

Ankylosing Spondylitis a Conceptual Review - Ayurveda Perspective

Swarnakant Jena¹, Parwati², Prasanth Dharmarajan³, Santosh Kumar Bhatted⁴

^{1,2}2nd yr. P.G. Scholar, Dept. of Panchakarma, All India Institute of Ayurveda, New Delhi

³Assistant Professor, Dept. of Panchakarma, All India Institute of Ayurveda, New Delhi

⁴Associate Professor & Head, Dept. of Panchakarma, All India Institute of Ayurveda, New Delhi

Corresponding Author: Swarnakant Jena

ABSTRACT

Ankylosing spondylitis is an inflammatory disease affecting the lower back of the body starting with sacroiliitis. In later stage affect the whole spine by fusing the vertebrae. Seen in early adulthood which affects most of life. In Ayurveda, management of this type of musculoskeletal disorder comes under *Vatavyadhhis*. Therefore different treatment modalities are applied to manage pain and other symptoms seen in AS. In this study focus was given to interpret the concept of *Ama* with *Vata Dosha* as correlating the inflammatory signs seen in AS and other symptoms of *Ama* associated with *Vata*. Treatment principle of this basis helped to provide significant relief in patient suffering with Ankylosing spondylitis.

Key word: Ankylosing spondylitis, Ayurveda, *vatavyadhi*

INTRODUCTION

Ankylosing spondylitis is a chronic immunomediated inflammatory arthritis included in the so called group of Spondyloarthritis (SpA). It typically develops in males in their third decade of life and affect mainly the axial skeleton and the sacroiliac joints. Although the oldest description dates from the time of Galen, it was not until the 19th century that the disease could be accurately diagnosed on the basis of reports by Vladimir Bekhterev, Adolph Strumpell, and Pierre Marie. The HLA-B27 allele is known to have a strong association with the disease.¹ Prevalence of spondyloarthropathy in India seen by Indian data on the epidemiology of spondyloarthropathy (SpA) are scarce. Prevalence data from the first Indian community oriented programme for control of rheumatic disease (COPCORD) survey showed the rural prevalence of back pain to be 17.3%. Among of that AS is likely to be about 0.2%. The prevalence of AS in a

population is directly related to the frequency of HLA-B27 antigen. The frequency of HLA-B27 in the north Indian population is 6%, similar to that in Caucasians is 0-1%². Chronic back pain and progressive spinal stiffness are the most common features of the disease. Impaired spinal mobility postural abnormalities, hip and buttock pain, enthesitis and dactylitis are associate with AS. Extraskelatal manifestation like IBS (50%), acute anterior uveitis (25-35%) and psoriasis (10%)³. There is increase in flow of patients in Indian systems of medicine due to poor response of treatment and associated side effect in contemporary medical science. In *Ayurveda* there is description regarding the management of such disorders based on the stages of expression under the concept of *Vatavyadhi*. There are 80 types of independent *Vatavyadhis*⁴ are mentioned and *Avarana* of *Vata* with other *doshas* are also mentioned as another. Compared with main clinical findings in patients of AS are

pain (*Shola*), stiffness (*Stambha*) and heaviness (*Gouraba*) in *Ayurveda* both the symptoms are found in *Vata* and *Kapha Dosh*⁵. But the inflammatory signs like enthesitis, dactylitis can be due to *Pitta*. Derangement of all *Doshas* are found in AS. Hypothesis was made after reviewing various published articles and research studies are on ankylosing spondylitis, few disease conditions like *Amavata*, *Katishoola*, *Ashtimajjagata Vata*, *Katitrikaprishtahgraha* etc. can be also compared with Ankylosing spondylitis as per the stages which were described in different *Ayurveda* texts. Rationality behind this article are by gone through various texts and after comparing the patient condition, *Vata Doshas* are main *Dosha* with involvement of *Ama*.

Aim and objectives:

1) To explore various disease condition based on concepts and principles which can be correlate to Ankylosing spondylitis.

2) To understand the pathogenesis of *Ama* associated category of *Vatavyadhis* and its possible *Ayurvedic* management.

