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

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ABSTRACT

Avabahuka is one among the eighty types of Vata Vyadhis described by Acharya Sushruta, mainly caused due to vitiated Vata Dosha. 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 Bahuspanidithara 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 Dosha 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 Dosha. Even though this disease is not mentioned in Vata Nantamaja Vyadhis, Acharya Sushruta and others have considered it as a Vata Vaydhi. In Sushruta Samhita it is described as “Ansadeshasthito Vayu Shoshayitvama Ansabandhanam, 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. 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. Acharya Charaka, in Sutra Sthana of Charak Samhita mentioned Bahushosha 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 Vigraha:** Fighting with a person more powerful than you may cause Aghata (trauma) to the Amsa Pradeshha (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 Shuman 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 Vatayadhi Chikitsa except Siravyadha.\[^{10}\] In Chakradatta, Dashmooladi
Kwatha and Baladi Kwatha are mentioned for Avabahuka.\textsuperscript{[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. Neviaser, in 1945 coined the term adhesive capsulitis\textsuperscript{[12]}. 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.\textsuperscript{[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.\textsuperscript{[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.\textsuperscript{[14]}

Adhesive capsulitis occurs mostly in middle age, where women between 50-60 years are commonly affected.\textsuperscript{[15]} Females are four times more affected than men. The non-dominant shoulder is more prone to be affected.\textsuperscript{[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.\textsuperscript{[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.\textsuperscript{[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

Neviaser 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 reffered 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
   - Hydrodilation: 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) locatated at the root of the shoulders, constricts the veins and causes Bahusanditharam (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 modalities available in classics for the treatment of *Urdhva-jatrugata Rogas*. *Uttarbhaktika Snehana* is useful in *Avabahuka* due to the fact that the *Aushadhkala* mentioned for *Vyana Vayu* in *Ayurvedic* texts is *Adhobhakta*. *Nasya Karma* and *Uttarbhaktika Snehana* are effective in relieving the symptoms of *Avabahuka*, thereby improving the movement of the arms.

REFERENCES

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