



A REVIEW ARTICLE ON AVABAHUKA W.S.R. TO FROZEN SHOULDER (ADHESIVE CAPSULITIS)

Dr. Divya Uniyal¹, Dr. Vipin Kumar², Dr. Gyanendra Datta Shukla³, Dr. Sheetal Verma⁴

¹PG Scholar, Dept. of Panchkarma, Uttarakhand Ayurved University, Gurukul Campus, Haridwar

²Assistant Professor, Dept. of Samhita & Siddhanta, Uttarakhand Ayurved University, Gurukul Campus, Haridwar

³Associate Professor, Dept. of Panchkarma, Uttarakhand Ayurved University, Gurukul Campus, Haridwar

⁴Associate Professor, Dept. of Samhita & Siddhanta, Uttarakhand Ayurved University, Gurukul Campus, Haridwar

Conflicts of Interest: Nil

Corresponding author: Dr. Divya Uniyal

ABSTRACT

Avabahuka is one among the eighty types of *Vata Vyadhis* described by *Acharya Sushruta*, mainly caused due to vitiated *Vata Dosh*. It is a disease of *Amsa Sandhi* (shoulder joint) which hampers the normal functioning of the upper limbs thereby hindering the normal routine work of an individual. The classical symptom mentioned in *Ayurvedic* texts regarding *Avabahuka* is *Bahuspandithara* which means loss of movement of the arms. Clinical manifestation and symptomatology of *Avabahuka* is very much similar to Frozen Shoulder (Adhesive capsulitis). Adhesive capsulitis is a musculoskeletal disorder that has a disabling capacity. It represents a pathological state in which there is formation of adhesions across the glenohumeral joint, leading to pain, stiffness and dysfunction. It is a debilitating condition that can occur spontaneously (primary or idiopathic adhesive capsulitis) or by other etiologies such as shoulder surgery or trauma (secondary adhesive capsulitis).

Key Words: Adhesive capsulitis, *Avabahuka*, Frozen shoulder

INTRODUCTION

Vata Dosh is considered as a chief factor without which no disease can take place. *Avabahuka* is one among the *Vata Vyadhis* which affects the normal functioning of the upper limb. Henceforth it has a noteworthy impact on the working population hampering their work productivity and physical function. *Avabahuka* is a disease that usually affects the shoulder joint (*Amsa Sandhi*) and is produced by the *Vata Dosh*. Even though this disease is not mentioned in *Vata Nantamaja Vyadhis*, *Acharya Sushruta* and others have considered it as a *Vata Vyadhi*. In *Sushruta Samhita* it is described as “*Anshadeshasthito Vayu Shoshayitvama Anshabandhanam, Shiraschankunchaya Tatrastho Janyatavabahukam*” which means the disease in which the enraged local *Vayu* dries up the

normal *Kapha* lying about the shoulder joints is called *Ansha Shosha* and the form in which the aggravated local *Vayu* contract the nerves of the arms is called *Avabahuka*.^[1] The *Ansa Shosha* which can be considered as the preliminary stage, is due to the single action of the enraged *Vayu*, while the next stage *Avabahuka* is due to the concerted action of the deranged *Vayu* and *Kapha*. In *Ashtanga Hridaya* and *Ashtanga Sangraha* it is described as “*Ansamulasthito Vayu Sira Sankochaya Tatraga, Bahupraspanditharam Janyatyapabahukam*” which means the condition in which the *vata* gets located at the root of the shoulder, by constricting the *siras* (veins) therein, produces *Apabahuka*, characterized by the loss of the movements of the arms.^[2] *Acharya Charaka*, in *Sutra Sthana* of *Charak Samhita* mentioned *Bahushosha*^[3] under *Vata Nanatmaja Vyadhis* and in *Chikitsa*

Sthana mentioned it as *Bahuvata*.^[4] In *Madhava Nidana*, *Amsa Shosha (Vataj)* and *Avabahuka (Vata Kaphaj)* two separate diseases are mentioned.^[5]

Etiology

As there is no description of specific *Nidanas* (causative factors) for *Avabahuka* in any *Samhita*, so the general etiological factors for *Vata Vyadhi* can be considered as the *Nidana* (causative factors) of *Avabahuka*. *Vata Dosha* is considered to be the main cause of *Avabahuka* in the preliminary stage and association of *Kapha (Shleshaka Kapha)* dosha with *Vata* is seen in the later stage.

The cause of *Avabahuka* may be classified into following groups:^[6]

1. Aharajanya Nidana: Ruksha (dry), Sheeta (cold), Atyalpa (deficient), Laghu (light), Kashaya (astringent), Katu (pungent), Tikta (bitter) Ahara etc can cause vitiation of *Vata Dosha*.