MATERIALS AND METHODS

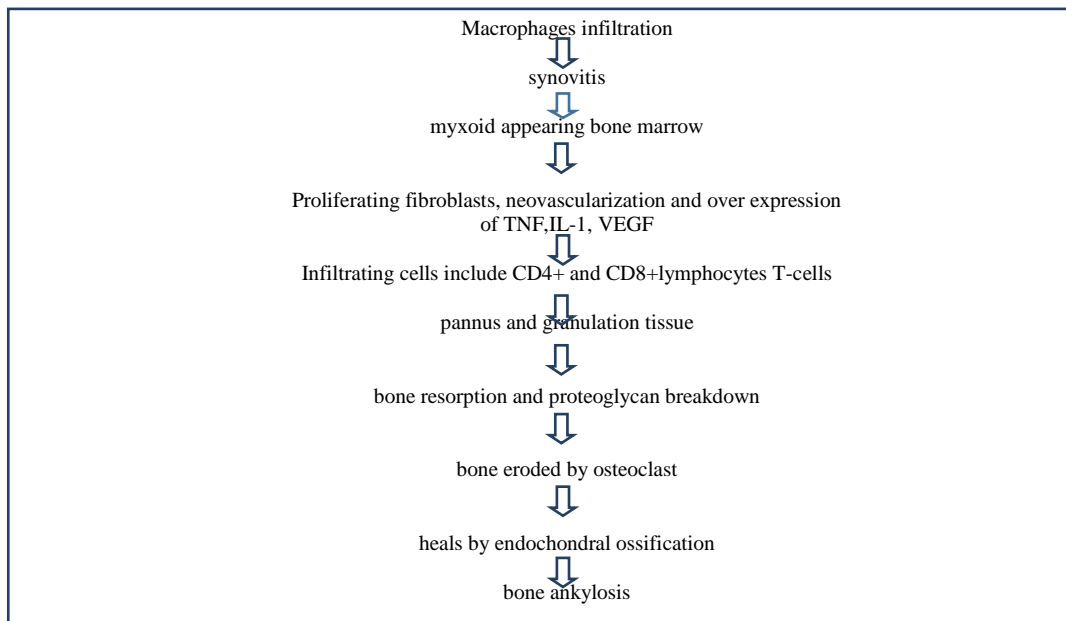
The article is based on a review of *Ayurvedic* texts. Literature related to *Vatavyadhis*, *Amavata*, Ankylosing spondylitis and other relevant topics have been collected. The main *Ayurvedic* texts used in this study are *Charak Samhita*, *Sushruta Samhita*, *Astanga Samgraha*, *Astanga Hrudaya*, *Madhava Nidana*, *Sarangadhara Samhita* and available commentaries on these. We have also referred to the modern texts and searched various websites to collect information on the relevant topics.

Conceptual:

Pathophysiology of AS⁶:

Ankylosing spondylitis is a chronic, immune-mediated inflammatory disease that is associated with inflammation in the sacroiliac joints, the axial skeleton, entheses, peripheral joints, uvea and other structures.

Image 1:



Abbreviations: TNF- tissue necrotic factor, IL- interleukin, VEGF- vascoendothelial growth factor.

AS is characterized by chronic inflammation and progressive ankylosis. Commonly accepted that inflammation is

driving force for structural damage in AS. Long term inflammation of the joint of the spine. The underlying mechanism is

believed to be autoimmune or autoinflammatory⁷.

Autoimmune disease occurs when the body is working hard to defend against potentially hazardous substance to our bodies such as allergens, toxins, infections or food, but does not see the difference between the invaders and our own body cells.

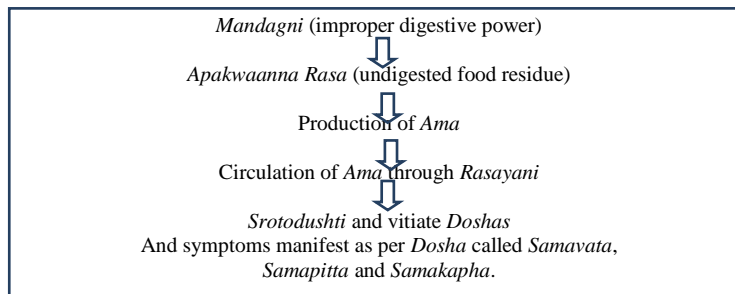
Ayurveda view:

Concepts of autoimmune disease are mostly correlate with *Ama* dominant disease in *Ayurveda*. *Ama* is the undigested food

residue due to improper digestion. And these particles are moved with blood, lymph and got vitiated after involving different *Doshas* resulting various abnormalities anywhere in the body. Mainly rheumatoid arthritis is considered as *Amavata*, there are also various inflammatory joint conditions where will also considered as involvement of *Ama*. Disorder like Sjogren’s syndrome, Reiter’s arthritis, ankylosing spondylitis also can be considered as involvement of *Ama* with *Doshas* as per conditions.

