done, complete blood count (CBC) showed normal and ESR was 15mm/hr. C-reactive protein (CRP) was decreased to 18mg/L and D-dimer was reduced to at 214.31ng/ml.

Discussion:

Hikka is a serious disease in which the patient may die if not given the proper treatment. The main cause of Hikka is due to vitiation of vata and kapha dosha and also due to some unwholesome foods and regimen. The vitiated vata dosha along with kapha dosha causes obstruction to pranavaha, udakavaha and annavaha srotas and produces Hikka roga. Hikka can be correlated with Hiccup in modern science. Hiccups are the involuntary contraction of the diaphragm and intercostal muscles followed by an abrupt closure of the glottis, are a bothersome symptom that can be caused by a variety of illnesses or medications.

Causes of Hikka:

Exposure to dust, smoke and wind, residing in a cold place and use of cold water, exercise, sexual intercourse and long walk beyond one's capacity, habitual intake of dry foods, vishtambhi (food items which causes gas accumulation), vidahi (food items which causes burning sensation in the abdomen and chest), heavy food, intake of abhishyandi food (foods which causes obstruction to the channels of circulation)⁸.

Pathogenesis of Hikka:

Vayu (udana and prana) moves upward accompanied with sound causing shaking of the liver, spleen and intestines, comes out of the mouth with loud sound and causes troubles to life, hence it is called Hikka (hiccups)⁹

Premonitory symptoms of Hikka:

Heaviness in throat and chest, astringent taste in mouth, and distension of abdomen are the premonitory symptoms of hikka¹⁰. The great Acharya Charaka, Sushruta and Vagbhata had described five types of Hikka

Prognosis of Hikka:

Acharya Charaka had described if the patient is not emaciated, not lost his will power and his dhatus and indriyas (sense organs) are not impaired in those patients yamika (yamala) hikka is sadhya otherwise, it is fatal.¹¹

According to Acharya Vagbhata kshudra and annaja hikka are sadhya and mahati and gambhira hikka are asadhya. If yamala hikka present with all signs and symptoms then it becomes asadhya.¹² According to Acharya Sushruta, Mahati and Gambhira are asadhya.¹³

According to Ayurvedic classical texts the mahati, gambhira and yamala hikka's are asadhya and it is formed as complications of many other disease.

Necessity of quick management of hikka:

Among the varieties of hikka, maha, gambhira, vyapeta hikka are the asadhya (incurable) types and should not be treated. While the curable and controllable variety of hikka (Kshudra and Annaja hikka) should be treated with medicine very quickly. If neglected then it destroys the prana of the patient as the fire burns away the dry grass very fast¹⁴

Drug review:**Ingredients and preparation of Nayopayam Kashayam:**

Nayopayam Kashayam consists of two words 'Naya' and 'Upaya' which means 'Naya' means 'new' and 'Upaya' means 'treatment'. It is used mainly in the treatment of respiratory diseases like Swasa, Hikka and Adhmana¹⁵.

Table:1. Ingredients of Nayopayam Kashayam¹⁶

Sl.No:	Ingredients	Botanical Name	Parts used	Quantity
1	Bala	Sida cordifolia	Roots	10 parts
2	Jiraka	Cuminum cyminum	Seeds	2 parts
3	Shunti	Zingiber officinalis	Dried Rhizome	2 parts

This formulation consists of Bala, jeeraka and Shunti as the ingredients. According to Arogyaraksha Kalpadruma¹⁷ the ratio of the ingredients is 10:1:1 and according to Vaidyamanorama it is 3:2:1¹⁸. Vaidyamanorama mentioned that this formulation is used for pacification of vata dosha. Pharmacological action of the ingredients of Nayopayam Kashayam depends on the Rasa Panchaka of each drug which are enlisted in Table 2.