2. Viharaja Nidana: The factors that affects the *Amsa Desha* (shoulder) directly or indirectly should be considered such as:

➤ **Plavana:** Excessive swimming can cause overexertion in the joint resulting in vitiation of *Vata Dosha*.

➤ **Atibhar Vahana:** Bearing heavy weight over the shoulder.

➤ **Balavata Vighraha:** Fighting with a person more powerful than you may cause Aghata (trauma) to the *Amsa Pradesha* (shoulder) resulting in *Vata Prakopa*.

➤ **Marmaghata (injury to vital organs):** Injury to *Amsa Marma* which are situated on either side, midway between the neck and the head of the arms and connect the *Amsa Peetha* (glenoid cavity) and the *Skandha* (shoulder), leads to the stiffness of the shoulder.^[7]

➤ **Dukh Shayya:** usage of uncomfortable beds or seats may cause problem in *Amsa Sandhi* due to improper posture.

Other *Nidanas* that has been mentioned in *Vata vyadhi*, may also upshot the condition by rousing the *Vata Dosha*.

Samprapti (Pathogenesis)

According to *Acharya Sushruta*, the vitiated *Vata* dries up the *Shleshaka Kapha* (structures and tissues) around the *Amsa Sandhi* (shoulder joint) and causes vasoconstriction of the vessels leading to pain and stiffness of joint resulting in restricted movement of the shoulder.

Poorva Roopa (Prodromal Symptoms)

There are no specific *Poorva Roopa* described of *Avabahuka* in *Ayurvedic* texts. *Avyakta* (indistinct) *Lakshana* are the *Poorva Roopa* of the *Vata Vyadhi*. Hence in case of *Avabahuka*, minor symptoms produced before the actual manifestation of the disease can be regarded as *Poorva Roopa* (prodromal symptoms) of the disease.

Roopa (Sign And Symptoms)

The classical symptom explained by *Acharya Vagabhata* is *Bahuspandithara*, which means loss of movement of the shoulder. Other symptoms include pain in the shoulder region, stiffness of the shoulder, *Sira Sankocha* (constriction of the veins of the shoulder joint), *Bahu Shosha* (atrophy of the muscles of arm).

Treatment

In *Ayurvedic* classics, the common line of treatment for *Vata Vyadhi* includes *Snehana*, *Swedana*, *Virechana*, *Basti*, *Nasya*, *Dhoompana*, *Avrana Chikitsa* and *Shaman Chikitsa*. In *Ashtanga Hridaya*, *Nasya* and *Uttarbhaktika Snehapana* (*Snehapana* before meal) is mentioned for *Avabahuka*.^[8]

In *Ashtanga Sangaraha*, for *Avabahuka*, *Navana Nasya* (nasal medication) after meals should be adopted and if it is not associated with (symptoms of) *Ama*, *Snehapana* (drinking of medicated oil) should be followed.^[9] *Acharya Sushruta* advised *Vatayvadhi Chikitsa* except *Siravyadha*.^[10] In *Chakradatta*, *Dashmooladi*

Kwatha and *Baladi Kwatha* are mentioned for *Avabahuka*.^[11]

Frozen Shoulder Or Adhesive Capsulitis

The term “frozen shoulder” was first introduced by Earnest Codman in 1934. He described a painful shoulder condition of insidious onset that was associated with the stiffness and difficulty in sleeping on the affected side. He also identified the hallmarks of the disease that was marked reduction in forward elevation and external rotation. Long before Codman in 1872, the same condition had already been labeled “peri-arthritis” by Duplay who was widely recognized as the first physician to describe the pathology. Neviasser, in 1945 coined the term adhesive capsulitis”. The three characteristics of frozen shoulder are insidious shoulder stiffness; severe pain, even at night; and near complete loss of passive and active external rotation of the shoulder.^[12]

This is an ill understood condition which presents with upper arm pain that progresses over 4-10 weeks before receding over a similar time course. Glenohumeral restriction is present from the outset, but progresses and reaches its maximum as the pain is receding. In early phase there is marked anterior joint/capsular tenderness and stress pain in a capsular pattern; later there is painless restriction, often of all the movements. Frozen shoulder is more common in diabetics and may be triggered by a rotator cuff lesion, local trauma, myocardial infarction or hemiplegia.^[13]

Incidence

Adhesive Capsulitis has an incidence of 3-5% in the general population and upto 20% in diabetic patients. It is a self limiting disorder that resolves in 1-3 years. Other studies reports ranges between 20-50% of patients with adhesive capsulitis which suffer long term ROM deficits that may last upto 10 years.^[14]

Adhesive capsulitis occurs mostly in middle age, where women between 50-60 years are commonly affected.^[15] Females are four times more affected than men. The non-dominant shoulder is more prone to be affected.^[16] Adhesive capsulitis is seen commonly in thyroid disorders, parkinson’s disease, cardiac diseases and pulmonary diseases. Surgical procedures like cardiac surgery, neurosurgery, neck dissection can also set off frozen shoulder.^[17]