Pathogenesis of *Ama*⁸:

Image 2:



Starting from *Mandagni*, Ayurveda quoted as “*Rogah sarvepi mandagnou*”⁹, all disease are starting with involvement of improper digestive fire. By various unsuitable diet habits with improper lifestyle leads to as *Mandagni*. It results in formation of proper digestive material and goes circulating in the body. These substances are called as *Ama* in *Ayurveda*. During circulation when got suitable place to lodge it affect that part and resulting into disease. Such diseases called as *Samarogas*.

Correlation of diet, digestion, inflammation and *Ama*:

Mandagni leads to *Samarogas* and inflammatory substances leads to bony ankylosis. The correlation of *Ama* with inflammation and the pathogenesis of Ankylosing spondylitis helps to treat AS through *Ayurveda*. Many human studies have found high level of systemic markers of inflammation (like C-reactive proteins, intraleukin-6 and Tissue necrotic factors) in

individuals with low fiber, high fat diet¹⁰. Metabolic syndrome involves biochemical abbreviations in signalling pathways which regulate lipid metabolism and chronic inflammations¹¹.

The *Ayurvedic* concepts of *Ama* are similar to the Egyptian concepts of *Ukedu*, and the old theory of intestinal auto intoxication propounded by Metchnikoff¹². Thus, he believed that proteolytic gut bacteria can produce toxic *by-products*, from digestion of dietary proteins. These toxic by-products of digestion accumulated with age and caused disease¹³. Therefore the theory of *Ama*, its production and developing any inflammatory or immune disorder by disturbing normal body physiology. This gives a ways to understand the Ankylosing spondylitis pathways according to Ayurveda by involvement of *Ama* with the dominant *Doshas*.

Lakshana of Ama yukta vata and its correlation:

Different Ayurveda treatise mention various symptoms with involvement of *Ama* and *Vata* as mentioned below:

Table 1:

Sl no	Sama vata lakshana	Sl no	Sama Lakshana ¹⁴
1	Bibandha	1	Srotorodha
2	Agnisada	2	Balabhramsa
3	Stambha	3	Gourava
4	Antrakujana	4	Anilamudhata
5	Vedana	5	Alasya
6	Sopha	6	Apakti
7	Nistoda	7	Nisthiva
8	Angapidana	8	Malasanga
		9	Aruchi
		10	Klama

Here in AS, chief complains are pain, stiffness with other associated symptoms which affects normal life style. This disease mainly affect to *Asthi* and *Sandhi*, so the symptoms as described by *Madhava nidana* for *Amavata* can be correlated to AS.

Table 2:

Sl no	Amavata symptoms	Ankylosing spondylitis symptoms
1	Angamarda	Pain of the body parts
2	Sandhishoola	Joint pain
3	Garastabdha	Body stiffness
4	Dourvalya	Weakness
5	Gaurava	Heaviness
6	Alasya	Lethargy
7	Nidranasa	Disturbed sleep due to pain
8	Utsaha hani	Lack of vigour

These are the main symptoms which found in cases of Ankylosing spondylitis. And associated symptoms which could be seen as early stage or intermittently these are *Jwara* (febrile feeling), *Aruchi* (anorexia), *Trishna* (thirst), *Anaha* (flatulence), *Apaka* (indigestion), *Bibandha* (constipation). These are the symptoms which could be compared with both *Amavata* as well ankylosing spondylitis.

In contemporary science they also have various criteria for diagnosis of ankylosing spondylitis, one among them is ASAS¹⁵ (Assessment of spondyloarthritis international society) criteria for Ankylosing spondylitis is mentioned as:

ASAS classification criteria for axial spondyloarthritis are

- Back pain for 3months or longer
- Age at onset < 45years

- Sacroiliitis on imaging (radiographs or MRI) plus one or more spondyloarthritis features.
- HLA-B27 plus two or more other spondyloarthritis features.

