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Sandhi Sharir in Ayurveda and applied anatomy in Vankshana Sandhi - A Review Article

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ABSTRACT

The *Sandhi* is essential for locomotion and various movements of body. Injury to these structures may lead to many complications and even up with morbidity. *Vankshan Sandhi* is a type of *Ulukhal Sandhi* is present at iliac region and it is multiaxial joint. The structure of this joint is made to give stability to human body. The movement of body is possible only due to the joints. it is very important to know the structure as well as its function of the *Sandhi*. *Vankshan Sandhi* is one of the major weights bearing joint in the body and strong secure & stable joint. It is subjected to repetitive high stresses during daily activities. it is a synovial ball and socket joint. The joint is surrounded by a large complex musculature, capsule and ligaments. The hip joint is most commonly affected by various diseases and structural degeneration. In this article *Sandhi Sharir* in a *Ayurveda* and applied anatomy in *Vankshana Sandhi*.

Key words: *Sandhi, Vankshan Sandhi, Hip joint, Applied anatomy.*

INTRODUCTION

Ayurveda is the most ancient science of medicine in the world. It is considered as the intimate part of *Athurveda*. In ancient text of *Ayurveda* like *Sushruta Samhita, Charaka Samhita* and *Ashtang Sangraha* the knowledge of is *Sharir Sthan* important for the treatment of human being.

In *Ayurvedic* classics like *Charaka Samhita, Sushruta Samhita* etc. a huge knowledge regarding *Shareer*,

Nidana and *Chikitsa* are available.

MATERIALS AND METHODS

Samhitas of *Ayurveda*, Modern Anatomy books, Research paper from journals and relevant internet site were availed.

AYURVEDIC REVIEW

According to *Aacharya Sushruta* only *Asthi Sandhi* should be taken into account where as other *Sandhi* of *Snayu, Peshi* and *Sira* are innumerable and should be excluded while counting.^[1]

Classification of Sandhi

Main classification is of two types.

1. *Kriyanusar* (based on *Kriya*)

The *Sandhis* are two types, *Chal* (*Cheshtayukta Sandhi*) diarthrosis. *Achal* (*Sthira Sandhi*) synarthrosis the *Sandhis* which are situated in the *Shakhas, Kati*, and *Hanu*, are *Cheshtayukta Sandhi* while all the remaining *Sandhi* comes under the *Sthira* in nature, the

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Cheshtayukta Sandhis are further classified into two types based on their extent of movement. They are *Bahu Chala* (freely movable) *Alpachala* (slightly movable). The *Sandhi* of *Shakhas*, *Kaksha* and *Vankshan Sandhi* are of *Bahuchala* variety and the *Sandhi* of *Griva*, *Prushtha* etc. are *Alpachala* variety.^[2]

2. *Rachananusar Sandhi* (based on *Rachana*)

Based on the structure *Aacharya Sushruta* had described 8 types of *Sandhi*.

They are *Kora*, *Ulukhal*, *Samudga*, *Pratara*, *Tunnasevani*, *Vayastunda*, *Mandala* and *Shankhavarta*.^[3]

Vankshan Sandhi

According to *Acharya Sushrut Ulukhal Sandhis* are *Kaksha*, *Vankshan*, & *Dasana Sandhi*.^[4] According to *Acharya Gannath Sen* in *Pratyaksha Shariram* the description related to *Vankshan Sandhi* is explained in 2nd chapter of *Sandhi Visheshvigiyanaya Adhyaya* as follows.

In *Shroniphalaka* by the articulation of *Vankshanodukhala* with *Urvasthimunda* covered by *Tarunasthivalaya* forms *Ulukhala Sandhi*. This *Sandhi* is surrounded by *Mahati Shleshmadhara Kala* and covered by *Mahasnayukosha*. This *Mahasnayukosha* is attached around *Vankshanodukhala*, *Urvasthigreeva* and *Shikharantara Rekha*. This movable and strong *Sandhi* is secured by surrounding *Peshi*. Inside the *Mahasnayukosha* there is a strong *Snayurajju* known as *Vankshanasandhyantariya* (ligamentum teres) which is attached cavity of *Vankshanodukhala* to *Garta* on the *Urvasthimunda*.^[5] The acetabulum articulates with the head of the femur to form the hip joint.^[6] Hip joint ball and socket variety of synovial joint.

Applied anatomy of *Vankshan Sandhi*

Sandhi Viddha Lakshan

Acharya Sushrut explained *Sandhi Viddha Lakshan* in *Sutra Sthan* 25 chapter i.e., *Ashtavidha Shashtra Karmiya Adhyaya*. Injury of *Chal* and *Achal Sandhi* lead to *Shophativridhi*, *Ruja*, *Balakshaya*, *Parvabheda*, and *Shopha*.^[8]

Sandhigata Vata

According to *Acharya Charak*, *Vaat Dosha* and *Asthi Dhātu* are interrelated i.e., *Ashryashrayee Bhava*. So, the *Vaatprakopaka Hetu* also leads to the *Dushti* of the *Asthi*. When the vitiated *Vaat* associated with other factors like trauma, age related factors etc. affecting *Asthi* and *Sandhi*, takes the shelter of affected *Sandhi* causing diseases of *Sandhis* or joints. When aggravated *Vaat Dosha* take shelter of the affected *Sandhi* it produces *Sandhigata Vaat Lakshana*. The *Vaat* located in the joints is provoked; there occurs *Shotha* like air filled bladder in touch and pain during *Prasharan* and *Aakunchan* of limbs.^[9]

