



Journal Homepage: -www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/18119
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/18119>



RESEARCH ARTICLE

AYURVEDIC MANAGEMENT OF JUVENILE ANKYLOSING SPONDYLITIS: A CASE STUDY

Dr. Kalpana Dhuri and Dr. Namrata Kamble

Manuscript Info

Manuscript History

Received: 06 November 2023
 Final Accepted: 10 December 2023
 Published: January 2024

Keywords:-

Juvenile Ankylosing Spondylitis,
 Ayurvedic Therapeutics, Basti,
 BASDAI, ASDAI

Abstract

A 16year old boy, who was diagnosed with Juvenile Ankylosing Spondylitis treated with a combination of Panchakarma procedures and Ayurvedic medicines(Integrative approach). The patient was considered suffering from *Aamavata* (~Vata disorder involving bone and joints) and was treated based on fundamentals of treatment as mentioned by ayurvedic texts. Patient's condition was assessed every 7 days initially for 1 month and later monthly. The score sets of Assessment of Spondylo Arthritis BASDAI and ASDAS score and symptoms showed substantial improvement after 120 days of treatment.

Copy Right, IJAR, 2024, All rights reserved.

Introduction:-

Juvenile Ankylosing spondylitis (JAS) is a autoimmune inflammatory disease.^[1] Its pathogenesis has not been completely understood, but the HLA-B 27 positive immune cells are thought to be involved^[2] Nonsteroidal anti-inflammatory agents are the first line drugs and they effectively relieve the symptoms. Biological agents such as Filgotinib may help in targeting the underlying inflammatory process and have been used recently.^[3] Here, we are reporting a case of JAS treated with an integrative approach with allopathic medicine alongwith Panchakarma and ayurvedic remedies.

Case Report

A 16 years old boy presented at D Y Patil Kaumarbhrutya OPD (Ayurvedic pediatrics); with the complaints of *santat bhedwat asthisandhi shoola* (Multiple joint pain), *sandhishotha* (Inflammation on right knee joint, wrist, shoulder joint, and hip joint.), *stambha* (Morning stiffness), *Kriyahani* (limited activity), Weight loss, constipation since one and half months, *anidra* (insomnia), *alasya* (lethary), *agnimandya* (appetite loss) and back pain, usually most severe at night during rest since 3-4 months

There was no history of diabetes or hypertension or ankylosing spondylitis in family.

The child was Full Term Normal Delivery with no birth asphyxia. The immunization had been done as per national immunization schedule. The patient had history of typhoid in 2014. The patient is taking mixed diet.

Baseline findings

On Examination: Nadi (pulse) 100/min regular, *Twak* (skin) – *Raukshya* (dryness of skin), *Mala Kathinya* (hard stools) *Jivha - Saama* (tongue coated), *Prakruti* (constitution) *Vata pitta*

No abnormality was detected in respiratory and cardiovascular system.

His investigations reviews as follow

Investigations:

Date : 1/8/2022

HLA B27 : positive , CRP : 77.08 mg/dl, ESR : 120, Hb 12 gm/dl, WBC 8900/mm³ , Platelet 4.9/mm³ , SGPT:15 iu, 2 D Echo : Normal systolic function: MRI : Bil symmetrical sacroiliatis. 2D Echo - Ejection Fraction : 60%
Treatment plan: (TABLE 1)

Considering chikitsa sutra of Amavata; (fundamental guideline for management) the treatment was started with *Langhana* including *Peya* and *moongdal khichadi* for 3 days respectively along with *Shankha vati* twice a day and *Erandasneha* 5ml and *Shunthi churna* 25 mg after every two hours. *Punarnavashtaka quath* 20 ml with equal amount of water was given twice a day after meals.

Musta, guduchi and sariva and yasthimadhu and pashanabheda churna total 125 mg each in three divided doses along with honey. After 3 days of *langhana*; normal regular vegetarian diet was started. The patient was told to avoid oily spicy food, milk, junk food and cold drinks.

After 3 days *Rason Vati* 250 mg twice a day was given after meals. *Rasnadi guggulu* 300 mg Twice a day, *Sinhanaad guggulu* 500 mg three times a day was given for 15 days.

The patient was on Tab Naproxen 500 mg once a day from the first day; which was tapered to 250 mg once a day for 15 days.

Methotrexate 7.5 mg was given on every weekend only for 2 weekends. Post which it was stopped. After achieving *Niramavastha, Vaitarana Basti with Mamsarasa* was given for 8 days for 30 days. Also, patient was given *Nasya* therapy with *panchendriyavardhan taila*.