Table 2. Pharmacological actions of ingredients of Nayopayam kashayam

Sl.No:	Pharmacological actions of Drugs	Bala	Jeeraka	Shunti
1	Rasa	Madhura, Tikta	Katu	Katu
2	Guna	Snigdha	Laghu, Rooksha	Laghu, Snigdha
3	Virya	Sheeta	Ushna	Ushna
4	Vipaka	Madhura	Katu	Madhura
5	Karma	Tridosahara, Vrishya, Balya, Ojovardhana, Grahi	Vatakaphahara, Deepana, Sangrahi, Medhya, Chakshushya	Vatakapha hara, Deepana, Pachana, Sangrahi, Hridya
6	Rogagnata	Raktapitta, Prameha, Pradara, Vatavikara, Vrana	Agnimandya, Ajirna, Adhmana, Gulma, Hridroga, Garbhashaya Vikara	Ajirna, Agnimandya, Swasa, Arsha, Hridroga, Kasa

Eventhough Nayopayam Kashayam is widely prescribed for Swasa, Kasa, Hikka and Vatavyadhis, there is no much clinical studies have been conducted on this formulation. Only one such evidence available in Nayopayam Kashayam is 'Evaluation of the role of Nityavirechana and Nayopayam Kashaya in Tamaka Shwasa' by Prasad.M.Shyam et al.¹⁹

But numerous research activities have been conducted on the ingredients of Nayopayam Kashayam and its pharmacological actions are studied by invivo, invitro and clinical trials. and these are enlisted in Table3.

Table 3: Pharmacological Research activities conducted on the ingredients of Nayopayam Kashayam:

Sl.No:	Name of the Drug	Pharmacological actions
1.	Bala	Analgesic ²⁰ , Anti-inflammatory ²¹ , Antibacterial ²² , Antioxidant ²³ , Hepatoprotective ²⁴
2.	Jeeraka	Analgesic ²⁵ , Anti-inflammatory ²⁶ , Anticancerous ²⁷ , Antidiabetic ²⁸ , antidepressant ²⁹ , bronchodilatory ³⁰
3.	Shunti	Antithrombotic ³¹ , Anti-inflammatory ³² , Hypolipidemic ³³ , Hypoglycemic ³⁴

Mode of Action of Nayopayam Kashayam on Hikka:

Nayopayam Kashayam is a unique formulation designed for diseases of the respiratory tract like Swasa, Hikka and Kasa. The main Dosh involved in Hikka are Vata and Kapha. Among the ingredients of Nayopayam Kashaya Jeeraka and Shunti are having the predominance of Katu Rasa, Laghuguna, Madura vipaka, Ushna Virya and Vatakaphahara properties. Bala is having Madhura rasa and Katu Vipaka. These drugs are generally Deepana and Pachana. Eventhough all are with Grahi karma, they have done Shoshana of Kapha. Thus it acts by Samudaya prabhava (combinational effect) of the ingredients and removing the obstruction made by Kapha in the Pranavaha Srotas (by Anulomana and Srotoshodhana) thus leading to the Samprapti vighatana and relieves the symptoms pertaining Hikka and improvement in the appetite³⁵.

Conclusion:

Recently in Covid-19 infected elderly patients, a growing number of cases pertained to persistent hiccups have been reported. There will be manifestation of persistent Hikka (Hiccups) associated with COVID-19 in an elderly patient and this study demonstrates the scope of Ayurvedic management of Hikka with Nayopayam kashayam which had been given for the patient continuously for seven days with a successful outcome.

