AyuCaRe

Journal of Ayurveda Case Reports

Volume 2, Issue 2, April-June 2019

An Official Peer Reviewed Publication of
All India Institute of Ayurveda
New Delhi

Journal of Ayurveda Case Reports

TABLE OF CONTENTS

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Journal of Ayurveda Case Reports

EDITORIAL

RECOGNIZING A GOOD JOURNAL - NEED OF THE HOUR

Sharing evidences through scientific publications will always contribute in global health and impacts Public Health immensely. Writing is a pivotal way of communicating scientific experiments. Besides this, publications also complement teaching activities, public health and clinical practices. Important reasons to start writing by many professionals is to satisfy job requirements, get promotions in academic positions, professional accreditations, improving prospects of succeeding in research grant applications, become an expert in a particular field etc. Publication in reputed journals give recognition for individuals in their respective fields.

Among researchers, the adage *Publish or Perish* is a reminder of the importance of publication.[1] Further, it is also said that *A scientific experiment, never completes until the results are published and all such original experiments are must to be published.* The fundamental aim of this is not only to authenticate the science but also to add some new leads to the existing knowledge. It makes clear that, a scientist not only *DO* research, but must *WRITE* the results.

During the past couple of few decades, rapid expansion of technology has been witnessed, thus revamp in publication sector has also been noticed. Professionals of different sectors, clinicians, researchers, policy makers etc. started using the technology, communicating researches increasingly with greater ease and speed. Technology has facilitated different aspects of publication process.

Recent criteria for career advancement, promotions for teachers and mandatory publications for MD and PhD students have been forcing them towards publishing articles. There is also significant rise in number of journals most of which are paid journals. The competition between journals for publishing papers, fast track publishing systems, advertising for papers, e-journals have created favourable condition for those who lack hard working and scientific writing skills and still making desperate attempts for publications. Such authors and journals which didn't have sufficient quality are becoming responsible for turning journalism into a professional market.

Considering the need, University Grants Commission (UGC) has established a Consortium for Academic and Research Ethics (CARE) aiming at strengthening quality research publications. UGC-CARE is a blend of Statutory Councils/ Academies/ Government bodies in Social Sciences, Humanities, Arts and Fine Arts, Science, Medical, Agriculture, Engineering and the Association of Indian Universities as on January 1, 2019. Central Council for Indian Medicine (CCIM), being a member of UGC-CARE is taking efforts to identify and enlist standard journals for AYUSH publications that was appeared through its communication No 18-12/2018-Conference dated 07.01.2019.

Though these efforts of CCIM are laudable; a few areas still need to be concerned while identifying standard journals for AYUSH publications. A few areas of concern through the available list are as below:

1. Beall's List of Predatory Journals / Publishers doesn't exist in current times (the latest update is done on 9th January 2017). Thus, it is better avoiding this clause from the communication.[2]

2. Well defined criteria to enlist standard journals is to be prepared and followed stringently. Efforts are also needed to define to understand 'National',

How to cite: Nesari TM. Recognizing a good Journal - Need of the Hour. J AyuCaRe 2019;2(2):1-2.

'International', 'Local' journals etc. Mere presence of a word (such as 'International') doesn't confer with it with a higher quality. Journals and PATRIKAs that doesn't meet the stipulated standards shouldn't be given a space into the list.

3. Creditable journals being published regularly should be given a place in the list. Issues of International Journal of Ayurveda Research (IJAR), one of the enlisted journals are not observed during the last couple of years. Similarly, credentials of Journal of Research in Ayurveda and Siddha (JRAS) also need verification. Latest volume of the journal appears to belong 2009.[3] Preferably, such journals should be avoided to be enlisted for the time being.

4. More precisely, rather than enlisting approved journals; can the authority focus on identifying credible indexing agencies (like PubMed etc.) and accept all such journals being published by in them. This will avoid confusion.

Currently, many academic institutions are following Approved List of Journals prepared by UGC for the purpose of Career Advancement Scheme (CAS) and Direct Recruitment of academic staff.[4] These regulatory measures are aimed to improve the quality of researches. As representatives of CCIM is an active UGC-CARE member,[5] they should be vigilant in preparing such standard list of journals. This approved Journals List should be dynamic in nature and at regular intervals it should be amended.

On the other facet of this aspect; there is a need to analyse availability of quantum of journals that support and accept AYUSH researches as such. To meet their requirements; the quality of AYUSH researches need to be improved. Research and good writing skills are to be inculcated in AYUSH students and faculties. A focus in this dimension is very much essential and need of the time.

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Journal of Ayurveda Case Reports

Remission in a Relapse Case of Acute Promyelocytic Leukaemia for Twenty-two years using Metal Based Ayurvedic Treatment: A Case Report

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Key words

Ayurveda,
Leucopenia,
Leukemia,
Thrombocytopenia

ABSTRACT

Acute Promyelocytic Leukemia (APML) is a form of blood cancer. The general symptoms of the disease include anaemia, fatigue, weakness and fever marked by thrombocytopenia, leucopenia and in some cases pancytopenia. Easy bleeding and coagulopathy associated with APML make it fatal, if not readily managed. Although new contemporary treatment options have been able to improve the prognosis in APML patients to a large extent, relapse of the disease is still noted in some cases. Also, the conventional therapies have their share of associated adverse effects and not all patients are physically and psychologically ready to bear them. Some patients, in such scenario, seek solace in alternative treatment options. In this case report, we discuss a case of APML who opted for Ayurvedic treatment in relapsed state of the disease. The patient was treated with metal based Ayurvedic formulations and achieved remission within weeks. Now the patient completes twenty-two years of disease free survival without experiencing any side effect. Chemistry, pharmacology and many other aspects related to the used Ayurvedic formulations remain unknown and need to be explored systematically.

Introduction

Acute Promyelocytic Leukemia (APML), also termed as AML-M3, is a variant of Acute Myeloid Leukemia (AML) and accounts for 5-8% of all AMLs in adults.[1] In 95-98% cases, the disease is characterised by a distinct reciprocal translocation involving chromosome 15 and 17.[2] The resulting hybrid oncoprotein known to block the differentiation of leukemic promyelocytes, causing the disorder.[2] APML is particularly peculiar due to its coagulopathic nature, apart from causing leucopenia and pancytopenia can be fatal if not diagnosed and managed timely.[3] Investigations done to diagnose APML include complete blood count and bone marrow aspiration. Immunophenotyping and cytogenetic tests may also be carried to decipher the exact type and course of the disease.

How to cite: Prakash B, Prakash S, Sharma S, Tiwari S. Remission in a Relapse Case of Acute Promyelocytic Leukaemia for Twenty-two years using Metal Based Ayurvedic Treatment: A Case Report. J AyuCaRe 2019;2(2):3-8.

APML is most common in adults in their midlife and has rare incidences in adults more than 60 years of age.[4] Although APML has overall incidences as low as 0.1/100,000 the disease was considered the most fatal form of leukaemia with severe bleeding tendency.[5] But with the advent of all-trans retinoic acid (ATRA) and, more recently, arsenic trioxide (ATO) with or without chemotherapy in the treatment of APML; the disease has now evolved as one of the most curable forms of

leukaemia with 90% remission rates and more than 80% disease free survival rate at six years especially among low risk groups.[6-7] A study carried for a ten years median period, shows ten year disease free survival in 77% cases.[8] In spite of the improving survival rates, 10-15% relapse rates of APML are still reported.[9] The relapse cases are again treated using ATRA, ATO or a combination of these with or without chemotherapy, and stem cell transplantation, whenever possible.[7]

However, despite yielding promising results, these therapies pose certain side effects ranging from severe hematologic toxicity to hyperleukocytosis and even occurrence of secondary myeloid neoplasms in few cases.[10] Differentiation syndrome is the most common and potentially life threatening treatment related complication associated with these therapies. Its symptoms include dyspnea, unexplained fever, hypotension, kidney damage, weight gain and peripheral edema. Prolongation in QT interval of the cardiac cycle is another common side effect of ATO therapy.[10] Hence, patients still remain unsatisfied with the treatment possibilities for APML and look for alternative treatment options.

Data on duration of disease free survival in post relapse cases of APML is limited with the longest known follow up of twelve years in a case of post second relapse of the disease treated using herbo–mineral Ayurvedic formulations.[11] Here, a case that opted for Ayurvedic treatment in a relapsed state of APML under an Ayurvedic physician in North India has been presented.

Case report

The 33 years old male from New Delhi presented to Tata Memorial Hospital, Mumbai in April 1994 (Reference No. BH6477) with fever and abnormal blood profile. Investigations revealed features of Acute Promyelocytic Leukemia (ICD 10 code: C92.4) with 96% promyelocytes. He was treated with oral ATRA for 90 days. He achieved complete remission after first three weeks of treatment. Subsequently, he received four cycles of chemotherapy between July to November 1994. Bone marrow study done in January 1995 showed complete remission but 20% metaphases showed presence of t(15;17). Meanwhile, the patient also developed diabetes mellitus. The disease relapsed in June 1995 when in follow up investigations, his Bone Marrow Aspirate (BMA) showed 14% blasts and 50% promyelocytes (Ref No. 208695006; Lab No. E-1492, Tata Memorial Hospital, Mumbai dated 19-06-1995). The patient was explained for poor prognosis and advised to undergo further chemotherapy. Patient and his close family denied pursuing modern medicines and, instead, opted for Ayurvedic treatment.

Treatment protocol

The patient presented to the Ayurvedic clinic with high fever. He had pancytopenia, lymphocytosis, and *Plasmodium vivax* infection. Ayurvedic treatment was started on 14th September 1995 and malarial infection was managed conservatively. He was advised to take nearly 2000 calorie diet daily, comprising of a balance of carbohydrates, proteins and dairy, divided into three meals and three snacks with eight hours of sleep at night. The patient was kept in strict isolation with complete psychological and physical rest. He was restricted from taking tea, coffee, packaged foods and drinks, reheated food, refined flour, onion, garlic and tomatoes. He was prescribed oral Ayurvedic formulations; *Navajeevan*[11-12] (250 mg three times a day) with water, *Kamadudha rasa* powder[11,13] (250 mg thrice a day) orally, 21 *Tulsi patra* (thrice a day) and *Pancharatni arka* (50 ml four times a day), for the initial one month. Later, the medicines and doses were adjusted periodically as per the clinical signs and symptoms. *Arka* (~distillate) of *Chandana* (*Santalum album* Linn.), *Gojihva (Onosma bracteatum* Wall.) and *Gulab* (*Rosa centifolia* Linn.) (50 ml twice a day) was prescribed. (Table 1) *Pancharatni arka* was made up of 200 gm each of *Ajmoda (Trachyspermum ammi* Linn.), *Khoob kalan [Sysimbrium officinalis* (L) Scop.], *Pitta papda [Fumaria indica* (Hausskn.)], fresh *Guduchi* [*Tinospora cordifolia* (Willd.) Miers], *Katumba jad* or *Gumma jad* (*Leucas cephalotes* spreng.) processed in 16 litres of water. The treatment was carried for 340 days.

Outcome

Marked improvement was noted in the patient after starting Ayurvedic treatment. Fever subsided within fifteen days of treatment. 35% promyelocytes that were seen in the blood smear started reducing gradually. The results of complete blood count (CBC) done on 28th October

Table 1: Details of Ayurvedic formulations prescribed and periodic changes in prescription

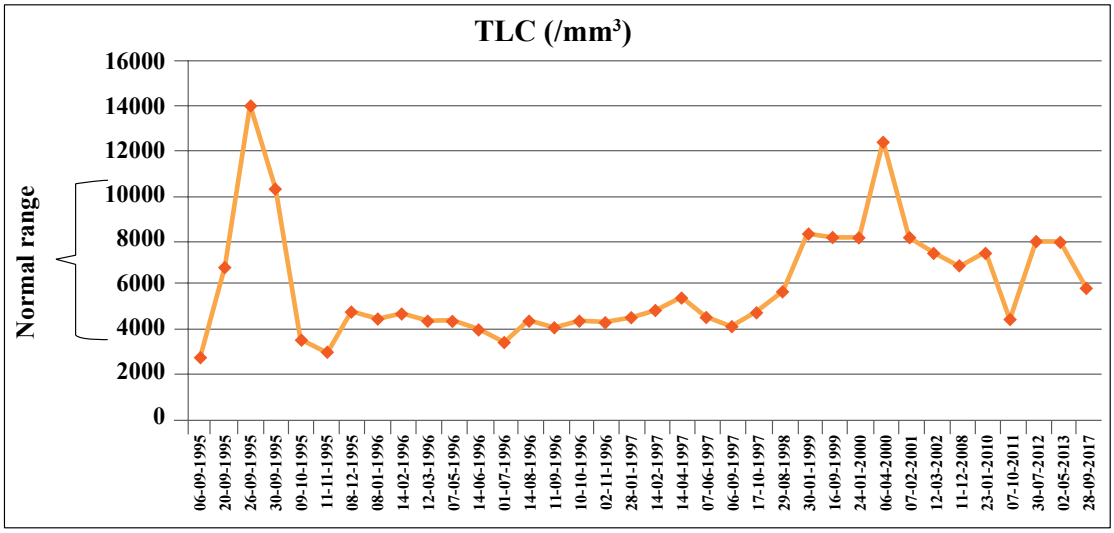
Day of treatment	Prescription
Day 0	1. *Navajeevan* (250 mg) tablet thrice a day with water
	2. *Kamdudha rasa* (250 mg) powder thrice a day
	3. *Tulsi patra 21* leaves thrice a day
	4. *Pancharatni arka* 50 ml four times a day
Day 30	1. *Navajeevan* (125 mg) tablet thrice a day with water
	2. *Kamdudha rasa* (250 mg) powder thrice a day
	3. *Pancharatni arka* 50 ml four times a day
Day 105	1. *Navajeevan* (125 mg) tablet twice a day with water
	2. *Kamdudha rasa* (250 mg) powder thrice a day
	3. *Arka of Chandan + Gojihva + Gulab* 50 ml twice a day
Day 150	1. *Navajeevan* (125 mg) tablet twice a day with water
	2. *Kamdudha rasa* (250 mg) powder thrice a day
	3. *Prak* 20[11] 500 mg capsule thrice a day with water
	4. *Arka* of *chandan + Gojihva + Gulab* 50 ml twice a day
Day 270	1. *Navajeevan* (125 mg) tablet twice a day with water
Day 300	1. *Navajeevan* (125 mg) tablet twice a day with water
	2. *Arka* of *chandan + Gojihva + Gulab* 50 ml twice a day

1995 depicted no abnormal cells. Bone marrow aspiration done after fifteen months of starting of Ayurvedic treatment indicated less than 5% promyelocyte and blast cells, indicating complete remission of the disease (BMA done at dated 31/01/1997). The treatment was given for a period of 340 days, following which he had been under continuous monitoring. No grade II toxicity of the treatment was reported in the patient. Subsequent BMAs showed complete remission of the disease. He was advised to get blood tests done periodically. (Graph 1-3) The results of these studies indicate sustainable improvement in the patient and the patient is leading a normal life now.