Where the spondyloarthritis features are inflammatory back pain, arthritis, enthesitis, uveitis, dactylitis, psoriasis, Chron's disease, good response to NSAIDs, family history of SpA, elevated ESR.

Samprapti vighatana:

According to the chief complain and condition the patients the aetiopathogenesis of this disease can be correlate as

Table 3:

Sl no		
1	Dosha	Vatakapha
2	Dushya	Rasa, Asthi, Sandhi, Mamsa
3	Agni	Vishama and Mandagni
4	Srotas	Asthivaha, Rasavaha
5	Srotodushhi	Sanga
6	Vyadhimarga	Bahya and Madhyama
7	Utpati sthana	Pakwashaya
8	Sanchara sthana	Pristha, Kati
9	Upashaya	Ushna, sweda
10	Vyadhiswabhava	Chirakari

Pain is prime features of *Vata* with *Stambha* and *Gourava* due to *Kapha* so as per main feature of AS, *doshik* involvement will be *Vata* and *Kapha* here. Both are also source of *Ama*. These vitiated *Doshas* along with *Ama* are then affect the *Katitrika pradesha* (sacroiliac joint) and *Asthi dhatu* are main contents to affects. The *Ama* with *Vata dosha* goes to *Asthidhatu* so the symptoms of *Asthimajjagata vata* are seen as *Sandhishoola* (joint pain), *Mamsakshyaya* (weight loss, lethargy), *Satataruk* (continuous pain), etc. in later stage it also affects whole spine so spinal pain and stiffness seen in lumbar, cervical and also difficulties in chest expansion. Mostly patient were came after several year and after onset of pain so in later stage development of Bamboo spine seen as diffusion of vertebrae seen in radiological imaging.

Treatment plan:

Treatment includes medication, physiotherapy, and in rare cases, surgery. In contemporary, main goal to relieve pain and

stiffness and delay complications and spinal deformity. NSAIDs, TNF blocker etc are use. Physical therapy like exercise can be useful in AS. Surgery is mostly advised in cases of severe joint deformity occurred. In *Ayurveda* treatment based on *Dosha*, *Dushya*, *Agni*, *Bala* etc like 10 factors described by *Acharya Vagbhatta*¹⁶. Here in cases of AS, *Ayurveda* treatment based on *Vatakapha Shamaka* which could be also beneficial in *Asthidhatu Gata Vyadhis*.

In *Amajanya Vyadhis* different *Acharyas* described the following line of treatment like *Deepana/Pachana*, *snehapana*, *Sodhana* in proper *Sodhana kala*. In *Chakradatta* the line of treatment was described as:

- 1) *Deepana/Pachana*: first line to treat the *Agni* (digestive power) as main pathogenesis start after depletion of *Agni*. So *Deepana* and *Pachana* drugs will suitable which have *Tikta* (bitter) and *Katu* rasa (taste). It will improve the digestion and will reduce the formation of *Ama* (toxins).
- 2) *Snehapana*: before going to *Sodhana* therapy there are various *poorvakarma* procedure to perform, one among the *Snehapana* where medicated *Sneha* (Ghee/oil) given by oral route as per *Agni vala* after assessment of *Ama*. The medicated ghee/oil will reduce the *Vayu*, it loosen the channel of body and improve the digestive power with loosen any constipation or any waste accumulations¹⁷.
- 3) *Virechana*: Procedure to induce laxation. It removes the metabolic waste and will works on *Pitta dosha*. *Pitta dosha* shows the inflammatory signs in body like burning sensation, redness etc. in case of AS *virechana* will have good effects by elimination of wastes etc¹⁸.
- 4) *Basti*: *Vata dosha* as prime involvement of AS and pain as main symptom, *Basti* will have good effect on alleviate both *Vata* and resulting pain alleviation¹⁹. In condition of *Ama* where chronic cases of Ankylosing spondylitis, *Basti* like *Kshara Basti* to relief from *Ama* will

helpful. *Asthi dhatu* and *Vata dosha* are both inversely proportional in *Ayurveda* as described by *Ashrayaashrayi Bhava*²⁰. So to treatment of *Asthidhtugata Vyadhis*, *Basti* should have made up of *Tikta Rasa Yukta* and will prepared from milk²¹. It will also help in *Dhatukshaya Avastha* where after a long term illness patient got weight loss. So as *Ksheerabasti* also may be helpful in these conditions.