REFERENCES:

1. Agnivesh, The Charaka Samhita, Chikitsa Sthana, vol 4th English ed. Indian Chaukhambha Sanskrita series office Varanasi - 1, ed. Reprinted 2009, Shloka 17/10-16, 119-120.
2. Acharya Shukla Vidyadhar, Prof. Tripathi Ravidatta Agnivesha, Charaka Samhita, Chikitsa Sthana, Hindi ed. India Chaukhambha Sanskrita Pratishthana, delhi. Shloka 17/6, 2000; 2: 417.
3. /en.m.wikipedia.org/wiki/Hiccup/Treatment, 2014.
4. Acharya Yadunandana Upadhyaya, Commentetar- by Shri Sidarshana Shashtri, Mdhava Nidana, part 1 Hindi 30th ed. India, Chaukhambha Sanskrita Sansthana Varanasi, Shloka, 2000; 12/3: P-283.
5. Acharya Shukla Vidyadhar, Prof. Tripathi Ravidatta Agnivesha, Charaka Samhita, Chikitsa Sthana, Hindi ed. India Chaukhambha Sanskrita Pratishthana, delhi. Shloka 2000; 2(17/21); P-418.
6. Dr. Ganesh Krishna Garde, Ashtang Hriday, Marathi commentary, Nidana Sthana, reprinted ed. Pune Anamol Prakashana, Shloka, 1999; 4/0: P-176.
7. Acharya Yadunandana Upadhyaya, Commentetar- by Shri Sidarshana Shashtri, Madhava Nidana, part 1 Hindi 30th ed. India, Chaukhambha Sanskrita Sansthana Varanasi, Shloka, 2000; 12/4: P-283.
8. Acharya Yadunandana Upadhyaya, Commentetar- by Shri Sidarshana Shashtri, Madhava Nidana, part 1 Hindi 30th ed. India, Chaukhambha Sanskrita Sansthana Varanasi, Shloka, 2000; 12/4: P-284.
9. Dr. Ganesh Krishna Garde, Ashtang Hriday, Marathi commentary, Nidana Sthana, reprinted ed. Pune Anamol Prakashana, Shloka, 1999; 4/0: P-176-177
10. Acharya Yadunandana Upadhyaya, Commentetar- by Shri Sidarshana Shashtri, Mdhava Nidana, part 1 Hindi 30th ed. India, Chaukhambha Sanskrita Sansthana Varanasi, Shloka, 2000; 12/4: P-283.
11. Agnivesh, The Charaka Samhita, Chikitsa Sthana, vol 4th English ed. Indian Chaukhambha Sanskrita series office Varanasi - 1, ed. Reprinted 2009, Shloka 17/10-16, 119-120.
12. Acharya Yadunandana Upadhyaya, Commentetar- by Shri Sidarshana Shashtri, Madhava Nidana, part 1 Hindi 30th ed. India, Chaukhambha Sanskrita Sansthana Varanasi, Shloka, 2000; 12/4: P-283.
13. Prof. K. R. Srikantha Murty, Susharuta Samhita, vol 3, Uttara Sthana, Chaukhambha Orientalia Varanasi, ed 4th 2010, Shloka 50/15, 333
14. Dr. Ganesh Krishna Garde, Ashtang Hriday, Marathi commentary, Nidana Sthana, reprinted ed. Pune Anamol Prakashana, Shloka, 1999; 4/0: P-176
15. NS Mooss Vayaskara. Vaidyamanorama-Kasachikitsa, 3rd edition. Kottayam: Vaidya saradhi Press; 1979.p.812.
16. NS Mooss Vayaskara. Vaidyamanorama-Kasachikitsa, 3rd edition. Kottayam: Vaidya saradhi Press; 1979.p.812.
17. B.Syamala. Arogyarakshakalpadrumam-Vatarogachikitsa. Thrissur: Samrat Publishers; 2000. p.64
18. NS Mooss Vayaskara. Vaidyamanorama-Kasachikitsa, 3rd edition. Kottayam: Vaidya saradhi Press; 1979.p.812.
19. PM Shyam, AP Ramachandran, Acharya GS, Shrilatha KT. Evaluation of the role of Nithyavirechana and Nayopayam kashaya in Tamaka Shwasa. Ayu. 2010 Jul; 31(3):294-9.
20. K, Deshpande YS, Purohit AP, Kadam SS. Evaluation of the Antioxidant Activity of Sida cordifolia. Pharmaceutical biology. 2005 Jan 1; 43(9):754-61
21. Franzotti EM, Santos CV, Rodrigues HM, Mourao RH, Andrade MR, Antonioli AR. Antiinflammatory, analgesic activity and acute toxicity of Sida cordifolia L. (Malva-branca). Journal of ethnopharmacology. 2000 Sep 1; 72(1-2):273-7