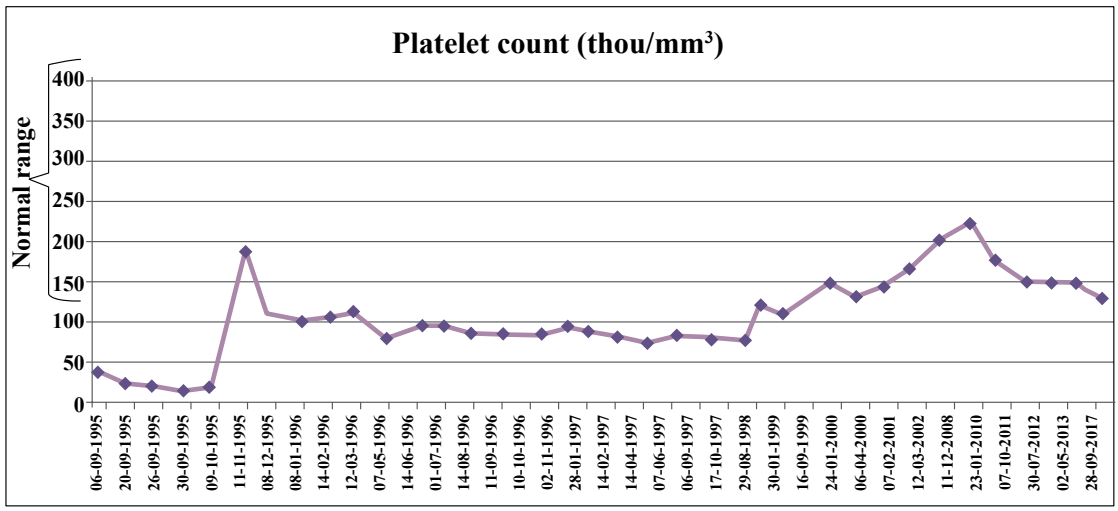
Discussion

Ayurvedic texts have no direct reference of leukaemia. However, its symptoms have been at times linked to those of *Rakta pitta*.[14] *Dhatuvigyana* (~science of metals), under *Rasa shastra*, emphasises upon the importance of equilibrium of the seven *Dhatus* including Gold, Silver, Copper, Iron, Tin, Lead and Zinc, within the body for healthy metabolism. The body is made up of seven *Dhatus* (~tissues). Any imbalance between these *Dhatus* leads to initiation of disease process within the body.[15]

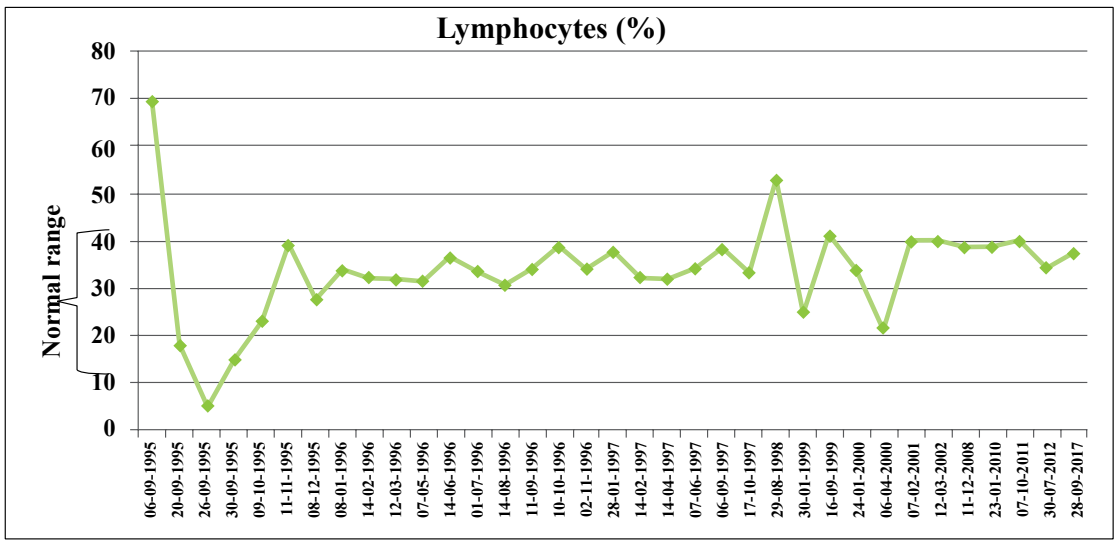
Navajeevan is a proprietary formulation based on the principles of *Rasa shastra*.[16] It is prepared using equal parts of *Rajata bhasma* (~calcined silver), *Jawahar mohra* (~serpentine stone) *pishti* and *Nirvishi* (*Delphinium denudatum* Wall.) roots with distillate of *Gulab* (*Rosa centifolia* Linn.), *Chandana* (*Santalum album* Linn.), *Gojihva (Onosma bracteatum* Wall.) and *Lata kasturi (Hibiscus abelmoschus* Linn.). *Rajata* (~silver) is present in *Majja* (~bone marrow) and its imbalance might disturb the production of many blood components.[15] *Nirvishi* has been described in Ayurvedic texts to have blood purifying properties. It is used to eliminate effect of *Dushi visha* and is also *Tridosha shamaka*.[17] *Jawahar mohra* is also used in *Pitta* related disorders and has the property to eliminate *Dushi visha. Kamadudha rasa* is a



Graph 1: Effect of Ayurvedic treatment on total leucocyte count as depicted in periodical blood tests.



Graph 2: Effect of Ayurvedic treatment on platelet count.



Graph 3: Effect of Ayurvedic treatment on total lymphocyte count as observed in periodical blood count repots.

classical Ayurvedic formulation that is known to restore the balance of *Pitta* in the body.

The aforesaid formulations with a diet rich in dairy, seasonal cereals, pulses, fruits and vegetables, low salt intake and devoid of tea, coffee, aerated drinks, reheated and packed food, was probably able to alter the natural history of the disease and bring twenty-two years long ongoing disease free survival without causing any grade II toxicity. The effect observed in the case study can be explained hypothetically at this point as intrigue chemistry of Ayurvedic formulations. However, the periodical bone marrow examinations, blood profile and clinical condition of the patient continue to depict long term therapeutic effect of Ayurvedic formulations in the successful and sustainable management of relapsed state of APML.

Rasa shastra that deals with prevention and treatment of many diseases also deals with Mercury and specified substances of mineral, plant and animal origin. Most of these ingredients are moderate to severely toxic in raw forms. However, tedious methodology not only eliminates their toxic effect but also converts a combination of these into a life saviour compound. This particular branch of Ayurveda has not been much explored for its therapeutic properties. However, such anecdotal cases do suggest that it needs to be investigated thoroughly and larger studies should be carried to establish the role of the stated formulations in the management of APML or related disorders. The medicines stated have also earlier shown encouraging results in a pilot study conducted under the aegis of Central Council of Research in Ayurvedic Sciences.[18]

Conclusion

This case report is a proof of the therapeutic efficacy of the stated Ayurvedic formulations in the treatment of APML and needs further merit.

Source of support

None.

Conflict of Interest

Both the formulations used in this case are being prescribed by the corresponding author in his clinical practice since years. There is no other conflict of interest.

Acknowledgements

We duly acknowledge Late Vaidya Chandra Prakash for evolving this formula and the patient with his family for sharing the medical details.

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Journal of Ayurveda Case Reports

Management of Stroke through *Virechana:* A Case Report

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Key words

Pakshaghata,
Stroke,
Virechana

ABSTRACT

Stroke is a leading cause of adult neurological disability and represents an enormous health problem worldwide. It describes a clinical syndrome, which can be caused by a number of different pathologies, rather than a single disease. In Ayurveda, *Pakshaghata* can be compared to hemiplegia which is the presentation of stroke. In this study a case report of stroke is being presented. The patient was treated on the lines of Ayurvedic management involving *Virechana* as the chief treatment modality. On completion of *Virechana karma*, the case was subjected to one month of oral administration of *Masha baladi kwatha*, along with *Sarvanga abhyanga* and *Vashpa swedana*. The observations made after the treatment through assessment on various subjective and objective parameters were convincing and led to scope of further adjunction of other *Panchakarma* therapies after *Virechana* as the baseline therapy.

Introduction

Pakshaghata is a disabling *Vata vyadhi* and enlisted among the eighty *Nanatmaja vata rogas*.[1] The term *Pakshaghata* is made up of two words; *'Paksha'* i.e. either side of the body and *'Aghata'* denotes a blow or a severe destruction caused which is due to the impairment of sensory and motor system and its controller i.e the brain.[2] Hence, *Pakshaghata* is a condition which affects half part of the body. In classics it has been told that vitiated *Vata* due to intake of food items with *Ruksha* (~dry), *Sheeta guna* (~cold) and following a lifestyle that aggravates *Vata*, like *Ratri jagarana* (~night awakening), *Shoka* (~grief), *Vega vidharana* (~suppression of natural urges), *Abhighata* (~injury), *Marmaghata* (~injury of vital organs), *Divaswapna* (~day sleep), *Krodha* (~excessive anger), physical and mental stress etc. These factors may cause *Sira vishoshana* (~emaciation of vascular structures) and *Snayu* (~tendons or ligaments) and may lead to *Toda* (~pricking pain) and *Sankocha* (~restricted movements) affecting either of the halves of the body.[3]

Pakshaghata, occurs due to movement of vitiated *Vata* through various blood vessels traversing *Urdhvagami, Adhogami* and *Tiryakgami* (~upwards, downwards or in both directions) throughout the body.[4] *Sira* (~vein) and *Snayu* (~nerve) which are responsible for coordinating motor movements causes vitiation of *Vayu* in half part of the body, may lead to loss of sensory and motor function. *Prana vayu* resides in the cephalic region, which is the place of all *Indriyas*.[5] Hence, due to *Vata prakopa* (~vitiation of *Vayu*), functions in half part of the

How to cite: Rais A, Tanwar SR, Prasher B, Thakar AB. Management of Stroke through *Virechana*: A Case Report. J AyuCaRe 2019;2(2):9-17.

body get diminished, weakness in upper limb and lower limb, slurred speech[6] and sometimes lost control over defecation and urination.

Considering the etymology, the term *Pakshaghata* can be compared with hemiplegia (paralysis of half body) where "Hemi" means 'half' and "Plegia" means 'loss of function' in Greek. Hence, word meaning appears as a loss of strength or voluntary movements on one of the sides. The common cause of hemiplegia is stroke[7] which is of two types: hemorrhagic and infarctive. However; there may be other causes like tumor, a space occupying lesion, thrombus or an embolus etc.

Hemiplegia is one of the most common and challenging neurological conditions due to lack of a definite treatment modality and disability being produced for the rest of life, which may not be progressive but produces dependency on others for entire life. However; if the cause is not managed, the severity may be multiplied. Further; if subsequent attacks of stroke follow, which may also be life threatening. Many research works have been done for treatment and rehabilitation of such patients in Ayurveda and modern medical science but this still is a difficult task for the whole medical fraternity to come with some relief for the disability produced herein. A case is being reported here, wherein the cause of stroke was infarct and the Ayurvedic principle was applied and the observations made are presented and discussed.