Pathophysiology

There has been an involvement of immune, inflammatory and fibrotic changes in frozen shoulder. According to the current postulated hypothesis, there is an inflammation in the joint capsule followed by the development of adhesions and fibrosis of the synovial lining. Due to thickening and contraction of the glenohumeral joint capsule and collagenous tissue formation around the joint reduces joint volume. Biomarkers that have been identified in frozen shoulder are Intercellular adhesion molecule-1 (ICAM-1; CD54), Transforming growth factor-beta (TGF- β), Tumor necrosis factor-alpha (TNF- α), Interleukin-1 (IL-1) alpha and beta, IL-6, Platelet-derived growth factor (PDGF). Matrix metalloproteinases are involved in the construction of extracellular matrix and in various cytokines that control deposition of collagen. Drugs inhibiting matrix metalloproteinase can induce conditions similar to froze shoulder and Dupuytren disease.

Following the synovial inflammatory process, a high number of fibroblasts and myofibroblasts indicate a fibrotic process in the capsule. This condition results due to progressive fibrosis and eventual contracture of the capsule of the glenohumeral joint causing pain and stiffness.^[18]

Classification

Adhesive Capsulitis is classified into two categories:

1. **Primary:** It is insidious and idiopathic, can occur without any trauma. The symptoms of primary adhesive capsulitis have a very gradual onset and progression with unknown precipitating event.
2. **Secondary:** It occurs due to trauma or subsequent immobilization.

Phases Of Frozen Shoulder ^[19]

Neviasser et al. and Hannafin et al. identified 4 classical stages of this condition.

1. Stage 1 (Painful phase): It is the painful phase, characterized by a gradual onset of symptoms persisting for less than 3 months. It consist of an aching pain referred to the deltoid insertion and inability to sleep on the affected side. There may be mild limitation of ROM which resolves with the administration of local anesthetic. The arthroscopic view, show a hypertrophic, vascularized synovitis without adhesions or capsular contracture.

2. Stage 2 (Freezing phase): This phase is characterized by nocturnal pain when the patient is lying on the affected side. A significant loss of both active and passive ROM is seen. Symptoms persists for 3 to 9 months. On arthroscopy, a thickened hypervascular synovitis. Histology shows perivascular and subsynovial scar formation with deposition of disorganized collagen fibrils and a hypercellular appearance, but no inflammatory infiltrates.

3. Stage 3 (Frozen Stage): This stage persists for 9 to 14 months. There is predominance of shoulder stiffness, pain may still be present at the end of the motion or at night. Arthroscopic view shows patchy thickening and loss of axillary recess. Biopsy shows dense, hypercellular collagen tissue.

4. Stage 4 (Thawing Stage): This stage persists between 15-24 months and is characterized by minimal pain and a gradual improvement of ROM due to capsular remodeling. Arthroscopic and histological view has not been investigated.

Management

1. Non-Operative Treatment

- NSAIDs to relieve symptoms at any stage.
- Corticosteroids
- Intra-articular corticosteroid injections.
- Capsular distension injections.
- Physiotherapy
- Hydrodilatation: It is an outpatient procedure. It involves the intra-articular injection of a large amount of normal saline to distend and rupture the capsular adhesions.

1. Surgical treatment

- Manipulation under anaesthesia.
- Arthroscopic release and repair.

CONCLUSION

Avabahuka is a disease caused by vitiation of *Vata Dosha*, in which *Vayu (Vata Dosha)* located at the root of the shoulders, constricts the veins and causes *Bahuspanditharam* (loss of the movement of the arm). The spread of the vitiated *Vata* is all over the body but in *Avabahuka* *Sthanasanshraya* takes place especially at the *Amsa Sandhi* due to the presence of *Khavaigunya*, finally leading to *Dosha-Dushya Sammurchana* at the *Amsa Sandhi* caused by *Abhighata* or some other etiologies. *Vyana Vayu* is responsible for all types of motor functions in the body and *Shleshaka Kapha* provides lubrication to the *Sandhis* (joints) for the proper movement. *Shoshan* of the *Shleshaka Kapha* leads to

impaired range of movements. *Avabahuka* may be correlated with frozen shoulder or adhesive capsulitis in modern science. In *Avabahuka, Vatahara* and *Sneha Dravyas* are useful in the form of *Nasya*. *Nasya Karma* is one of the best treatment modality available in classics for the treatment of *Urdhvajatrugata Rogas*. *Uttarbhaktika Snehapana* is useful in *Avabahuka* due to the fact that the *Aushadhkala* mentioned for *Vyana Vayu* in *Ayurvedic* texts is *Adhobhakta*. *Nasya Karma* and *Uttarbhaktika Snehapana* are effective in relieving the symptoms of *Avabahuka*, thereby improving the movement of the arms.