Valuka pottali sweda, Vyayam, pathya ahara, Sattvavajaya chikitsa and Daivavyapashraya chikitsa was given for all 120 days after third day. *Insattvavajay chikitsa*; positive affirmations were given to the patient and *indaivvyapashraya chikitsa: Ramaraksha Stotra* was given to recite everyday once in morning.

The patient was advised to take drumstick soup and all vegetables except Brinjal as it increases Vata dosha and barley and Jwar was included in diet. The patient was also told to take pure cow's ghee in diet and warm water throughout the day. The patient was advised to avoid curds, milk, fish and *adhyashan* (eating after meals).

	On admission 28/7/22	7 th day 04/08/22	15 th day 12/08/22	30 th day 30/08/22	60 th day 30/09/22	120 th day 25/01/23
<i>Asthi sandhi shola</i>	+++	+++	++	+	+	-
<i>Stambhata</i>	+++	+++	++	+	+	-
<i>Sthanik shotha</i>	+++	++	+	-	-	-
Local temperature	++	+	+	-	-	-
<i>Malabaddhata</i>	+++	+	-	-	-	-
<i>Nidranash</i>	+++	++	-	-	-	-
SLR test	Rt. Leg-60 Lt leg- 80	Rt. Leg-60 Lt leg- 90	Rt. Leg-70 Lt leg- 90	Rt. Leg-80 Lt leg- 90	Rt. Leg-80 Lt leg- 90	Rt. Leg-90 Lt leg- 90
<i>Kriyahaani</i> (walk, sit)	Unable to walk & sit on the floor. Unable to use Indian Toilet	Slight joint movements	Walk & sit with support	Walk without support, sit without support	Sit without support & walk without support	Walk and sit without support. Also, could use Indian toilet
Lt. shoulder joint <i>shoola</i>	Difficulty in writing & holding	Slight improvement	Write & hold objects	Effortless work	Effortless work	Effortless work

	objects				
ASDAS SCORE	4.9				1.9
BASDAI Score	6.4				3.3

Table1: -Management.

Langhana	Peya, Laja, Moong daal khichadi	-	-	3 days
	Erand Sneha + shunthi churna	½ tsp	Luke warm water	Every 2 hrs
	Shankhavati	200mg	Luke warm water	Twice a day
	Punarnavashtak kwath	20 ml	with equal amount of water	Twice a day
	Musta+guduchi+sariva+ Yashtimadhu+ pashanbheda churna	125mg	With honey	Thrice a day
After 3 days of langhana	Rason vati	250 mg	Luke warm water	Twice a day for 15 days
	Rasnadi guggul	300mg	Luke warm water	Twice a day for 15 days
	Sinhnaad guggul	2 tabs		Thrice a day for 15 days
After rheumatologist opinion	T. Naproxen	500mg		Once a day for 10 days
	T. Naproxen (tapered)	250 mg		HS for next 7 days
	T. Methotrexate	7.5 mg		HS (only Saturday & Sunday) for 8 days
After achieving niramavastha	Vaitarana basti with Mamsa rasa		with Mamsa rasa	For 8 days
	Swedana		With valuka pottali	

Table 2: - Observations and results.**Observations and Results:-****(TABLE 2)**

We had scored the symptoms as 3 –severe 2- moderate,1- minimum,0-no abnormality

Discussion:-

JAS is chronic inflammatory autoimmune disease, which mainly affects spine, joints & causes severe pain^[5] According to Tam LSetal there is no disease treatment available in contemporary science as pathogenesis of disease still unknown.^[6]

The patient presented with *bhedavat vedana* (severe joint pain) along with *shotha* (inflammation), *stambha* (morning stiffness), *kriyahani* (restricted movements), *mandagni* condition called *Amavaat*.^[7] *Ama* is an undigested product which releases free radicals (ROS) which led to diseases.^[8] *Ama* circulates through the body and manifests into diseases wherever it gets accumulated. It has been known that overproduction of free radicals, such as reactive oxygen species (ROS), plays an important part in the development of many chronic diseases.^[9] In *Amavata*; Vata dosha along with *ama* is vitiated & obstructs *rasavaha* & *asthi majjavaha strotas* (channels). Severe pain in *Amavata* is due to vitiation of vata dosha. *Ushna sparsha* (increased local temperature) and *Shotha* (inflammation) are due to vitiated pitta dosha and *Stambha* (rigidity) and *Gaurav* (heaviness) and *alasya* (lethargy) is due to vitiated *kapha dosha*.^[10]

As per *chikitsa sutra* of *aamavata langhana* (fasting majors as described in ayurvedic texts which brings lightness to the body), *swedana* (fomentation), *Deepana* (the one which enhances digestive enzymes), *tikta- katu* Dravya (medicines & diet which is bitter & pungent), *virechana* (laxation), *snehapana* (internal oilation) & *basti* (administration of medicines through anal route) has been advised.