Case report

A 32 years old male patient, presented with the complaints of weakness and impaired movements in right upper and lower limb, slurred speech, facial weakness and impaired memory since four months. The onset of disease was sudden due to accidental slip from bike and reported unconsciousness for ten days along with fracture of left fibula. He was catheterized for improper evacuation of urine for about one and half month. Speech was almost absent, however; patient was able to speak a few simple words and his own name on prompting. At the time of admission, patient was conscious with normal vitals.

Patient had cerebrovascular accident (CVA) involving left side of brain in October, 2015. There was a history of trauma due to fall from bike, which resulted in the fracture of left fibula. No history of hypertension, diabetes or any other long term disease was found. No history of fever, seizures was found. Patient was admitted to intensive care unit, immediately after the episode of paralytic attack. He was discharged after ten days when regained consciousness, able to recognize relatives, mute, movements impaired in both upper and lower limb of right side. No relevant family history of hypertension or diabetes was reported by the patient's relatives. Normal bowel and bladder habits were reported, however; he was catheterized since four months as he was bed ridden due to the disability produced after stroke. Appetite of the patient was moderate. No history of smoking, alcohol or any other addiction was found. Patient was taking Ecosprin 75 mg twice daily since four months as advised at allopathic hospital on discharge.

Examination

Respiratory and cardiovascular system examinations showed normal findings. On CNS examination; patient was conscious with altered orientation about time and space (had to take help of relatives to answer in yes or no through gestures) and impaired speech. Memory was impaired but was able to recall some past incidences when helped by relatives. Facial nerve weakness with deviation of face towards left side and involvement of spinal accessory nerve with weakness of right shoulder was observed. Muscle bulk was marginally reduced on right side, with reduced muscle power (Grade 0) and increased tone on right side. All the deep tendon reflexes were exaggerated (Grade 4) on right side, plantar response was extensor on right side with ankle clonus positive.

Investigations

Routine blood and urine investigations were within normal physiological limits. The MRI of brain (27-10-2015) showed subacute infarct in left fronto-temporo-parietal lobar regions and basal ganglia with mass effect and occlusion of left MCA in M1 segment. 2D Echo was normal, lupus anticoagulant was negative. The CT brain findings (28-03-2016) were suggestive changes of ongoing gliosis involving cortex and sub-cortical

white matter of left fronto-parieto-temporal region and left ganglio-capsular region associated with focal parenchymal volume loss and tiny lacunar infarct is noted in mid brain.

Treatment protocol

Patient was admitted in the *Panchakarma* IPD on 1st March, 2016. Assessment was done on subjective and objective parameters using suitable assessment scales. Routine biochemical investigations were carried out before and after the treatment. The treatment regimen planned for the patient was *Virechana karma* (Table 1) followed by internal administration of *Masha baladi kwatha*.[8] (Table 2) To proceed with *Virechana karma*, patient was examined for *Bala* (~strength), *Agni* (~digestive capacity) and *Koshtha* (~bowel habits). After assessment of these parameters, patient was advised to take *Dhanyaka–shunthi siddhajala* (~water processed with

Table. 1: Clinical intervention

Sr. No.	Intervention	Medicine	Duration
1	*Deepana pachana*	Medicated water with *Dhanyaka (Coriandrum sativum* L.) and *Shunthi (Zingiber officinale* Rosc.)	1st to 3rd day
2	*Snehapana*	*Goghrita*	4th to 7th day
3	*Abhyanga*	*Bala taila*	8th to 10th day
4	*Vashpa swedana*	Steam prepared from *Dashamoola* decoction	
5	*Virechana*	60 ml *Eranda (Ricinus communis* Linn.) *taila* with 180 ml *Triphala kwatha*	11th day
6	*Samsarjana krama*	*Peya, Vilepi, Kruta, Akruta yusha, Mamsarasa* as per *Madhyama shuddhi*	12th to16th day
7	*Sarvanga abhyanga*	*Bala taila*	Next one month
8	*Vashpa swedana*	Decoction prepared from *Dashamoola*	
9	*Shamana* drug	100ml/ day *Masha baladi kwatha* along with 250 mg each of *Shuddha hingu* and *Saindhava lavana*	

Table 2: Ingredients and properties of *Masha baladi kwatha*

Sr. No.	*Dravya*	Latin name	*Guna- Dharma*	Pharmacological properties
1	*Masha*	*Phaseolus Mungo* (L.)	*Madhura, Guru snigdha, Ushna virya, Madhura vipaka, Vatashamaka, Pittakaphakara, Vataghna, Vedanasthapana, Nadibalya, Sramsara, Tarpana, Brumhana, Shukrala, Balya*	Aphrodisiac, carminative, diuretic, laxative, nervine tonic
2	*Bala*	*Sida cordifolia* Linn.	*Madhura, Guru snigdha pichchila, Vatapitta shamaka, Balya, Brimhana, Ojovardhaka, Anulomana, Snehana, Raktapitta shamaka, Mutrala, Rasayana Vatasanshamana,*	Aphrodisiac, emollient, nervine and cardiac tonic, diuretic
3	*Eranda mula*	*Ricinus communis* Linn.	*Madhura, Katu, Kashaya, Guru snigdha, Tikshna, Sukshma, Ushna virya, Kapha vata shamaka, Vedana sthapana, Sotha hara, Angamarda prasamana, Deepana, Bhedana,*	Nervine, useful in joints and muscular disorders
4	*Kapikacchu*	*Mucuna prurita* (L.) DC	*Madhura, Tikta, Guru snigdha, Ushna virya, Vatashamaka, Kaphapitta vardhaka, Vrushya, Brumhana, Balya*	Aphrodisiac

one part of *Dhanyaka* and *Shunthi* and sixteen parts of potable water) as *Deepana* (~digestives) and *Pachana* (~appetizers) for three days.

After assessment of *Agni*; *Snehapana* (~internal administration with *Goghrita*) was planned that was given once daily to the patient before 6.30 AM and continued till the appearance of *Samyak snigdha lakshana* (~symptoms indicating the end point to cease *snehapana*). It took five days to observe these features. Dose of *Goghrita* was increased daily observing the digestive capacity of the patient. *Goghrita* was administered in a dose of 30 ml, 60 ml, 90 ml and 150 ml for four days. The symptoms include *Srotovishuddhi* (~clarity of channels), *Indriyasamprasadanam* (~clarity of sensory perception), *Laghutwam* (~feeling of lightness), *Anamayatwam* (~general well-being) and *Malasnigdhata* (~unctuous stools).[9] One of the specific features of saturation of internal oleation is body resisting more *Ghrita* intake by producing nausea or vomiting on trying to take *Ghrita* in increased dose.[10] Internal oleation was followed by *Abhyanga* (~external application of oil over whole body in a definite pattern) and *Vashpa swedana* (~sudation in a steam chamber) for three days. Patient was advised to take diet like *Mudgayusha* and fruit juice like orange or pomegranate once a day for three days.

At the end of this, drugs for *Virechana* were administered. The drug used for *Virechana* was 60 ml castor oil 180 ml *Triphala kwatha*.[11] The drug was administered at about 10 AM after *Abhyanga* and *Swedana*, taking into consideration of the vital parameters of the patient like pulse, respiratory rate and blood pressure. Patient was under observation for the whole day and was advised to consume about 50 ml warm water every 15 to 20 minutes to assist easy purgation. End point of *Virechana* is indicated by the presence of *Kapha* (~mucus) in the stools (*Laingiki shuddhi*), then efforts were made to cease the *Vegas* by administration of cold water instead of warm water to the patient. If at this stage, warm water is continued it may lead to *Atiyoga* (~more frequency of stools) which might lead to dehydration, sometimes even producing hypovolemic shock.

Samsarjana krama (~dietary regimen) is the specific diet advised after *Shodhana* as per the number of *Vegas* present. The diet comprises of *Peya* (~watery rice gruel) for two times, followed by *Vilepi* (~semi liquid rice preparation) two times, then *Mudga yusha* (~soup prepared from green gram) once without and then *Yusha* processed with *Ghrita*. The last two food items in the series were *Mamsarasa* (~soup prepared from meat). After completion of this specific diet regimen, patient was advised to take normal diet.

After *Virechana karma*, patient was advised to take *Masha baladi kwatha* in a dose of 100 ml prepared from crude drugs (Table 3) for one month twice daily with fine powders of *Saindhava lavana* and *Shuddha hingu* in dose of 250 mg each. Patient was also advised *Sarvanga abhyanga* (~whole body oleation) with *Bala taila* and *Vashpa swedana* (~steam fomentation) prepared with decoction of *Dashamoola* for one month.

Assessment criteria

Patient was assessed on several parameters for psychological and physical functioning on the basis of European Stroke Scale.[12] Maximum score 100 indicates normalcy of health, minimum score 0 is indicative of maximum hampering of physical and mental status after stroke. Similar scale provided by National Institute of Health Stroke Scale (NIHSS)[13] with maximum score of disability as 34 and minimum score 0 pointing to normal status of health. The degree of disability or dependence was assessed by incorporating Modified Rankin Scale.[14,15] Motor Grading Scale was used to assess muscle power.[16]

Outcome

Patient passed stool for eighteen times (18) throughout the day, which was initially semi solid in consistency, while later on most of the times watery in appearance. After *Virechana*, patient was properly oriented, no incidence of weakness or any other untoward effects of therapy were noticed. Appetite of the patient was good after *Virechana*. This was a case of *Madhyama shuddhi* (~average purification) on the basis of number of *Vegas* (~bowel frequency) so the *Samsarjana krama* planned after the *Pradhana karma* (~main procedure) was of average purification i.e. for five days.

There was considerable improvement noticed in comprehension (50%), speech (50%), facial weakness

(25%), arm movement (25%) raising and stretching, leg maintaining position (25%), leg flexing movement (25%), gait and stance (40%) after *Virechana* and *Shamana* drug consumption.

The dependency of patient decided by Modified Rankin Scale also showed lesser personal dependency and an improvement by 16.66%. The average muscle power assessed by Motor Grading Scale showed a net improvement of 20% after completion of the treatment protocol.

On the basis of NIH Stroke Scale, language change of 33% was noticed after the treatment. There were certain parameters wherein no significant change was detected after treatment, like strength of fingers, movement of wrist and dorsiflexion of ankle joint and toes movement in lower limb.

The overall improvement in European Stroke Scale was noticed from 45 to 59 (Table 3) and reduction in NIH Stroke Scale was observed from 13 to 8. (Table 4) Modified Rankin Scale showed a reduction of 1 from 5 to 4 owing to lesser dependency for routine activities. (Table 5) Motor Grading Scale also confirmed improvement in the muscular strength tested against resistance of the examiner. (Table 5) There was no change noticed in deep tendon reflexes.[17] (Table 6) The biochemical markers (blood sugar level, hemoglobin, serum proteins etc.) were within normal limits before and after the treatment. (Table 7)

Discussion

Pakshaghata is considered as *Vatavyadhi* and *Mridu snigdha shodhana (Virechana)* is the preferred treatment, which was adopted in this study.[18] Acharya Charaka has also mentioned *Mridu shodhana* in the treatment of *Margavarana*.[19] Hence, certain features wherein involvement of other *Doshas* like *Pitta* and *Kapha* are seen along with *Vata* (as main *Dosha*) are supposed to respond well to *Shodhana* therapy. Acharya Madhavakara has mentioned *Samsarga* of *Pitta* and *Kapha* in *Pakshaghata*.[20] Secondly *Vata prakopa* may be either due to *Dhatukshaya* or *Margavarana*. Hence, *Deepana pachana* was done with water processed in by *Shunthi* (*Zingiber officinale* Rosc.) and *Dhanyaka (Coriandrum sativum* L.) to remove the *Avarana* and augment *Agni* prior to *Virechana karma* so as to increase its effectiveness. Acharya Charaka mentioned *Snehana, Swedana* followed by *Snigdha virechana* as specific choice of treatment for *Pakshaghata*.[21]

Table 3: Assessment as per European Stroke Scale

Sr. No.	Parameter	BT	AT	FU
1	Level of consciousness	10	10	10
2	Comprehension	4	8	8
3	Speech	2	4	6
4	Visual field	8	8	8
5	Gaze	8	8	8
6	Facial movement	6	6	8
7	Arm (ability to maintain outstretched position)	1	2	2
8	Arm (raising)	1	1	2
9	Fingers	0	0	0
10	Extension of wrist	0	0	0
11	Leg (maintain position)	1	2	2
12	Leg (flexing)	2	3	3
13	Dorsiflexion of foot	0	0	0
14	Gait	2	2	6
	Total Score	**45**	**54**	**59**

BT -Before treatment; AT -After treatment; FU -Follow up

Table 4: Assessment according to NIH Stroke Scale

Sr. No.	Parameter	BT	AT	FU
1	Level of consciousness	0	0	0
2	Asked month and age	2	2	2
3	Asked to open and close eyes then to grip and release non paretic hand	0	0	0
4	Gaze	0	0	0
5	Visual field	0	0	0
6	Facial palsy	1	1	0
7	Motor arm	3	3	2
8	Motor leg	4	3	3
9	Limb ataxia	0	0	0
10	Sensory	0	0	0
11	Language	2	2	1
12	Dysarthria	2	2	1
13	Extinction and inattention	0	0	0
	Total Score	**13**	**11**	**8**