REFERENCES

1. Sushruta. Sushruta Samhita (Ayurveda tatva Sandipika Hindi Vyakhya), Vol. 1. Kaviraj Ambikadutta Shastri, editor. Varanasi: Chowkhamba Sanskrit Sansthana; Edition reprint, 2014. Nidana Sthana, 1/82.p.304.
2. Vagbhata. Astanga Samgraha (English Translation) Vol. II. Translated by K.R. Srikantha Murthy, Varanasi: Chaukhamba Orientalia, 3rd Edition, 2003. Nidana Sthana 15/45, Pg.no 247.
3. Caraka. Caraka Samhita (Vidyotini hindi commentary). Rajeshwardatta Shashtri, Kashinath Shastri, Gorakh Nath Chaturvedi, editors. Varanasi: Chaukhamba Bharti Academy; 2013. Sutra Sthana, 20/11.p.399.
4. Caraka. Caraka Samhita (Vidyotini hindi commentary). Rajeshwardatta Shashtri, Kashinath Shastri, Gorakh Nath Chaturvedi, editors. Varanasi: Chaukhamba Bharti Academy; 2013. Chikitsa Sthana, 28/98.p.794.
5. Madhavkar. Madhav Nidana (Madhukosha Sanskrit commentary). Vijayarakshita and Srikantha Datta; edited with Vimala- Madhurdhara Hindi Commentary and Notes by Brahm anand Tripathi; Vol.1. Varanasi: Chaukhamba Surbharati Prakashan; 2014; 22/64.p. 5 45.
6. Caraka. Caraka Samhita (Vidyotini hindi commentary). Rajeshwardatta Shashtri, Kashinath Shastri, Gorakh Nath Chaturvedi, editors. Varanasi: Chaukhamba Bharti Academy; 2013. Chikitsa Sthana, 28/15-17.p.779.
7. Sushruta. Sushruta Samhita (Ayurveda tatva Sandipika Hindi Vyakhya), Vol. 1. Kaviraj Ambikadutta Shastri, editor. Varanasi: Chowkhamba Sanskrit Sansthana; Edition reprint, 2014. Sharir Sthana, 6/27.p.74.
8. Vagbhata. Ashtanga Hrudaya, Sarvangasundara of Arunadatta and Ayurvedrasayana of Hemadri, editors. Varanasi: Chaukhamba Subharti Prakashan, 2014; Chikitsa Sthana, 21/44.p.725.
9. Vagbhata. Astanga Samgraha (English Translation) Vol. II. Translated by K.R. Srikantha Murthy, Varanasi: Chaukhamba Orientalia, 3rd Edition, 2003. Chikitsa Sthana 23/30, Pg.no 529.
10. Sushruta. Sushruta Samhita (Ayurveda tatva Sandipika Hindi Vyakhya), Vol. 1. Kaviraj Ambikadutta Shastri, editor. Varanasi: Chowkhamba Sanskrit Sansthana; Edition reprint, 2014. Chikitsa Sthana, 5/23.p.43.
11. Chakrapani: Chakradutta, edited by Indradev Tripathi. Varanasi India: Chaukhamba Sanskrit Sansthan; Vatavyadhi Chikitsa, 22/24-26.p.194.
12. Retrieved from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1315655/>
13. Boon Nicholas A, Colledge Nicki R, Walker Brain R, Hunter John A A. Davidson's Principles & Practices of Medicine. Chapter 25, Musculoskeletal Disorders. 20th ed. 2006. p.1079-1080.
14. Manske, Robert C, and Daniel Prohaska. "Diagnosis and management of adhesive capsulitis." Current reviews in musculoskeletal medicine

- vol. 1,3-4 (2008): 180-9. doi:10.1007/s12178-008-9031-6
15. Sharma, S.P., Bærheim, A., Moe-Nilssen, R. et al. Adhesive capsulitis of the shoulder, treatment with corticosteroid, corticosteroid with distension or treatment-as-usual; a randomised controlled trial in primary care. *BMC Musculoskelet Disord* 17, 232 (2016). <https://doi.org/10.1186/s12891-016-1081-0>
 16. Mezian K, Coffey R, Chang KV. Frozen Shoulder. [Updated 2020 Jul 20]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2020 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK482162/>
 17. Retrieved from: <https://openorthopaedicsjournal.com/volume/7/page/352/>
 18. Retrieved from: <https://emedicine.medscape.com/article/1261598-overview#a2>
 19. D'Orsi GM, Via AG, Frizziero A, Oliva F. Treatment of adhesive capsulitis: a review. *Muscles Ligaments Tendons J.* 2012 Sep 10;2(2):70-8. PMID: 23738277; PMCID: PMC3666515.