Initially as a therapeutic measure of *langhana*, *peya* was given (rice gruel) along soup of *moong daala*. *Langhana* helps in digestion of *aama* & therefore medicines can reach the target organ and help in clearing of *strotorodh* (obstruction of channels)^[11].

The patient was advised to take warm water throughout day (*koshna jalapana*). *Koshnajala* is *Deepana*, *pachana* (Enhances metabolism), *balya* (Gives strength), *jwaraghna* (Anti pyretic), *strotoshodhana* (Cleanses channels), *ruchikara* (Enhances taste) and *swedakara* (Fomentation).^[12]

To begin with *Eranda Sneha* along with *shunthi* was given (castor oil). *Eranda* (*Ricinis cummunis*) is considered as the drug of choice of *aamavata*.^[13] *Eranda is vatahara* (passify vitiated vata) by virtue of its *snigdha* & *guru guna*. It is also *virechana* (purgative). Asif Hussain et al have reported a marked reduction in tissue inflammation and bone erosion in *R Communis* extracts treated groups in histopathological and radiological findings. The anti-inflammatory effect may be because of modulating cytokine expression and reducing oxidative stress.^[14]

Shunthi (*Zinziber officinale*) is *Deepana* (Increases appetite) and *pachana* (Enhances metabolism). (Dried ginger) *Shunthi* has been proven more potent than fresh ginger for its antioxidant activity.^[15]

Along with this *Purarnavashtak kwatha* was given. Inflammation is mainly mediated by secretory phospholipase A2 (sPLA2). In rheumatoid arthritis, high levels of sPLA2 have been found^[16]. *Punarnava* has been proven to reduce sPLA2; thus reducing inflammation.^[17] In addition it is also analgesic^[18], antifibrinolytic.^[19]

The patient was advised tab. Naproxen 500mg twice daily and Methotrexate only on weekends. Naproxen is effective in rheumatoid arthritis though it may cause gastrointestinal disturbance in some. Toxicity with Methotrexate has been reported^[20]

The patient was given methotrexate only for 2 weekends. thereafter he no longer continued it. After 3rd day patient was advised the combination of *Musta* (*Cyperus rotundus*), *Guduchi* (*Tinospora cardifolia*), *Sariva* (*Hemidesmus indicus*), *Yashtimadhu* (*glycerrhiza glabra*), most of them are *tikta - katu rasa* except *Yashtimadhu* and have – *Deepana* properties. *Tikta* & *Katu rasa* are *laghu*, *Deepana*, *pachana*, & therefore are very beneficial in digestion of *aama*. All compounds from *Musta* (*Cyperus rotundus*) have been proven to possess 5-lipoxygenase inhibitory potentials in comparison to indomethacin thus confirming its role in rheumatism.^[21] The ethyl acetate root extract of *H. indicus* showed anti-inflammatory activity and antiarthritic activity. in the rats. It has also shown prevention of bone loss in ovariectomized rats.^[22] *Yashtimadhu* (*G. glabra*) has been proven to reduce TNF- α concentration in antigen-induced arthritis model in dose dependent manner.^[23]

After 7 days *Rason vati*, was started. In a study of 63 patients *Rason pinda* along with *Haridra* showed significant results in bringing down pain and swelling of joints.^[24] Allicin and Allinasein Rasona are probably responsible for reduction in swelling due to inhibition IL- 6, IL-10 & TNF alpha.^[25]

Basti is said to be *Ardha chikitsa* it means that *basti* resolves the disease to almost 50%. Basti is best treatment which controls vitiated vata dosha. *Basti* cleanses the body.

Vaitarana basti contains *Saindhav* (rock salt), *Chincha* (tamarind), *Guda* (jaggery), *taila* (oil), *drava* (Dravya), *gomutra* & honey.²⁶ In a study by Sasane et al. have reported significant relief in symptoms specially pain and stiffness with *vaitrana basti*.²⁷

Nasya helped in relieving the anxiety of the patient, because psychological stability is equally important.²⁸ It also improved sleep. Intra nasal route of administration has significantly reduced pain and anxiety.²⁹ It also can bypass BBB (blood brain barrier) and deliver results fast.³⁰

The patient had severe *malabaddhata* (Constipation) which was relieved in 3 days. The dose of tab. Naproxen reduced from 500mg to 250 mg twice within 8 days. And 250 mg once a day for another 15 days. After this patient was completely on ayurvedic treatment. Tab. Methotrexate was given for 2 weekends only then stopped completely.