Table 5: Assessment as per Modified Rankin Scale and Motor Grading

Parameters	BT	AT	FU
Modified Rankin Scale	5	4	4
Motor grading	1	1	2

Table 6: Deep tendon reflexes before and after treatment

Sr. No.	Reflexes	Right		Left	
		BT	AT	BT	AT
1	Biceps	4	4	2	2
2	Triceps	4	4	2	2
3	Supinator	4	4	2	2
4	Knee	4	4	2	2
5	Ankle	4	4	2	2

BT -Before treatment; AT -After treatment;
4 = Exaggerated; 2 = Normal

Table 7: Laboratory investigations

Sr. No.	Test	BT	AS	AT
1	Fasting blood glucose (mg/dl)	139	133	99
2	E.S.R. (mm/1st hr.)	51	79	66
3	Hemoglobin (gm%)	13.9	13.5	13.6
4	Total protein (gm%)	7.5	7.34	7.1
5	Serum albumin (gm%)	4.69	4.6	4.1
6	Serum gobulin (gm%)	2.81	2.74	2.1
7	A/G Ratio (%)	1.67	1.68	1.95

BT -Before treatment; AS - After *Snehapana;*
AT - After treatment

In *Pakshaghata*, aggravated *Vata* results in *Sira-snayu shosha*. This *Shosha* (~emaciation or under nourishment) of *Sira* and *Snayu* may be due to reduced oxygen and nourishment possibly because of restricted blood supply, which is the main cause of ischemic stroke that can result in an infarction, if blood supply is not restored within a short period of time. *Virechana*, by virtue of its *Srotoshuddhi* property, checks *Sanga* (~obstructive) type of *Srotodushti* encountered in *Pakshaghata* and may improve blood circulation. As *Pakshaghata* is described under *Vatavyadhi; Snehavirechana* was selected not to aggravate the *Vata dosha*. Besides, *Eranda taila* is said to be best in pacifying *Vata* and *Kapha dosha*[22] and *Taila* due to its *Snigdha, Ushna, Guru guna* pacifies *Ruksha, Sheeta* and *Laghu* characteristics of *Vayu*. Castor oil, itself is non-irritant but when ingested, it is hydrolyzed in the intestine by pancreatic lipase to glycerol and ricinolic acid. Ricinolic acid acts as an irritant and produces purgation. The active component of castor oil, ricin oleic acid, is a selective agonist of EP3 and EP4 receptors and that the pharmacological effects of castor oil are mediated by activation of EP3 receptors on smooth-muscle cells which in turn activate intestinal cells and subsequently its motility.[23] Laxatives produce myoelectric alterations in intestinal smooth muscle and induce accumulation of fluid in the intestinal lumen; these effects cause rapid transit of material through the bowel.[24]

Acharya Sushruta has stated use of *Eranda taila* with *Triphala kwatha* in a ratio of one to three parts to induce mild *Virechana* especially in children, old age, and those lacking muscular strength.[25] Acharya Charaka has also mentioned use of *Eranda taila* along with *Triphala kwatha* specifically for *Pakshavadha* and other *Vata* disorders.[26] *Triphala* has been mentioned as one of the drugs, which promote the act of purgation of other drugs.[27] This was the reason for the use of *Triphala kwatha* along with *Eranda taila*. Besides *Eranda taila*, if taken as a single medicine is unpalatable for most of the patients and may sometimes induces vomiting.

As *Pratiloma gati* of *Prana vayu* takes place in the pathogenesis of *Pakshaghata; Virechana* is one of the best remedy for *Vatanulomana*.[28] Hence, *Virechana* plays a key role in providing *Anuloma gati* (~downward movement) to *Pranavayu*, pacify the vitiation of *Rakta dosha* and thereby its *Updhatus kandara* and *Sira*, thus producing significant effects in *Pakshaghata.* Vitiation of *Prana vayu* is the main cause in the pathogenesis of *Pakshaghata,* which is the controller of all senses. *Virechana* increases the strength of sensory and motor modalities and thereby checks their impairment encountered in disease.[29]

Mastishka (~brain) is the *Indriya adhisthana*,[30] *Mastishka majja* resides in *Majjadhara kala*, which is analogous to *Pittadhara kala*.[31] In *Pittadhara kala vikriti, Virechana* is the best *Shodhana chikitsa*. Hence, *Virechana* may also act on *Majjadhara kala vikriti* simultaneously. *Majjavaha srotodushti* takes place in *Pakshaghata* and in order to combat the morbidity related to *Majja;* timely *Shuddhi* has been mentioned.[27]

Functions of *Manasa* are also affected in this case, which included impaired memory and intelligence and *Virechana* is said to bring *Buddhi shuddhi* and *Prasadana* (~clarity of mind and improved intellect).[32] *Virechana* also has a decompressive effect over the system.[33] It releases the pressure from lower abdominal cavity, thus releasing pressure in other cavities of the body as well; which results in a lowering of intracranial pressure thus producing better functioning of brain.

Sira-snayu shosha is one of the important symptoms of *Pakshaghata*. Involvement of *Sira* and *Kandara* being *Upadhatu* of *Rakta* shows the involvement of *Rakta dhatu* also and *Virechana* is an important remedy to pacify such disorders.[34] *Rakta dushti* produces excess *Pitta,* being *Mala* of *Rakta*,[35] *Virechana* is best to pacify *Pittaja* disorders.

Abhyanga of complete body with *Bala taila* was done to enhance general strength and sturdiness by promoting muscular health,[8] which tend to drop their strength due the cumulative effect of stroke. *Swedana* was done to pacify the *Vata dosha* remaining after removal of *Avarana* and to enhance nourishment to the dried *Sira-snayu* involved in the pathogenesis.

Masha baladi kwatha described in Chakradatta for the management of *Vata* disorders[36] possess *Brimhana* (~anabolic), *Balya* (~strengthening muscular tissue), *Rasayana* (~promoting longevity), *Ojovardhaka* (~improving immunity and vital strength), *Vata kapha shamaka* (~alleviates *vata* and *kapha doshas*) and nervine tonic properties. Individual ingredients of *Masha baladi kwatha* have been reported to have varied pharmacological properties.[37] *Saindhava lavana* and *Shuddha hingu* due to their *Sukshma* and *Tikshna* properties make the drug more effective and more penetrative. By these cumulative effects the drug augmented the effects produced by *Virechana* in *Pakshaghata*.

The result of *Virechana* was more prominent on improving higher functions like speech, language, comprehension, dysarthria and facial weakness probably due to its specific action on subsiding *Vata*, improving brain function (~*Majja dhatu*) and having a subsidiary effect on *Pitta* and *Rakta*.

This was seen as the scoring clearly shows an upsurge in the improvement seen in various parameters like arm and leg strength, gait and stance after *Virechana*. (Table 8) The results in follow-up, which was assessed after completion of *Samsarjana krama* showed an upward trend in scores, indicating positive effect of the drugs and other treatment procedures including *Abhyanga, Swedana*.

Table 8: Changes in gait and stance

Parameters	BT	AT
Stance	Inability to stand	Limited speed & distance
Gait	Inability to walk	Limited speed & distance

BT -Before treatment; AT - After treatment

There were certain parameters wherein no significant improvement was seen like the strength of fingers and of the distal structures like wrist and ankle region. These were the areas, which were maximally affected with disease and finest coordinated movements. To procure better results in these finer areas controlled by deeper structures in brain, other *Panchakarma* therapies like *Basti* and *Nasya* should also be inculcated to enhance the effect of *Virechana*.

Conclusion

The results in this case were encouraging to prove *Virechana* as the prime treatment in stroke. Improvement was seen in various parameters assessing speech, language, higher functions like comprehension immediately after *Virechana*, while the improvement was increased after *Abhyanga, Swedana* and *Shamana* especially in the muscular strength of arms and legs thus causing a better movement and producing lower dependency and subsequently improve the lifestyle. The results could be further improved if other *Panchakarma* treatment modalities acting over higher psychological functions like *Basti* and *Nasya* could be involved in the treatment protocol after *Virechana*. To explore further possibilities, adjuvant studies need to be conducted with *Virechana* as the baseline therapy and give way to more concrete conclusions in stroke patients.

Source of support

None.

Conflict of interest

None.

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Journal of Ayurveda Case Reports

Management of Ankylosing Spondylitis through Ayurveda: A Case Report

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Key words

Ankylosing spondylitis, *Maha sudarshana ghana*, *Sameera pannaga rasa*

ABSTRACT

Ankylosing spondylitis (AS) is a chronic, systemic inflammatory disease. It is a progressive disease with loss of spinal mobility, sacroiliitis, peripheral arthritis, extra-articular symptoms, and reduced quality of life. Its pathogenesis has not been completely understood, but HLA-B 27 positive immune cells are thought to be involved. Use of nonsteroidal anti-inflammatory drugs are the first line of management and they effectively relieve the symptoms. Few Ayurvedic medicines found to be effective in the management of AS. Here, a case of AS managed by Ayurvedic treatment approaches in presented. A criterion of assessment was based on the scoring of 'Bath Ankylosing Spondylitis Disease Activity Index (BASDAI). Total two assessments were carried out before and after three months of treatment. *Sameera pannaga rasa* along with few herbs, *Panchatikta ghrita guggulu, Maha sudarshana ghana* were used during the treatment. Patient has showed good improvement on BASDAI. Promising results were found in the management of AS without causing any adverse effects.

Introduction

Ankylosing Spondylitis (AS) is a chronic inflammatory disease. The aetiological factors of ankylosing spondylitis are unknown. It primarily affects the axial skeleton. Human leukocyte antigen B27 (HLA-B27) assay found positive in approximately 90-95% of the patients with ankylosing spondylitis.[1-3] The age of onset is second or third decade of life and males are affected two to three times more than females.[4-5] The primary pathologic site is the insertion of tendons or ligament capsules into the bone which is called as enthesis.[6] The process generally starts at the sacroiliac joint, other sites involved are iliac crest, greater trochanter, patella, ischial tuberosity, and calcaneum.[7] Low back pain is a common presenting symptom.[4] The course of inflammation progresses up the spine and affects the rib cage, which reduces chest expansion.[1] The symptoms include loss of spinal flexion, extension, diminished chest expansion, exaggerated thoracic kyphosis and lumbar lordosis. The laboratory findings shows raised levels of markers of inflammation like C-reactive protein and erythrocyte sedimentation rate.

Due to lack of satisfactory therapeutic management, leading to progress in this disease; it is need of hour

How to cite: Khedekar S, Vyavhare V, Lohar Y, Khedekar K. Management of Ankylosing Spondylitis through Ayurveda: A case report. J AyuCaRe 2019 2(2):18-23.

to search newer medical treatment strategies for this disease. Here a case of AS was treated with Ayurvedic medicines that showed satisfactory results is being presented.

Case report

A 26 years old woman presented with the complaints of gradually progressive low back pain which was associated with stiffening of spine. She had episodes of low back pain which woke her at night and spinal stiffness in the morning. She had complained about backache, cervical and pelvic region spasm with pain, tingling numbness, pain in majority of small joints and mandibular joint. Other associated symptoms like headache, hyperacidity, insomnia, fatigue, bodyache, giddiness, evening rising fever, sensitive to hot and cold weather, dyspnea over exertion, palpitation were told by patient. Her weight was 45 kg. Chest expansion was 2.4 cm and Schober's test was positive. X-ray hip joints revealed bilateral sacroiliitis of both sacroiliac joints. (Figure 1) Patient had *Vatapitta prakriti* with *Sama pramana* (~normal body proportion), *Madhyama satmya* (~medium adaptation), *Avara* (~low), *Sara* (~proper nourishment of *Dhatu* or tissue), *Madhyama samhanana* (~medium body built), *Avara vyayamashakti* (~least capability to carry on physical activities), *Madhyama satva* (~medium psychological strength), *Madhyama aharashakti* and *Jaranashakti* (~medium food intake and digestive capacity). *Majjavaha* (~pathology in bone marrow) and *Asthivaha* (~pathology in bone) was found to be moderate.

'Asthi-majja gata vata' of Ayurveda can be correlated with AS.[8] *Asthi-majja gata vata* is a disorder in which *Asthi dhatu* (~bones) gets affected by vitiated *Vata.* Symptoms like, *Asthibheda* (~pain of bones), *Sandhi shoola* (~painful joints), *Parva bheda* (~painful inter-phalangeal joints), *Aswapna* (~insomnia), *Mamsa kshaya* (~loss of muscular mass), *Satata ruk* (~continuous pain) and *Bala kshaya* (~fatigue) are mentioned in the *Asthi-majja gata vata*. Other symptoms like *Adhyasthi* (~fusion/ankylosis) is mentioned in the *Asthi pradoshaja vikara* (~bony disorders).[9] Whereas in *Majjavrita vata*, symptom like *Vinamata* (~deformity such as kyphosis) is described.[10] Overall AS can be understood under the large umbrella of *Asthi-majja gata vata* and *Vata* predominance disorder. Various internal medicines are mentioned for *Asthi-majja gata vata* in the texts. The patient was diagnosed as having *'Asthi-majja gata vata'* according to Ayurveda and treated various internal medicines and physiotherapy in two phases. (Table 1,2)

Baseline hematological investigations were done on August 11, 2018 and details are given in Table 3. A diagnosis of AS was made according to the modified New York criteria by orthopedic physician.[11] Since the patient was already had established deformities, she was managed symptomatically with Ayurvedic medicines and a few physical exercises.