22. Swathy SS, Panicker S, Nithya RS, Anuja MM, Rejitha S, Indira M. Antiperoxidative and antiinflammatory effect of *Sida cordifolia* Linn. On quinolinic acid induced neurotoxicity. *Neurochemical research*. 2010 Sep 1;35(9):1361-7
23. Joseph B, Ajisha AU, Kumari S, Sujatha S. Effect of bioactive compounds and its pharmaceutical activities of *sida cordifolia* (Linn.). *Int Journal of Biological Medicine Research*. 2011; 2(4):1038-42.
24. Kurma S R, Mishra SH. Isolation and assessment of hepatoprotective activity of fumaric acid obtained for the first time from *Sida cordifolia* Linn. *Indian drugs*. 1997; 34(12):702-6.
25. Beena C. Evaluation of phenol content and in vitro antioxidant activity of the roots of different *sida* species found in Kerala. *International Journal of Tropical Agriculture*. 2017; 35(2):341-4.
26. Bhaskar VH, Sangameswaran B, Balakrishnan N, Panda AB, Raj NR, Sathish A. Screening of Analgesic and Anti-inflammatory Activity of Hydroalcohol Extract of *Sida* (Indian) Species Root. *Research Journal of Pharmacy and Technology*. 2008; 1(3):287-9.
27. Dhalwal K, Shinde V, Mahadik KR, Kadam SS. Hepatoprotective activity of *Sida rhombifolia* ssp. *Retusa* against thioacetamide and allyl alcohol intoxication in rats. *Pharmacology online*. 2006; 3:259-66.
28. Al-Snafi AE. The pharmacological activities of *Cuminum cyminum*- A review. *IOSR Journal of Pharmacy*. 2016; 6(6):46-65.
29. Kadnur SV, Goyal RK. Beneficial effects of *Zingiber officinale* Roscoe on fructose induced hyperlipidemia and hyperinsulinemia in rats *Indian J Exp Biol*. 2005 Dec;43(12):1161-4.
30. Zadeh JB, Kor NM. Physiological and pharmaceutical effects of Ginger (*Zingiber officinale* Roscoe) as a valuable medicinal plant. *European Journal of Experimental Biology*. 2014; 4(1):87-90.
31. Ojewole JA. Analgesic, antiinflammatory and hypoglycaemic effects of ethanol extract of *Zingiber officinale* (Roscoe) rhizomes (*Zingiberaceae*) in mice and rats. *Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Derivatives*. 2006 Sep; 20(9): 764-72.
32. Ojewole JA. Analgesic, antiinflammatory and hypoglycaemic effects of ethanol extract of *Zingiber officinale* (Roscoe) rhizomes (*Zingiberaceae*) in mice and rats. *Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Deriva*
33. Ojewole JA. Analgesic, antiinflammatory and hypoglycaemic effects of ethanol extract of *Zingiber officinale* (Roscoe) rhizomes (*Zingiberaceae*) in mice and rats. *Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Derivatives*. 2006 Sep; 20(9): 764-72.
34. Ojewole JA. Analgesic, antiinflammatory and hypoglycaemic effects of ethanol extract of *Zingiber officinale* (Roscoe) rhizomes (*Zingiberaceae*) in mice and rats. *Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Derivatives*. 2006 Sep; 20(9): 764-72.
35. S.K. Veena, V.S.Nithya, V.C. Indulekha. A critical review on *Nayopayam kwatha*- A unique Ayurvedic formulation for Respiratory diseases. *International Journal of Ayurveda and Pharma Research*. 2020;8(Suppl 2):103-104