Conclusion:-

The patient is under continuous observation through quarterly follow-ups. This case study concludes that early use of ayurvedic formulations and *panchkarma* procedures are helpful in the patients of musculoskeletal disorders. Early interventions of ayurvedic therapeutics may prevent further relapses. This single case study may be a lead for clinical trials on large populations.

Patient perspective of treatment

Patient was completely cooperative and was satisfied. He was happy that he could give his tenth exam well. He even scored 86%. He was also able to play and join back with his colleagues. He could use Indian toilet which he was not able to earlier.

Parents perspective

Parents were glad to see him improve with ayurvedic medicines.

Patient consent

Written consent of patient had been taken for publication of this case study.

Source(s) of funding:

None.

References:-

1. Taurog JD, Chhabra A, Colbert RA. Ankylosing spondylitis and axial spondyloarthritis. *N. Engl. J. Med.* 2016; 375:1303. doi: 10.1056/NEJMc1511695. [PubMed] [CrossRef] [Google Scholar]
2. Brewerton DA, et al. Ankylosing spondylitis and HL-A 27. *Lancet.* 1973; 1:904-907. doi: 10.1016/S0140-6736(73)91360-3. [PubMed] [CrossRef] [Google Scholar]
3. Van der Heijde D, et al. Efficacy and safety of filgotinib, a selective Janus kinase 1 inhibitor, in patients with active ankylosing spondylitis (TORTUGA): results from a randomised, placebo-controlled, phase 2 trial. *Lancet (Lond., Engl.)* 2018; 392:2378-2387. doi: 10.1016/S0140-6736(18)32463-2. [PubMed] [CrossRef] [Google Scholar]
4. Machado PM, Landewé RB, van der Heijde DM. Endorsement of definitions of disease activity states and improvement scores for the Ankylosing Spondylitis Disease Activity Score: results from OMERACT 10. *J Rheumatol.* 2011 Jul; 38(7):1502-6. doi: 10.3899/jrheum.110279. PMID: 21724723.
- 4 b. Byravan S, Jain N, Stairs J, Rennie W, Moorthy A. Is There a Correlation Between Patient-Reported Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) Score and MRI Findings in Axial Spondyloarthritis in Routine Clinical Practice? *Cureus.* 2021 Nov 16; 13(11):e19626. doi: 10.7759/cureus.19626. PMID: 34926081; PMCID: PMC8673683.