- 5) Other therapies: therapies like local *Basti* by putting oil in tendered area for relief in pain will helpful. For *Rookshana* therapies like *Vaaluka swedana*, *Choorna pinda swedana*²² to remove stiffness from the body.

DISCUSSION

One type of inflammatory disease that, overtime can cause some of the small bones in spine to fuse. The fusing makes the spine less flexible can result in a hunched forward posture. It can be also affect ribs and cervical vertebrae resulting difficulties in chest expansion and reducing of neck movement also. Underlying mechanism of AS is autoimmune and it considered as a type of seronegative spondyloarthropathy, meaning that tests show no presence of rheumatoid factor antibodies²³. The available treatment can lessen the symptoms and possible slow progression of the disease. Various *Ayurveda* treatment protocols should gave the same result as to reducing the symptoms, improves the quality of life in patients of Ankylosing spondylitis and may stop further progression of disease. In early stages of AS there is chronic dull pain in the lower back or gluteal region combined with stiffness of the lower back²⁴. This condition can be treated with as *Katishoola* or *Katigrham* with special *Vata* alleviating medication. In later stage, loss of spinal mobility and chest expansion with reduced lumbar movement are seen. Comparing to this condition management to *Katiprishtagraha*²⁵ by giving *Rookshana* with local *Basti* to reduce pain and stiffness along with different *Basti*

like *Erandamooladi nirooha basti*²⁶ can be applied. Systemic involvement like fever, weight loss, fatigue etc. with extra articular manifestation of disease have to examine properly like *Bala*, *Agni* etc and plan to go for a proper *Sodhana* with treatment to alleviate *Vatakapaha* and improves *Asthidhatus* as involvement of *Ama* and *Srotorodha Lakshana* are seen. *Ayurveda* describe *80Vatavyadhis* along with its *Avarana*. So special description of *Ama* and its disease can be correlate various pathologies of disease burden shown in this era. Most of the condition now develops as autoimmune or any immune mediated pathologies which affects multiple systems in human body. As there description of *Amavata* and its variety as per patient condition will shows a path to manage condition like Ankylosing spondylitis.

CONCLUSION

As per the sign and symptoms shown in AS the disease could be correlate with *Ama* associated *Vata Vyadhis* where multi system wise symptoms were occurred. Mainly *Shoola* with *Stambha* are seen which indicates involvement of *Vata* and *Kapha*. Pathogenesis of this condition shown, disease occurred in *Katitrika* after vitiation of all *Doshas* with inflammation indicative of involvement of *Pitta*. So treatment according disease condition with *Deepana pachana*, *Virechana* followed with *Basti* karma and external treatment like *Ruksha svedana* and *Kati Prishtha Basti* etc have shown improvement in terms of relief in pain, stiffness and increase in range of movement.