Diagnosis and assessment

The scoring of 'Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) is adopted for assessment.[12] It consists of six items to measure levels of back pain, fatigue, peripheral joint pain and swelling, localized tenderness and the duration and severity of morning stiffness. Numeric response scale (0-10) anchored by adjectival descriptors 'none' and 'very severe' was also used. The final score of BASDAI ranges from '0' (which indicates no disease activity) to '10' (which indicates maximum disease activity). A cut off score of 4 is used to define active disease.[13] Total two assessments were taken, pre-treatment (baseline) and post-treatment (after three months of treatment).

Treatment protocol

Herbo-mineral compound Ayurveda formulations were used for the treatment of AS for total duration of three months. (Table -1, 2)

Outcomes

The patient was taking various NSAID's, cortico-steroids and DMARD's, which were completely withdrawn during the Ayurvedic treatment. After fifteen days of treatment, patient showed marginal improvement in backache, body pain, morning stiffness.

Before starting Ayurveda treatment BASDAI baseline score was 6.7 and after 3 months completion of treatment the score was reduced to 0.6 Around 91 % reduction was found in fatigue/tiredness, 85 % in neck/back/hip pain, 80 % in tenderness, and 88 % in intensity as well

Table 1: Herbo-mineral compound Ayurveda formulations used in the 1st month

Time Frame	Medicine	Dose	Frequency	*Anupana*
First Month	*Trayodashanga guguglu*	500 mg	Thrice a day	Luke warm Water
	Mahasudarshana ghanavati	500 mg	Thrice a day	Luke warm Water
	Dashmoolarishta	20 ml	Thrice a day	Luke warm Water
	30 mg of *Swarna Sameera pannaga rasa* + 60mg *Praval pishti* + 120 mg each of P*ippalimula, Ashwagandha, Nirgundi, Pushkarmula, Erandamula* and *Punarnava*		Twice a day	Honey

Table 2: Herbo-mineral compound Ayurveda formulations used in the 2nd and 3rd months

Time Frame	Medicine	Dose	Frequency	*Anupana*
Next two months	*Mahasudarshan ghanavati*	500 mg	Thrice a day	Luke warm Water
	30 mg of S*warna Sameera pannaga rasa* + 60mg *Praval pishti* + 120 mg each of *Pippalimula, Ashwagandha, Nirgundi, Pushkarmula, Erandamula* and *Punarnava*		Twice a day	Honey
	Panchatikta ghrita guggulu	500 mg	Thrice a day	Luke warm Water
	Saraswatarishta	30 ml	Once a day at night	Luke warm Water

as duration of morning stiffness, tingling numbness, mandibular joint pain, headache, hyperacidity, insomnia, giddiness, evening rising fever, sensitive to hot and cold climate and dyspnea over exertion were completely relived after treatment. (Table 4) Patient's appetite and quality of life were improved. After the treatment of three months, body weight was increased by 4.6 kgs. Changes of bilateral sacroiliitis appears reduced as compared to previous X-Ray. (Figures 1-2) Knee joint pain was relieved and patient's posture got improved along with relief in low backache and neck pain. After three months of treatment C- reactive protein value was 1.39 mg/l, vitamin D3 73.5 ng/ml, Vitamin B12 670 pg/ml and ESR is 39 mm/1st hour.

Table 3: Biochemical investigations before and after treatment

Parameter	BT (11/08/18)	AT (21/11/18)
Vit D	6.31 ng/ml	73.5 ng/ml
CRP	11.3 mg/l	1.31 mg/l
ESR	62 mm/1st hour	39 mm/1st hour
Vit B12	282 pg/ml	670 pg/ml

BT- Before treatment; AT- After treatment

Discussion

As per diagnosis of *Asthi-majja gata vata*, treatment protocol was followed. *Maha sudarshan ghanvati* was used for the inflammatory changes in joints and *Aampachana. Panchatikta ghrita guggulu* was used as *Ghrita* processed with *Tikta rasa* are indicated for bone pathology.[14] Herbs having sweet and bitter properties *Pippalimula (Piper longum* Linn.), *Ashwagandha (Withania somnifera* L. Dunal), *Nirgundi (Vites negundo* Linn), *Pushkarmula (Inula racemose* Hook. F.), *Eranda mula (Ricinus communis* Linn), *Punarnava (Boerhavia diffusa* Linn) which are having *Tikta* and *Madhura rasa* (~bitter and sweet taste) dominance are indicated in *Majja-pradoshaja* diseases. *Tikta rasa* has *Shothaghna* (~anti-edematous and anti-inflammatory) and *Pittahara* properties (~suppression and elimination of vitiated *Pitta dosha*). *Madhura* and *Tikta rasa* herbs provides nourishment to muscles, bones and peripheral nerves, reducing fasciculation, dyspnea (~due to atrophy of respiratory muscles) inflammation, enthesitis. *Swarna sameera pannaga* has *Balya* (~anabolic) and *Vajikarana* (~aphrodiastic) properties. It is indicated in all types of *Vatajavikara* (~diseases due to *Vata dosha*), cough and asthama.[15] The stiffness of spine, spasm, joint pain and lock jaw condition are the main complaints

Table 4: Comparison in case of ankylosing spondylitis

Domain	Parameters	BT	AT	Relief (%)
Function	BASFI	6.4	1.8	87.50
Pain	NRS	9	1	89.89
Spinal mobility	BASMI	4.6	0.4	91.30
Affected peripheral joints	Peripheral joint count	12	0	100.00
Enthesitis	MASES	6	1	83.43
Stiffness	NRS	7	1	85.82
Acute phase reactants	CRP	11.3	1.31	88.41
	ESR	62	39	38.07
Fatigue	BASDAI	6.7	0.6	91.05

BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BASFI: Bath Ankylosing Spondylitis Functional Index; BASMI: Bath Ankylosing Spondylitis Metrology Index; MASES: Maastricht Ankylosing Spondylitis Enthesis Score; ESR: Erythrocyte sedimentation rate; NRS: Numerical rating scale 0–10; BT: Before treatment; AT: After treatment; CRP: C-reactive protein.

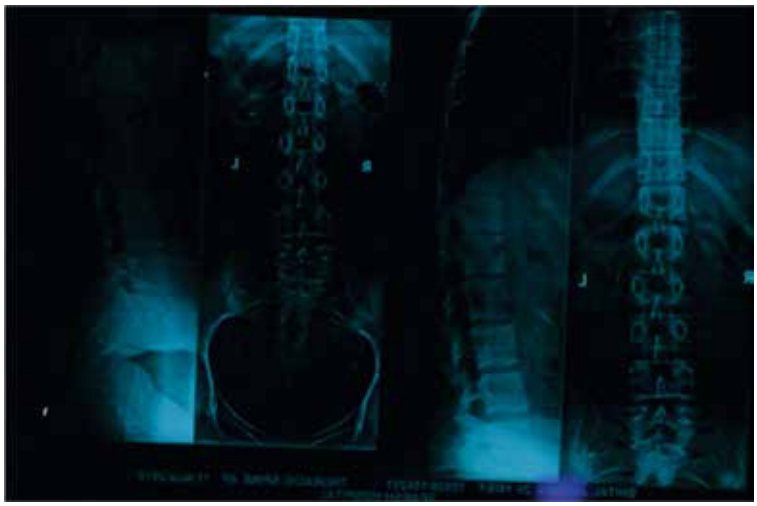

Figure 1: X-Ray of Lumbar spine, anterio-posterior and lateral view dated on 08/08/18

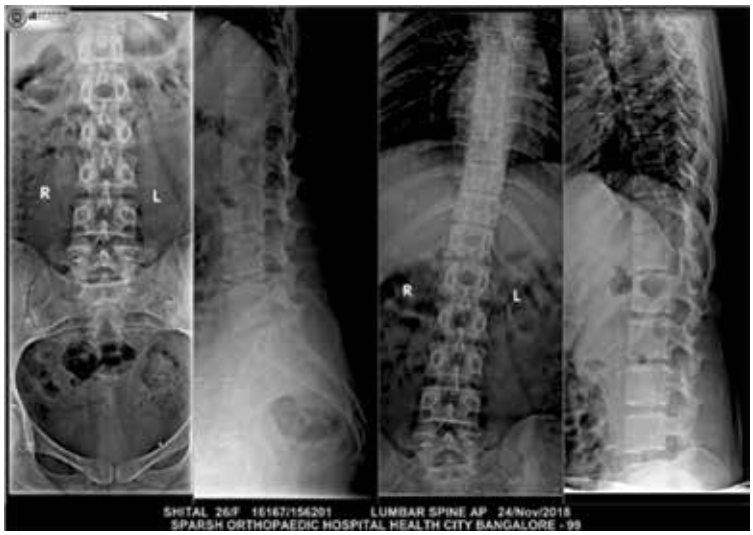

Figure 2: X-Ray of Lumbar spine, anterio-posterior and lateral view dated on 24/11/18

in AS, in which *Swarna sameera pannaga rasa* is helpful. *Ashwagandha* has *Rasayana* (~immunomodulator) and *Balya* (~anabolic) properties and found effective in rheumatoid arthritis.[16] *Eranda mula* (*Ricinus communis* Linn) is used as analgesic with positive action for various *Aamvata* conditions.[17] *Triyodashanga guggulu* is useful in *Snayugatavata* (~various tendon and ligament disorders), *Asthigatavata* (~disorders of bone), *Majjagatavata* (~disorders of bone marrow), *Khanjavata* (~limping disorders), and various *Vata* disorders (~neurological, rheumatic, and musculoskeletal diseases).[18] *Dashmoolarishta* is commonly used for the musculo-skeletal disorders in the Ayurvedic treatment. *Saraswatarishta* was used for the nervine tonic purpose. Above used drugs in the management of AS showed properties to treat the symptoms such as pain, scoliosis, fatigue, inflammation, stiffness, and weight loss. Though ayurvedic medicines used for the treatment exhibits properties like anti-inflammatory, analgesics but exact mechanism of action in AS is unknown. It needs further research to know exact action of Ayurvedic medicines in AS. Overall results showed good improvement in the signs and symptoms of AS

Conclusion

Ayurvedic herbo-mineral medicines showed promising results in the management of 'Ankylosing spondylitis'. Specially improvement in the symptoms like reduction in pain, decrease in severity of deformities and also improvement in quality of life. Though results are promising but needs larger sample size for confirmation.

Source of support

None.

Conflict of Interest

None.

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Journal of Ayurveda Case Reports

Efficacy of *Dhanvantara Taila Matra Basti* in the Management of Neurogenic Bladder: A Case Report

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Keywords

Apana vayu,
Basti,
Neurogenic bladder,
Panchakarma

ABSTRACT

Brain, spinal cord and peripheral nerves control the process of micturition by exerting control over muscles and sphincters of urinary bladder. Neurogenic bladder is a type of dysfunction caused by damage to this control mechanism due to myelopathies, injuries, diseases of the brain, diabetes, alcoholism, vitamin B12 deficiency etc. The symptoms range from detrusor under-activity to over-activity, which includes but not limited to dribbling stream and inability to fully empty the bladder. As per Ayurveda, *Apana vayu dushti* (~dysfunction in the *Apana vata* i.e. located in lower abdomen parts and governs their function) is responsible in retention of urine and it can be correlated as *Basti kundala* explained under the thirteen types of *Mutra ghata* (~urine obstruction). A 65 years old male patient presented with chief complaints of increased frequency of urination associated with dribbling of urine at the end of micturition. He also complained of abdominal distension throughout the day. He was treated with *Dhanvantara taila matra basti* (~rectal enema), administered for a month, after which the symptoms were reduced. No other oral medication was administered during the *Basti* therapy.