- 5Ranganathan V, Gracey E, Brown MA, Inman RD, Haroon N. Pathogenesis of ankylosing spondylitis—recent advances and future directions. *Nat. Rev. Rheumatol.* 2017; 13:359–367. doi: 10.1038/nrrheum.2017.56. [PubMed] [CrossRef] [Google Scholar]
6. Tam LS, Gu J, Yu D. Pathogenesis of ankylosing spondylitis. *Nat. Rev. Rheumatol.* 2010; 6:399–405. doi: 10.1038/nrrheum.2010.79. [PubMed] [CrossRef] [Google Scholar]
- 7.Madhavakara. *Madhava Nidanam (Roga vinischaya)*. Translated from Sanskrit by K. R. Srikantha Murthy. 8th ed. Varanasi: Chaukhambha orientalia;2007
- 8.Ranjan, R., & Srivastava, S. (2015). correlation of concept of ama and free radical theory. *International Journal of Ayurveda and Pharma Research*, 2(2). Retrieved from <https://ijapr.in/index.php/ijapr/article/view/256>
9. Poprac P., Jomova K., Simunkova M., Kollar V., Rhodes C.J., Valko M. Targeting free radicals in oxidative stress-related human diseases. *Trends Pharmacol. Sci.* 2017; 38:592–607. doi: 10.1016/j.tips.2017.04.005. [PubMed] [CrossRef] [Google Scholar] [Ref list]
- 10.Chakrapanidatta, Cakradatta (Chikitsasangraha). Edited by Priya Vrat Sharma. 3rd ed. Varanasi: Chaukhambha publishers; 2002
11. Chakrapani on Charak.Samhita.Sutra Sthana 22/12-13
- 12.Chakrapanidatta, Cakradatta (Chikitsasangraha). Edited by Priya Vrat Sharma. 3rd ed. Varanasi: Chaukhambha publishers; 2002
14. Asif Hussain A, Aslam B, Muhammad F, Faisal MN, Kousar S, Mushtaq A, Bari MU. Anti-arthritis activity of *Ricinus communis* L. and *Withania somnifera* L. extracts in adjuvant-induced arthritic rats via modulating inflammatory mediators and subsiding oxidative stress. *Iran J Basic Med Sci.* 2021 Jul;24(7):951-961. doi: 10.22038/ijbms.2021.55145.12355. PMID: 34712426; PMCID: PMC8528258.
- 15 Mao QQ, Xu XY, Cao SY, Gan RY, Corke H, Beta T, Li HB. Bioactive Compounds and Bioactivities of Ginger (*Zingiber officinale* Roscoe). *Foods.* 2019 May 30;8(6):185. doi: 10.3390/foods8060185. PMID: 31151279; PMCID: PMC6616534.
16. Hallstrand TS, Lai Y, Altmeier WA, Appel CL, Johnson B, Frevert CW, et al. Regulation and function of epithelial secreted phospholipase A2 group X in asthma. *Am J Respir Crit Care Med* 2013; 188:42-50
- 16 bSerhan CN, Haeggstrom JH. Lipid mediators in acute inflammation and resolution: Eicosanoids, PAF, resolvins and protectins. In: Serhan CN, Ward PA, Gilroy DW, editors. *Fundamentals of Inflammation*. New York: Cambridge University Press; 2011. p. 153-75.
- 17 aGiresha AS, Pramod SN, Sathisha AD, Dharmappa KK. Neutralization of Inflammation by Inhibiting In vitro and In vivo Secretory Phospholipase A2 by Ethanol Extract of *Boerhaavia diffusa* L. *Pharmacognosy Res.* 2017 Apr-Jun;9(2):174-181. doi: 10.4103/0974-8490.204650. PMID: 28539742; PMCID: PMC5424559.
- 17 b. Sakuma S, Kitamura T, Kuroda C, Takeda K, Nakano S, Hamashima T, et al. All-trans Arachidonic acid generates reactive oxygen species via xanthine dehydrogenase/xanthine oxidase interconversion in the rat liver cytosol in vitro. *J Clin Biochem Nutr.* 2012; 51:55–60. [PMC free article] [PubMed] [Google Scholar]
18. Hiruma-Lima CA, Gracioso JS, Bighetti EJ, Germónsén Robineou L, Souza Brito AR. The juice of fresh leaves of *Boerhaavia diffusa* L. (Nyctaginaceae) markedly reduces pain in mice. *J Ethnopharmacol* 2000; 71:267-74.
- 19 Jain GK, Khanna NM. Punarnavoside: A new antifibrinolytic agent from *Boerhaavia diffusa* Linn. *Indian J Chem* 1989; 28:163-6
- 20Mehta A, Sethiya NK, Mehta C, Shah GB. Anti-arthritis activity of roots of *Hemidesmus indicus* R.Br. (Anantmul) in rats. *Asian Pac J Trop Med.* 2012 Feb;5(2):130-5. doi: 10.1016/S1995-7645(12)60011-X. PMID: 22221757.
- 21 Abdul Abd, Abdulkareem & Qasim, Ban & Shihab, Shihab & Dawood, Jaffar. (2015). Effect of *Glycyrrhiza glabra* on Antigen Induced Arthritis in Mice Model. *Iraqi JMS.* 13. 129-
- 22Singh JP, Antiwal M, Vaibhav A, Tripathi JS, Tiwari SK. Clinical efficacy of *Rasona Pinda* in the management of Amavata (rheumatoid arthritis). *Ayu.* 2010 Jul;31(3):280-6. doi: 10.4103/0974-8520.77149. PMID: 22131727; PMCID: PMC3221059.
- 23Miron T, Rabinkov A, Mirelman D, Wilchek M, Weiner L. The mode of action of allicin: its ready permeability through phospholipid membranes may contribute to its biological activity. *Biochim Biophys Acta.* 2000 Jan 15;1463(1):20-30. doi: 10.1016/s0005-2736(99)00174-1. PMID: 10631291.
- 24.Sasane P, Saroj UR, Joshi RK. Clinical evaluation of efficacy of *Alambushadi Ghana Vati* and *Vaitarana Basti* in the management of Amavata with special reference to rheumatoid arthritis. *Ayu* 2016; 37:105-12.
25. Chow HH, Anavy N, Villalobos A. Direct nose-brain transport of benzoylcgonine following intranasal administration in rats. *J Pharm Sci.* 2001 Nov;90(11):1729-35. doi: 10.1002/jps.1122. PMID: 11745730.