REFERENCE

1. Chen B, Li J, He C, et al.: Role of HLA-B27 in the pathogenesis of ankylosing spondylitis (Review). *Mol med rep.* 2017;15 (4):1943-51.
2. Malaviya, Ananad &Subramaniam: indian rheumatology association consensus statement on the diagnosis and treatment of axial spondyloarthropathies. *Indian journal of rheumatology.*5. 16-34.10.1016/S0973-3698 (10)60531-6.
3. Proft F. Poddubnyy D. Ankylosing spondyloarthritis: recent insights and impact of new classification criteria. *The adv Musculoskelet Dis.* 2018 jun;10(5-6):129-139.
4. Trikamji Y, editor. *Sutrasthana*; chapter 20, verse no. 10, in: *Charakasamhita of Agnivesha with commentary of Chakrapanidatta.* Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P. 113.
5. Trikamji Y, editor. *Sutrasthana*; chapter 20, verse no. 12 & 18, in: *Charakasamhita of Agnivesha with commentary of Chakrapanidatta.* Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P. 114 & 115.
6. Sangala. J. R., Dakwar. E, “Nonsurgical management of ankylosing spondylitis”, *journal of Neuroscience*, Vol. 24, Issue. 1. Doi-
<https://doi.org/10.3171/FOC/2008/24/1/E5>.
7. Proft F. Poddubnyy D. Ankylosing spondyloarthritis: recent insights and impact of new classification criteria. *The adv Musculoskelet Dis.* 2018 jun;10 (5-6):129-139.
8. Paradakara H S, editor. *Sutrasthana*; chapter 13, verse no. 25, in: *Astangahridaya of Vagbhatta with commentary of Arunadatta & Hemadri.* Varanasi, India: Choukhamba Surabharati Prakashan; 2020. P. 216.
9. Paradakara H S, editor. *Nidanasthana*; chapter 12, verse no. 01, in: *Astangahridaya of Vagbhatta with commentary of Arunadatta & Hemadri.* Varanasi, India: Choukhamba Surabharati Prakashan; 2020. P. 513.
10. L. Galland, “diet and inflammation.” *Nutrition in Clinical Practice*, Vol. 25, no. 6, pp. 634-640, 2010.
11. Sumantran. V. N., Girish Tillu, “Cancer, Inflammation, and insights from Ayurveda”, *Evidence based Complementary and Alternative Medicine*, Vol. 2012, article ID. 306346, pp. 11.
12. R. E. Svoboda, *Ayurveda Life Health and Longevity*, Penguin Books India, 1992.
13. L. Galland, “Intestinal toxicity: new approaches to a old problem,” *Alternative and complementary Therapies*, vol.3, pp. 288-295, 1997.
14. Paradakara H S, editor. *Sutrasthana*; chapter 13, verse no. 23, in: *Astangahridaya of Vagbhatta with commentary of Arunadatta*

- & Hemadri. Varanasi, India: Choukhamba Surabharati Prakashan; 2020. P. 216.
15. Criteria for diagnosis, Assessment of Spondyloarthritis international society. <https://www.asas-group.org>.
 16. Paradakara H S, editor. Sutrasthana; chapter 12, verse no. 67, in: Astangahridaya of Vagbhatta with commentary of Arunadatta & Hemadri. Varanasi, India: Choukhamba Surabharati Prakashan; 2020. P. 207.
 17. Trikamji Y, editor. Siddhisthana; chapter 01, verse no. 07, in: Charakasamhita of Agnivesha with commentary of Chakrapanidatta. Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P. 678.
 18. Trikamji Y, editor. Siddhisthana; chapter 01, verse no. 17, in: Charakasamhita of Agnivesha with commentary of Chakrapanidatta. Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P. 680.
 19. Trikamji Y, editor. Siddhisthana; chapter 15, verse no. 40, in: Charakasamhita of Agnivesha with commentary of Chakrapanidatta. Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P. 132.
 20. Paradakara H S, editor. Sutrasthana; chapter 11, verse no. 26-28, in: Astangahridaya of Vagbhatta with commentary of Arunadatta & Hemadri. Varanasi, India: Choukhamba Surabharati Prakashan; 2020. P. 186.
 21. Trikamji Y, editor. Sutrasthana; chapter 28, verse no. 27, in: Charakasamhita of Agnivesha with commentary of Chakrapanidatta. Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P.180.
 22. Sharma P v, editor, Amavata Chikitsa, Chapter 25, verse no. 02, in Chakradatta of Chakrapani. Varanasi, India, Chaukhamba orientalia; 2013. P. 227.
 23. "Question and answers about Ankylosing Spondylitis". NIAMS. June 2016. Archived from the original on 28 September 2016. Retrieved 28 September 2016.
 24. Longo, Dan Louis; Fauci, Anthony S; Harrison, Harrison's Principles of Internal Medicine. Vol.1, Edition 18, McGraw-Hill. ISBN 978-0-07-163244-7.
 25. Trikamji Y, editor. Sutrasthana; chapter 20, verse no. 11, in: Charakasamhita of Agnivesha with commentary of Chakrapanidatta. Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P.113.
 26. Trikamji Y, editor. Siddhisthana; chapter 03, verse no.38-42, in: Charakasamhita of Agnivesha with commentary of Chakrapanidatta. Varanasi, India: Chaukhamba Surabharati Prakashan; 2020. P.696.

How to cite this article: Jena S, Parwati, Dharmarajan P et.al. Ankylosing spondylitis a conceptual review – ayurveda perspective. Int J Health Sci Res. 2020; 10(11):28-34.