Introduction

Neurogenic bladder is a term applied to urinary bladder malfunction due to neurological damage to the nerves that governs the urinary tract emanating from internal or external trauma, disease or injury.[1] Normal micturition involves proper function of both the bladder and urethra. A detrusor of normal compliance and a physiologically competent urethral sphincter are both necessary to maintain urinary continence. Normal micturition involves passive, low pressure filling of the bladder during the urine storage phase while voiding requires coordination of detrusor contraction with internal and external urinary sphincter relaxation. The spinal cord controls micturition reflex by the sympathetic and parasympathetic nervous system; brain controls normal micturition with urinary continence by holding urine through pontine storage center (PSC) and facilitate urination by pontine micturition center (PMC).[2] There are two types of neurogenic bladder viz. spastic (hyper reflexive) and flaccid (hypotonic). In case of lower motor neuron lesion or any sacral injury or spinal shock, signals do not reach up to brain due to disruption of sensory fiber, hence urine occurs drop by drop known as overflow incontinence. While in upper

How to cite: Gusain M, Srivastava AK, Shukla GD. Efficacy of *Dhanvantara Taila Matra Basti* in the Management of Neurogenic Bladder: A Case Report. J AyuCaRe 2019;2(2):24-27.

motor neuron lesion detrusor hyperreflexia occurs which results into urge incontinence.[3] In Ayurveda, a similar condition, *Basti kundala* is described under thirteen types of *Mutra ghata.* This condition is characterized by retention of urine in the bladder, leading to its distension. When *Apana vata* is associated with *Pitta dosha*, it causes burning sensation and distress on passing urine with yellow discoloration and when associated with *Kapha dosha*, it causes bladder distension with turbid urine.[4] In contemporary science, for most types of neurogenic bladder, treatment essentially involves use of indwelling catheters, which certainly increases the risk of urinary tract infections, ascending pyelonephritis and bladder injuries. Those cases requiring surgery are further exposed to risk of recurrence and trauma. Even those on medication are subjected to side effects, which are unavoidable. Moreover, a definitive treatment is not guaranteed by any mode of management. A better management protocol can be introduced through Ayurveda in terms of lower risk of complications due to treatment and advantage of targeting the root pathology through Ayurvedic principles of management. A general line of treatment mentioned in all types of *Mutra vikara* (~urinary disorders) is *Basti* and *Uttar* basti.[5]

Case report

A 65 years old male patient presented with chief complaints of frequent urination (15-20 times in 24 hours) associated with dribbling at the end of micturition, with feeling of abdominal distension since four months. Patient was apparently asymptomatic till one year back when he developed slow onset of low backache. He was diagnosed to be a case of neurogenic bladder and was on allopathic treatment for his symptoms with partial relief and recurrences. After four months, he further developed increased frequency of urination along with turbid urine. He consulted an Ayurvedic physician and used *Chandraprabha vati* (250 mg twice in a day) and *Gokshuradi guggulu* (1 gm thrice in a day) for three months. His symptoms did not improve during this phase and subsequently the drugs were discontinued. He was not on any medication for the last month. USG abdomen revealed a small left renal cyst and a small hepatic cyst, whereas the prostate was reported to be of normal shape and size.

Personal history

Patient was addicted to tobacco chewing. Appetite and thirst were normal. He was presented with constipated bowels, turbid micturition and disturbed sleep. The patient found to be *Vata kapha prakriti* with *Krura koshtha, Heenabala* (~least physical strength) and *Madhyama satva* (~medium psychological status).

Per abdomen examination

On palpation, mild tenderness was present in hypogastrium, left and right lumbar regions. Cardiovascular, respiratory, central nervous systems were found normal. Patient was well oriented to person, place and time. Gait was antalgic (pain avoiding gait), painful range of movement of legs was presented and mild kyphosis was present. Blood sugar [fasting (86.65 mg/dl), PP (106.74 mg/dl)], blood urea (36 mg/dl), serum creatinine (0.8 mg/dl) were in limits. Albumin (traces), pus cells (2-4 HPF), epithelial cells (++) were found. Left renal cyst (1.5× 1.6 cm), small hepatic cyst (1.5 × 2.4 cm) and normal shaped prostate were observed in USG examination.

Treatment protocol

The patient was admitted in the *Panchakarma* IPD and treatment was planned considering involved *Dosha* and *Dushya. Ajmodadi churna* (5 gm twice a day) was administered for 5 days prior to *Matra basti* for balancing *Agni*[6] (~digestive fire) to counter *Ama* (~undigested food) presented in the body. After that *Matra basti* (50 ml) with *Dhanvantara taila*[7] was planned for one month through anal route. The retention time of oil was found to be 4-5 hrs during the 1st week, which was gradually increased up to 20 hrs. Patient was advised to avoid *Vata dosha* vitiating diet (cold water and meals, rotten food, curd, cold drinks etc.) and lifestyle (vigorous exercise and exertional work). (Table 1, 2)

Table 1: Plan of treatment

Drug / Therapy	Dose	Time	Duration	Purpose
Ajmodadi churna	5 gm	Twice in a day after breakfast and dinner with lukewarm water	5 days	*Deepana-pachana* (to normalize digestive fire and to digest the undigested food)
Matra basti	50 ml	After light breakfast	1 month	*Vata* alleviation

Table 2: Plan of *Basti*

Time	Dose (ml)	Retention time (hrs)	Complications	Frequency of micturition in 24 hrs
1st week	50	Around 4-5	No	15-16 times
2nd week	50	Around 12	No	12-14 times
3rd week	50	Around 15	No	10-12 times
4th week	50	Around 20	No	07-09 times

Outcome

Frequency of micturition was decreased to 7-9 times from 15-16 times in 24 hrs along with relief in abdominal distension with a feeling of lightness. Improvement was also found in uroflowmetry. (Table 3)

Table 3: Uroflowmetry

Parameters	BT	After 15 days of treatment	AT
Voided volume (ml)	138	189	212
Max flow rate (ml/s)	12	14	15
Average flow rate (ml/s)	05	07	09
Flow time (sec)	30	25	22
Time to max flow (sec)	09	04	02
Hesitancy (sec)	11	07	02
Residual urine (ml)	120	90	45

BT - Before treatment; AT - After treatment

Discussion

Patient presented with chief complaints of increased frequency of urination and turbid urine for past four months. His past history mentions low backache, which was associated with lumbar radiculopathy. Diabetes was ruled out as the cause of diuresis. Prostate pathology was ruled out in ultrasound abdomen. A diagnosis of neurogenic bladder was made in the light of history and investigations. Patient had addiction to tobacco chewing [1 packet/ day (5g)] since 10 years, which leads to vitiation of *Vata dosha,* because of its *Ruksha guna*. Also patient's age (65 years), is more prone to *Vata vikaras. Vata dosha* controls the nervous phenomenon of the body.[8] *Apana vayu* governs the working of kidneys, colon, rectum, hence facilitate the elimination of waste products like stool, urine etc. from body.[9] Vitiated *Vata* results in *Mutra vaha sroto dushti* which presents as *Atipravritti* of *Mutra* (~increased frequency of micturition). For all the urinary problems *Basti* and *Uttara basti* is the better treatment.[5] It is stated that in vitiated *Vata* diseases or *Vata dosha* dominant diseases *Basti* is the best treatment.[10] *Basti* also does disintegration and integration of *Purisha* (~stool), *Mutra* (~urine), *Pitta* (~bile salts) and useful entities in body.[11] Thus, *Basti* was planned in the current case.

The choice of *Matra basti* was made because of its qualities like; it can be given at any time, can be recommended for daily use in emaciated patients with over exertion, over work, weight lifting, riding, travelling, indulgence in women, in debilitated persons as well as in those afflicted with *Vata vikara* (~diseases of *Vata*).[12] It is *Balya, Brimhana, Vatarogahara*, simple to administer and helps in easy evacuation of *Mala* and *Dosha. Dhanvantara taila* was used for *Basti* as it is indicated in *Mutra ghata* and said to be as *'Sarvavatavikarajit'*.[7] *Matra basti* was administered for one month because of the convenience of the patient. After completion of treatment patient was advised to take *Chandraprabha vati* (250 mg) twice a day as *Rasayana* and *Shamana* drug for fifteen days to rejuvenate the urinary system and was advised not to take *Vataprakopaka* diet and not to follow *Vataprakopaka*

lifestyle. Patient was advised to re-visit hospital after 15 days for follow up. No further relapsing of symptoms was noticed. No complications were noticed or reported with treatment given to the patient.

Conclusion

Neurogenic bladder is caused by the damage of the nerves governing the functions of urinary bladder. Vitiated *Vata dosha (Apana vayu)* is the main culprit in this disorder, which results in *Mutravaha srotodushti* (~dysfunctioning of urinary system) and thus *Atipravritti* (~increased frequency of micturition). The adopted therapy i.e. *Dhanvantara taila matra basti* in the current case provided marked decrease in the frequency of micturition and relief in abdominal distension, which was not controlled by other oral medications like *Chandraprabha vati* and *Gokshuradi guggulu*. *Basti* is stated as best treatment for vitiation of *Vata*. In this particular case, the treatment protocol adopted proved to be beneficial for the patient. No side effects were noticed during the period of treatment. The efficacy may be studied in larger samples to draw efficacy of Ayurveda treatment modalities. Also there is a need to promote role of Ayurvedic *Panchakarma* therapies in neurogenic bladder and make them more aware of its benefits over contemporary approaches.

Source of support

Rishikul campus, Haridwar, Uttarakhand Ayurveda University, Harrawala, Dehradun- 248001, Uttarakhand, India.

Conflict of interest

None.

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Journal of Ayurveda Case Reports

Management of Simple Myopia with *Anantadi Ghrita*: A Case Report

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Keywords

Nasya,
Simple myopia,
Snehapana,
Tarpana,
Virechana

ABSTRACT

Ayurveda can serve better in many disease conditions, where conventional system face several limitations. Refractive errors are among such conditions, where effective management is becoming a challenge. Myopia or short sight, is that form of refractive error wherein parallel rays of light come to focus in front of sentient layer of the retina when the eye is at rest. Around 60% cases of blurred vision are due to simple myopia and this may present from simple eye strain to blurring of vision. The contemporary medicine advices optical correction and lasik surgery for managing this condition; whereas Ayurveda provides better care and prevent complications in initial stages. As many of the individuals may not prefer surgery; a great emphasise on the alternative measures for satisfactory management is the need of the hour. In this paper, a case of simple myopia managed with Ayurvedic protocol has been presented.

Introduction

Myopia, commonly referred to as short sightedness, is a common cause of visual disability throughout the world. Various surveys in India have reported prevalence of myopia as ranging from 6.9% to 19.7%.[1] Among various ophthalmic disorders, simple myopia deserves special reference as it may later lead to pathological myopia; an unsolved task in the field of opthalmology. Since no current treatment modalities can reverse the structural changes of pathological myopia, preventing myopia has long been a goal for ophthalmologists and scientists researching on pathologies of vision. Hence, myopia has been chosen as a priority for vision 2020, a global initiative for the elimination of avoidable blindness.[2]

How to cite: Jayakrishnan A, Krishnaprabha A, Sivabalaji K, Ashwini BN. Management of Simple Myopia with *Anantadi Ghrita:* A Case Report. J AyuCaRe 2019;2(2):28-32.

Near sightedness can be corrected with spectacles, contact lenses or refractive surgery. All these treatments are not much patient friendly and may cause some complications, including corneal infections due to contact lens wear and corneal scarring and persistent corneal haze from refractive surgery.[3] Refractive surgeries for treatment of myopia are both costly and unsuitable for children's eyes and do not change axial elongation, which is the commonest source of myopia.[4] These are not the permanent solutions to the pathological process occurring in eye. The pathophysiology seems to be similar to that of the classical description of *Timira* in Ayurveda literature. Ayurveda ocular therapies also known as *Kriya kalpas* are well known nowadays in the management of myopia. Among them *Tarpana*, a variety of *Bahya sneha* is the most frequently used and effective therapeutic procedure on account of its sound literary and practical evidences.

Anantadi ghrita is a unique formulation described in *Chikitsa manjari*, a classical Ayurveda textbook of Kerala. The treatment principle of *Timira* includes *Koshta shuddhi* and *Shira shuddhi* followed by *Tarpana*. *Koshta shuddhi* is attained by employing *Snehapana* and *Virechana* and *Shira shuddhi* by *Nasya*. *Nasya* is a kind of *Panchakarma* treatment modality done by administration of different Ayurvedic formulations including oils, herbal juices or powders through nasal route. *Nasya* therapy is beneficial for conditions related to eyes, ears, nose and throat etc. Regular practice of *Nasya* not only improves memory and intelligence but also has anti-aging benefits. *Netra tarpana* is a procedure in which medicated *Ghee* is retained over the eyes for a specific duration of time. Once the eye is covered with *Ghee*, the patient is asked to open and close the eyes several times before the medicament is removed. *Ghee* is said to strengthen and nourish the eyes and improve vision. *Anantadi ghrita* is advocated to be administered in the form of *Pana*, *Nasya* and *Tarpana*.[5] Considering the indications of the formulation, pharmacological properties of the drugs and nature of the disease; *Anantadi ghrita* prepared in the medicine preparation unit of *Shalakya tantra* department is administered in case of simple myopia.

Case report

An 18 year old female patient of *Vatakaphaja prakriti* visited the *Shalakya tantra* OPD, Amrita school of Ayurveda, Kerala, India, with established diagnosis of simple myopia. She was presented with diminished vision in both eyes since seven years associated with headache and watering and straining of eyes since last two years.

Treatment protocol

On the day of admission, after taking written informed consent, careful assessment and examination was done. Patient was adviced for *Deepana pachana* with *Trikatu churna* [Ayurvedic blend of equal parts of the fruits of *Marich* (*Piper nigrum* L.), *Pippali* (*Piper longum* L.) and the rhizomes of *Sunthi* (*Zingiber officinale* Rosc.)] with *Ushna jala* for two days. After obtaining *Nirama lakshana*, *Snehapana* was done with 30 ml of *Anantadi ghrita* (Table-1) for five days with *Ushna jala* as *Anupana* daily at bedtime. After attaining the *Samyak snigdha lakshanas*, *Virechana* was done by administering 30 gms of *Avipattikara churna* with *Ushna jala* at 6:00 AM. From 9th to 13th day *Nasya* was administered with *Anantadi ghrita* at 5:00 PM. From 15th to 19th day, *Tarpana* was done with *Anantadi ghrita* daily for ten minutes. The patient was advised to follow *Parihara kala*, in which patient

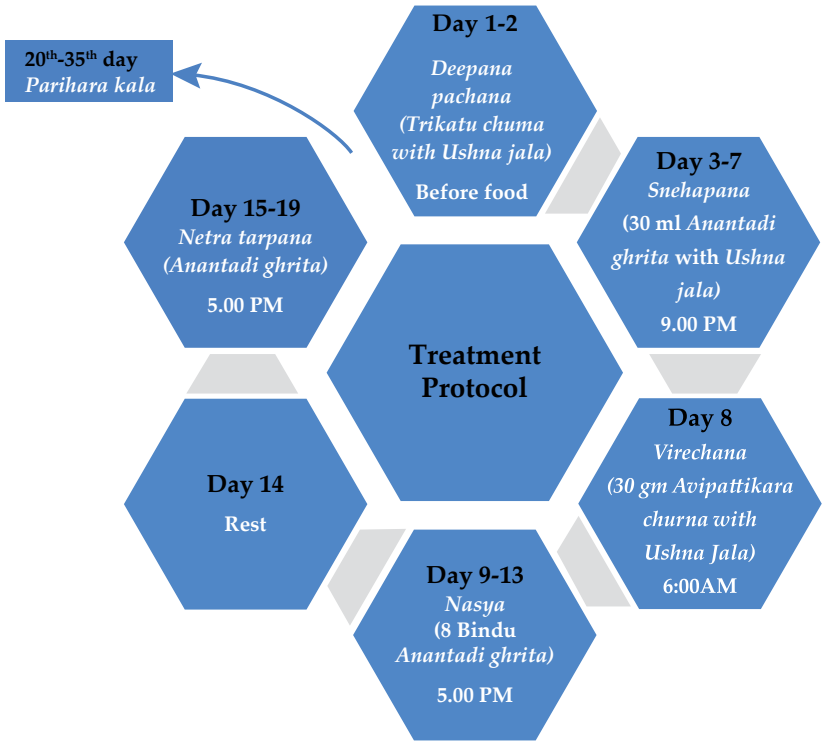

Figure-1: Treatment protocol

was advised to avoid exposure to bright light, wind and sunlight for next fifteen days. The patient was followed up till 50th day after treatment. (Figure-1)

Table-1: Ingredients of *Anantadi ghrita*

Sr. No.	Drug	Botanical Name
1	*Ananta*	*Cynodon dactylon* Linn.
2	*Chandana*	*Santalum album* Linn.
3	*Madhuka*	*Glycyrrhiza glabra* Linn.
4	*Utpala*	*Kaempferia rotunda* Linn.
5	*Mrinala*	*Nelumbium nucifera* Gaerth.
6	*Vidaari*	*Pueraria tuberosa* (Willd.) DC.
7	*Kasheruka*	*Scirpus kysoor* Roxb.
8	*Sita*	Sugar candy
9	*Aja Ghrita*	Goats *ghee*
10	*Ksheera*	Milk

Assessment was done on the subjective and objective parameters before and after the treatment. Overall improvement in symptoms was graded based on patient's presentation and physician's observation and were documented before and after treatment. A scoring pattern was prepared for the assessment of subjective parameters.[6] (Table-2) Objective parameters were scored based on Log MAR scale (Table-3) and auto-refractometer reading.[7] (Table-4)

Outcome

During the initial screening, after twenty days and fifty days of treatment; blood pressure, temperature, pulse rate and heart rate were found to be normal. Subjetive parameters like blurring vision, watering of eyes, headache and eye strain have reduced after treatment. No relapse was noticed during follow-up period. Marked improvement in visual acuity Snellen's chart reading and autorefractometry reading was noted when before treatment, after treatment and during follow-up periods. (Table 4)

Table-2: Gradation of symptoms for assessment

Gradation Index	Blurring of vision	Watering from eyes	Headache	Eye strain
0	Absent	Absent	Absent	Absent
1	Occasionally present	Occasional	Occasional	Occasional
2	Intermittent adjust with squeezing of eyes	Intermittent	Intermittent	Intermittent
3	Frequent tolerable with refractive aids	Frequent	Frequent	Frequent

Table-3: Gradation for Snellen's Visual Acuity chart Reading [Log MAR Scale]

6/6	6/9	6/12	6/18	6/24	6/36	6/60
0.1	0.2	0.3	0.5	0.6	0.8	1.0

Table-4: Improvement in objective parameters

Objective Parameters	BT (Initial day)		AT (20th day)		FU (50th day)	
	Right eye	Left eye	Right eye	Left eye	Right eye	Left eye
Visual acuity Snellen's chart reading	6/36 (B)	6/36	6/9	6/9	6/9	6/9
Near vision	N6	N6	N6	N6	N6	N6
Auto refractometry reading	-2.50 D -0.50, 96o	-2.50 D -0.25, 41o	-0.50 D -0.25,110o	-0.50 D -0.25, 40o	-0.50 D 0.55, 106o	-0.50 D -0.25, 41o

BT–Before treatment; AT–After treatment; FU–Follow-up; B- Blurred vision

Discussion

Anantadi ghrita selected for the present study is mentioned in the context of *Netra-rogadhikara.* All the ingredients of *Anantadi ghrita* are having *Chakshushya, Rasayana* and *Balya* properties. Moreover, *Ghrita* due to its *Sansakaranuvartana* quality easily imbibes the properties of other drugs processed with it, without leaving its own properties. *Aja ghrita* is also having the above said properties. Considering these attributes, the present combination was administered in the form of *Ghrita* and used as *Pana, Nasya* and *Tarpana*. The treatment protocol includes *Deepana-pachana* with *Trikatu churna, Snehapana* with *Anantadi ghrita*, followed by *Virechana* with *Avipattikara churna*. Then *Nasya* followed by *Tarpana* done with *Anantadi ghrita*.

Snehapana is indicated only after *Ama pachana* and *Agni deepana,* where *Trikatu churna* does the *Deepana pachana* action. *Snehapana* hepls in *Dosha utkleshana* and brings the vitiated *Doshas* from *Shakhas* to *Koshta. Virechana* helps in elimination of vitiated *Doshas* and helps in *Kaya shuddhi*. A plethora of *Nasya yogas* are also described for *Timira* because nose is a gateway of drug administration in case of *Urdhwajatrugata rogas* and *Nasya* is the only procedure which directly influences all *Indriyas*.[8] According to *Vagbhata*, all efforts should be made to strengthen the eyes by resorting to *Nasya, Anjana, Tarpana* etc. For once the vision is lost, different kinds of things of the world will all become of one kind - that of darkness.[9] In Ayurveda classics, various therapeutic procedures are explained which are said to improve or enhance the visual acuity as well as improve the health of the eye. *Kriya kalpa* is one such group of special methods of drug administration locally into the eye for the treatment for eye diseases, in which *Tarpana* is foremost procedure for *Timira* and provides *Dosha samaka* effect and nourishment to the eyes and improves visual acuity.

It has been mentioned that *Snehana* is the supreme treatment for *Vata dosha.*[10] *Akshi tarpana* is reffered as one of the 24 *Snehapravicharana. Ghrita* is effective in subsiding *Pittaja* and *Vataja* disorders, it improves *Dhatus* and is overall booster for improving *Ojas.* Considering the *Dosha karma*, the trial drug become *Tridosha shamaka* by virtue of its *Rasa, Guna, Veerya* and *Vipaka*. Thus, the overall effect of the compound drug is *Tridosha shamaka* and thus possibly it counters the pathology of simple myopia, a type of *Timira* which is also *Tridoshaja* in its manifestation.

Conclusion

Based on the observations made in the case, it can be inferred that, Ayurvedic treatment protocol (including *Deepana pachana, Snehana, Virechana, Nasya* and *Tarpana*) is effective in the management of simple myopia. Around 60 % cases of blurring vision are due to simple myopia presenting from simple eye strain to blurring of vision especially seen during the age group of 8-22 years. This age is vital in the human life and appropriate corrective measures need to be taken in time. Overall effect of *Anantadi ghrita* seems to be beneficial in correcting the pathgology and improving visual acuity. The efficacy may be evaluated in larger sampl size following systematic approach.

Source of support

None.

Conflict of interest

None.

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Journal of Ayurveda Case Reports

Management of Avascular Necrosis of Femur through Ayurvedic treatment: A Case Report

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Keywords

Avascular necrosis, *Panchakarma*, *Vatarakta*

ABSTRACT

Avascular necrosis (AVN) is an incapacitating state in which interruption of blood supply lead to deterioration of bone structures manifesting in pain and long term joint damage. High-dose glucocorticoid utilization, femoral neck fracture are common factors in manifestation of AVN. A 45 years old male patient, mechanical engineer by profession, a diagnosed case of AVN visited *Panchakarma* department, Rishikul Campus, Haridwar with complaints of pain in right hip joint associated with stiffness. AVN can be correlated with increased *Vata* in *Ubhayashrita vatarakta*. Patient had been treated with *Patrapottali sweda, Parisheka sweda* and *Kala basti* along with oral medications. This resulted in relief in pain, changes in bone density, improved walking gait and improvement in range of movements. An absolute cure in AVN is still awaited, but the current treatment proved to be effective to anticipate further progress and to enhance functioning significantly within a limited time period with Ayurveda approaches.

Introduction

Avascular necrosis (AVN) is an incapacitating state that troubles predominantly younger subjects in the middle of their working lives; to this day, it has persisted a damaging disease.[1] AVN sequels in pain, loss of joint function, and long term joint damage. Morbidity ratio integrated with AVN of hip is high with long lasting impairment. Most patients with progressed AVN demand over and above one hip replacement during lifespan. Post-operative morbidity rate is also on peak. In most nations, the incidence and prevalence of AVN are not well documented; among 2500-3300 cases of AVN of hip prevail each year, 34.7% were due to corticosteroid intake, 21.8% due to alcohol abuse and 37.1% due to idiopathic processes.[2] Prevalence of glucocorticoid induced AVN is between 3 to 38%.[3] Osteoarthritis, sclerosis, non-union of fracture and secondary muscle wasting are probable ailments in succeeding stages.[4]

How to cite: Anshul, Srivastava AK, Shukla GD. Management of Avascular Necrosis of Femur through Ayurvedic treatment: A Case Report. J AyuCaRe 2019;2(2):33-38.

The reduction in blood supply to the affected part can be inferred in Ayurvedic pathogenesis as *Vata* and *Rakta dhatu* vitiation that occur due to trauma ultimately leading to *Khanja* (~limping), *Pangu* (~lameness) as in *Ubhayashrita vatarakta*.[5] Hence, this condition can be correlated with *Ubhayashrita vatarakta* manifesting symptoms like as *Ruja* (~pain), piercing pain in *Sandhi* (~joints), *Asthi* (~bones).[5] *Snehayukta mridu virechana* (~mild purgative), frequent application of *Basti* (~medicated enema), *Abhyanga* (~massage) and

Seka parisheka (~sprinkling) are mentioned as possible treatment modalities in such conditions.[6] Thus, approaches that correct the circulation and functioning of *Rakta dhatu* along with balancing of *Vata dosha* will be beneficial in treating such pathologies. Considering these guidelines, a case of AVN was managed.

Case report

A 43 years old male patient visited *Panchakarma* OPD with chief complaints of inability to sit with folding legs, pricking pain and stiffness in right hip joint after walking since last eight years. He had history of sciatica 10 years back, for which he was on corticosteroids for a year under the supervision of orthopedic surgeon. In due course, he met with an accident and had hip injury, for which treatment was taken for a month and got symptomatic relief. In due course of time, a complaint of inability to sit with folding legs was aggravated and the patient shifted to allopathic hospital, where the condition was diagnosed as AVN of bilateral femur heads. He took treatment for two years, but no improvement was noticed. For last eight years, patient tried various types of treatments but satisfactory relief was not found. Thus, he approached for Ayurvedic treatment.

Clinical examination

Prakriti of patient was *Kapha-vataja*; while *Vikriti* was *Vata-kaphaja*; *Sara* was *Rakta, Samhana; Vyayama shakti* were *Avara, Jarana shakti, Ahara shakti, Satva, Satyama* and *Bala* was found to be *Madhyam*.

Samprapti vighatana

Doshika dominanace of *Vata-kapha; Dushya* was *Rakta, Mamsa; Srotas* involved was *Raktavaha, Mamsavaha, Asthivaha, Majjavaha* and *Adhisthana* of disease was *Sandhi; Twak, Mansa, Kandra, Sira, Snayu* were found in pathogenesis. *Agni* was *Vishamagni*.

General physical examination

Cardiovascular and respiratory system examination revealed no abnormality. Higher functions of central nervous system were normal. Deep tendon reflexes of upper limb were normal. Knee jerk was diminished. Plantar response was flexor, muscular atrophy was not present. MRI reveals grade III AVN with 75%-80% involvement of right femoral head, Grade II AVN with 30-50% involvement of left femoral head. Both sacroiliac joints were normal. RA Factor was negative.

Treatment protocol

Panchakarma treatment and oral medicines were given for two months. (Table 1,2) After this, patient was kept on oral medications and *Abhyanga* for one month in follow up period.

Table 1: Different therapy procedures used and description of their ingredients with duration

Procedure	Ingredients	Duration
Abhyanga	*Dhanvantara taila*	1^{st}-7^{th} day
Patrapottali sweda	1 kg Fresh chopped leaves of *Ashoka (Saraca indica* L.), *Nimba (Azadirachta indica* A. Juss.), *Arka* [*Calotropis procera* (L.) Dryand.], *Nirgundi* (*Vitex nigundo* L.), *Amaltas* (*Cassia fistul*a L.), 100 gm grated coconut, two sliced lemon, 10 *Rasona* clove and 100 ml of oil	
Pariseka sweda	*Dhanvantara taila*	8^{th} -24^{th} day
Kala basti	*Anuvasana basti*-120 ml of *Bala taila* *Niruha basti*-60 g *Makshika*, 5 g *Saindhava*, 80 ml *Panchtikta ghrita,* 25 g *Shaatpushpa kalka,* 250 ml *Asthisrikhala kwatha* and 100 ml cow's milk	

Table-2: Oral medications during and after *Panchakarma* procedures

Medications during *Panchakarma* therapy	Dose	Medications after completion of treatment (For one month)	Dose
Arjuna khseerapaka[7]	40 ml twice a day	*Panchamrita loha guggulu*[8]	1 gm twice
Eranda taila with milk[9]	15 ml at bedtime	*Shila pravang*[10]	125 mg twice in a day with lukewarm water after meal
Nidana parivarjana	Diet free from excessive *Lavana, Sneha, Katu, Amla Rasa,* etc.	*Maharasnadi kwatha*[11]	40 ml, empty stomach for a period of 30 days.
		Khseerabala taila[12]	*Abhyanga*

Assessment criteria

For assessment of activities, grading from Harris Hip Score,[13] VAS (Visual Analogue Scale),[14] Goniometry for range of motion, and bone marrow density were adopted to assess the effectiveness of treatment.

Pain grading according to Harris Hip Score

0- None or ignores it

1- Slight, occasional, no compromise in activity

2- Mild pain, no effect on average activities, rarely moderate pain with unusual activity, may take aspirin

3- Moderate pain, tolerable but makes concessions to pain. Some limitations of ordinary activity or work. May require occasional pain medication stronger than aspirin

4- Marked pain, serious limitation of activities

5- Totally disabled, crippled, pain in bed, bedridden

Support

0- None

1- Cane/walking stick for long walks

2- Cane/walking stick most of the time

3- One crutch

4- not able to walk

Distance walked

0- Unlimited

1- Six blocks (30 minutes)

2- Two or three blocks (10 - 15 minutes)

3- Indoors only

4- Bed and chair only

Limp

0- None

1- Slight

2- Moderate

3- Severe or unable to walk

Activities - Wearing shoes, socks

0- With ease

1- With difficulty

2- Unable to fit or tie

Stairs

0- Normally without using a railing

1- Normally using a railing

2- In any manner

3- Unable to do stairs

Sitting

0- Comfortably, ordinary chair for one hour

1- On a high chair for 30 minutes

2- Unable to sit comfortably on any chair

Outcome

Considerable improvement was noticed in gait, functional activities and range of motion. Changes in activities indicate the decrease in pain. Changes in range of motion and VAS grading are showing the same. Patient started walking for long distance without support and performing activities like climbing stairs (without using railing), sitting on chair for long time, etc. which was not present before the treatment. After treatment slight limping was present during walk. There was improvement in degree of range of motion

Table-3: Grading of symptoms and activities before treatment, after one month and after follow up

Assessment			BT	AT	Follow up
Functions		Pain	3	2	1
	Gait	Limp	2	1	1
		Support	1	0	0
		Distance walked	2	0	0
		Stairs	1	0	0
	Activities	Shoes, socks	1	0	0
		Sitting	2	0	0

BT - Before treatment; AT - After treatment

Table-4: Range of motion before treatment, after one month and after follow up

	Time	Flexion	Extension	Abduction	Adduction	Internal rotation	External rotation
Left limb	BT	60	100	400	250	300	300
	AT	800	150	450	300	350	400
	Follow up	900	150	450	300	350	400
Right limb	BT	450	50	200	150	200	250
	AT	900	100	300	200	300	350
	Follow up	1100	150	400	250	300	350

Table-5: VAS grading and BMD before treatment, after one month and after follow up

Parameters	BT	AT	FU
Stretch test	Positive bilaterally	Negative bilaterally	Negative bilaterally
Bone marrow density (T score)	-1.8	-0.9	-
VAS (right leg)	9	3	2
(left leg)	6	0	0

FU - Follow-up

after treatment and in follow up period in both the legs especially in right limb which was severely decreased before treatment. After treatment BMD Score changed from -1.8 to -0.9. (Table 3-5)

After follow up; MRI of femoral head reveals III grade AVN in right side, while II grade in left side. Both sacroiliac joints were normal. Gradings of AVN were not changed, but bone showed restoration. There was no remission or exaggeration of condition during follow up period too.

Discussion

History of traumatic jerk in hip region shows involvement of *Twak* and *Mansa* (~superficial trauma) and chronicity of disease (grade III) describe the involvement up to deeper *Dhatus (Rakta, Mansa, Meda, Asthi*)[15] and in chronic condition there is excessive increase of *Vata* resulting in reduction in its density (*Asthidhatu kshaya*) which is seen by abnormal T-score of BMD. (Table 5) In *Gambhira vata-rakta* (~deep type of disease) if *Rakta dhatu* (~blood) activities are severely compromised by *Vata,* it should be treated like *Vata*.[16] After pacification of *Vata* with this treatment or when *Vata* and *Rakta* are in balanced proportion then, thereafter steps should be taken to pacify *Vata- rakta*.[16] Keeping this concept in view, line of treatment for management of disease was planned. Grade III AVN with a history of prolonged intake of corticosteroids infers excessive vitiation of *Dosha* in body. Thus, castor

oil with milk for purgation was advised regularly for *Sroto shodhana*.[9] *Taila* also pacifies *Vata* and milk pacifies *Rakta vikara* (~blood related diseases). Due to these properties, the combination is helpful in this condition. *Arjuna* [*Terminalia arjuna* (Roxb.) W] is used because of *Rakta sangrahika, Sandhaniya, Shonita sthapana* properties.[17] Milk also possess *Sandhaniya guna*.[18] *Rukshata* of *Arjuna* and *Kaphakarita* of milk will be removed by *Khseerapaka*.[7] Patient was complaining of stiffness, in which it was considered because of the vitiated *Kapha dosha. Abhyanga* carried out before *Patrapottali swedana* by virtue of its unctuous quality likely to correct imbalance of *Vata dosha.* In addition to this, the sudation procedure helps in rectifying the morbid *Kapha dosha* as well.[19] *Parisheka sweda* was planned considering dominance of *Vata* in association of *Kapha*.[20,21] *Dhanvantara taila* used is indicated in all *Vata* diseases.[22] Considering severity of disease as well as dominancy of *Vata; Niruha basti* was planned with *Panchatikta ghrita* as excrements should be eliminated by administering *Ksheera basti* (~enema) with *Ghee. Panchatikta ghrita* is indicated in all types of *Vata* disease[23] and *Kwatha* of *Asthishrinkhala* (*Cissus quadrangularis* Linn.) is indicated for *Sandhana, Rakta shodhana* and *Vata* pacification purpose.[24] *Anuvasana basti* was given with *Bala taila* as it is excellent alleviator of *Vata vyadhis*.[25] Mostly leaves used in *Patrapottali sweda* possess *Vatahara, Vedanasthapak, Swedopaga, Deepana* and *Aampachan* properties[26] which are beneficial in this context.

Conclusion

This treatment has provided some relief in AVN with refinement in activities, relaxation in symptoms, without side effects within a short period of time. Ayurvedic treatment of AVN help in controlling further destruction to the bone, provide relief from pain and enhance functional capability. Ayurvedic treatment strategy of *Vatarakta* seems to be beneficial in the management of AVN.

Source of support

None.

Conflict of interest

None.

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Journal of Ayurveda Case Reports

Instructions for Submitting Case Reports

TYPES OF CASE REPORTS:

Case Reports from the below areas will be considered by the journal.

1. Disease and Diagnosis:

- ✓ Case reporting on exclusive Ayurvedic diagnosis.
- ✓ Unknown / known etiology of a disease in Ayurvedic parlance.
- ✓ Understanding a disease on Ayurvedic principles.
- ✓ Presentation of rare disease / features / *Arishta* (Bad prognostic signs) as mentioned in Ayurvedic literature.
- ✓ Differential diagnosis of an Ayurvedic disease.
- ✓ Cases reporting - *Nidanarthakara roga* and *Vyadhisankara* (Unusual association of diseases).
- ✓ Fault in Ayurvedic diagnosis of a disease.
- ✓ Any other cases that supplement the existing knowledge of Ayurveda and principles of diagnosis.

2. Treatment:

- ✓ Cases where Ayurvedic medicines / therapies / procedures provides demonstrable relief.
- ✓ Cases giving new insight in Ayurvedic management of chronic or rare diseases.
- ✓ Cases providing significant clinical outcomes.
- ✓ Case reports demonstrating practical application of any of the Ayurvedic treatment principles. (eg. *Guru apatarpana* in *sthaulya*)
- ✓ Cases worthy of discussion particularly around aspects of differential diagnosis, decision making, management, clinical guidelines and pathology.
- ✓ Cases exploring myth and truth regarding extent of Ayurvedic treatment utility in management of rare and auto-immune diseases.
- ✓ Unusual or unexpected effect of a therapy / treatment including adverse drug reactions.
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- ✓ Management of emergency care only by Ayurvedic modality.
- ✓ Innovative protocol for management of disease conditions following classical Ayurvedic guidelines.

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- ✓ Adverse events of Ayurvedic drug or therapy.
- ✓ Adverse drug reactions / Side effects of an Ayurvedic drug reported by a physician of any AYUSH system of medicines.

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General Guidelines for Submission in AyuCaRe: Text should preferably be on an A-4 size word document, written in Times New Roman font with line spacing of 1.5 and font size 12 point. Margins: 2.5 cm (1 inch) at top, bottom, right, and left.

The manuscript should include:

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   Name of the department and institution in which the work was done,

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   Complete address including telephone and e-mail of the corresponding author,

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2. **Article File:** Don't reveal identity of authors in article file.

   Unstructured abstract: not exceeding 200 words consisting Background, Brief Case Report and Conclusion.

   Keywords: 3 to 6.

   Text Pages: The text of the article should not be more than 2500 words. It should cover:

   a. **Introduction** should contain scientific rationale and reason for publishing the Case Report.

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      i. Patient information: age, gender, ethnicity (age at the time of diagnosis of related medical problem if different from the patient's age), Occupation and their presenting concerns with relevant details of related past.

      ii. Ethical considerations, if any.

      iii. Medical, family, and psychosocial history including lifestyle and genetic information;

      iv. Other pertinent co-morbidities, interventions, therapies including self-care;

      v. Physical examination focused on important findings including results from testing.

      vi. Information about substance abuse (tobacco smoking, alcohol, any other)

      vii. Objectives for reporting the case

      viii. Main medical problem

      ix. *Dashavidha pariksha* / *Ashtavidha pariksha* / *Sroto pariksha* (as applicable)

      x. Related medication, diagnostic and therapeutic procedures. Details of drugs and line of therapy should precisely be mentioned including classical reference, dose and route of administration.

      xi. Clinical solution of the described problem.

      xii. Treatment complications, if any.

   c. **Timeline:** Create a timeline as a chronological summary of an episode of care as a figure or table. This should begin with antecedents and past medical history through the outcome.

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      ii. Diagnostic challenges (such as limited ability to complete an evaluation, patient availability, cultural);

      iii. Diagnostic reasoning including other diagnoses considered, and

      iv. Prognostic characteristics (such as staging in oncology) where applicable.

   e. **Therapeutic Focus and Assessment:** Describe the

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      ii. Mode of administration of the intervention (including dosage, strength, duration, frequency).

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ii. Adherence to the intervention and how this was assessed; and

iii. Adverse effects or unanticipated events. Please describe

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k. Images: Submit good quality colour images in JPEG format.

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The following are a few examples:

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- **Chapter in a book:**

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- **Conference proceedings:**

  Kimura J, Shibasaki H, editors. Recent advances in clinical neurophysiology. Proceedings of the 10th International Congress of EMG and Clinical Neurophysiology; 1995 Oct 15-19; Kyoto, Japan. Amsterdam: Elsevier; 1996.

- **Conference paper:**

  Bengtsson S, Solheim BG. Enforcement of data protection, privacy and security in medical informatics. In: Lun KC, Degoulet P, Piemme TE, Rienhoff O, editors. MEDINFO 92. Proceedings of the 7th World Congress on Medical Informatics; 1992 Sep 6-10; Geneva, Switzerland.

- **Web references:**

  As a minimum, the full URL should be given along with the date and time when the reference was last accessed.

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Published by:
Director
All India Institute of Ayurveda
An Autonomous Organization under the Ministry of AYUSH, Govt. of India
Mathura Road, Gautam Puri, Sarita Vihar, New Delhi - 110076
Phone: 011-29948658
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