As per *Acharya Sushrut Vaat* situated in *Sandhis* causes loss of functions of *Sandhis* along with *Shool* and Swelling. In *Sandhigata Vata* the aggravated *Vata Dosha* damages the *Sandhi* and causes *Shool* and swelling in the joints.^[10]

Sandhi Mukta Samanya Lakshan

Incapability of extension, flexion, movement, circumduction and rotation (immobility, considered in respect of the natural movements of the joint), of the dislocated limb, which becomes extremely painful and cannot bear the least touch. These are said to be the general symptoms of a dislocation.^[11]

Sandhi Mukta Vishesh Lakshan

Acharya Sushrut divided *Sandhi Mukta Vishesh Lakshan* into six types such as

- ***Utpishta*** - specific symptoms are *Shopha* on both the sides of *Asthi Sandhi* and different kinds of *Vedana* appear especially at night.
- ***Vishlishta*** - *Alpa Shopha*, *Satat Vedana* and *Sandhivikriya*.
- ***Vivartita*** - *Sandhiparshvagamanam*, *Vishama Angata* and *Vedana*.
- ***Avakshipta*** - *Sandhivishlesh* with *Tivraruja*.
- ***Atikshipta*** - the term *Atikshipta* means when two or more *Asthi* is forming the *Sandhi* is moved apart with *Vedana*.
- ***Tiryakshipta*** - only one *Asthi* of the *Asthi Sandhi* is displaced to a side and produces *Vedana*.^[12]

Samanya Chikitsa**Bhagna Sthapana in Sandhi**

Aanchana - Traction / pulling forward

Pidana - Pressing down the bone

Sankshepa - flexion / contraction / bringing together

Bandhana - bandaging^[13]

Alepa - *Lepa* prepared with powder of *Manjishta*, *Madhuka*, *Rakta Chandana*, mixed in *Shatadhouta Ghrta* is to be used. *Lepa* is applied prior to Bandaging. *Lepa* helps to reduce inflammation, improves circulation, brings union of joint and strengthens ligaments.

Aspiration of the hip joint can be done by passing a needle from a point 5cm below the anterior superior iliac spine, upwards, backwards and medially. It can also be done from the side by passing the needle from the posterior edge of the greater trochanter, upwards and medially, parallel with the neck of the femur.^[14]

DISCUSSION

Acharya Sushrut has referred *Vankshan Sandhi* as a major joint of *Adhah Shakha* (lower extremities). On the basis of *Gati* or *Chesta*, *Acharya Sushrut* and *Acharya Sharangdhar* have divided *Sandhi* into two types i.e., *Chestavanta* and *Sthira Sandhi*. According to the *Rachna*, *Sandhi* is divided into eight types i.e., *Kora*, *Ulukhal*, *Samudga*, *Pratara*, *Tunnasevani*, *Vayastunda*, *Mandala*, and *Shankhavarta*. *Acharya Gannath Sen* depicts that *Ulukhal Sandhi* are of two types, *Sthira* namely *Dashan* along with their *Mool* and *Chestavant* such as *Kaksha* and *Vankshan*. *Vankshan Sandhi* is referred to as *Shroniphalaka* by the articulation of *Vankshanodukhala* with *Urvasthimunda* covered by *Tarunasthivalaya* thus forming an *Ulukhala* type of *Sandhi* and ultimately *Vankshan Sandhi*. This *Vankshan Sandhi* is clearly defined as having *Vankshanodukhala* as an articulating surface while the other surface is shaped like a *Urvasthimunda* and attaches to it. Hence *Ulukhala Sandhi* may be considered as ball and socket variety of synovial joint and gomphosis variety of fibrous joint. The similarity between ball and socket and gomphosis is in their shape, both having a socket like articular surface with another surface fitting into it.

Discussion on applied anatomy

In *Sadhigatavata*, *Acharya* explained that due to *Hetu* there is vitiation of *Vata* which is located at *Sandhigata* and it can be correlated osteoarthritis. Arthritis the joint space is reduced or sclerotic changes of articular bone or osteophyte formation is occurred. Clinically symptoms are paining constant pain in groin region and limitations of movement. *Acharya Sushruta* classified many types of joint dislocations and suggested correct joint reduction. Even though hip dislocation is a rare type of dislocation, once it occurs it has severe effect on the affected limb and chances of complication is highest. *Acharya Sushruta* did not specifically mention the hip joint, but it is understandable that it falls under *Ulukhala Sandhi* because it has characteristics that are similar to those of a ball & socket joint.

The concept of *Samanya* and *Vishesha Lakshana* of *Sandhi Mukta* by *Acharya* describe different degrees of displacements that are comparable to types descriptions of dislocations found in modern texts.

Acharya mentioned *Vislishta Sandhi Mukta*, which can be considered as hip joint instability, *Avakshipta*, which is an anterior dislocation in which the joint is displaced downward, *Atikshipta*, which is a posterior dislocation of the hip, and *Triyakshipta*, which is a subluxation.

Utpishta or *Vislishta Sandhi Mukta* should not be reduced, according to *Acharya Sushruta*. Therefore *Sheeta Pariseka* and *Pradeha* should be carried out. *Vedana* and *Pradeha* should be carried out. *Vedana* and *Sopha Harana*.

Similarly, even now, ice packing is done for reduction of pain and swelling is suggested. ancient methods of placing a joint back to normal position like *Anchana*, *Peedana Vartana*, *Sankshepa* are retention maneuvers.

CONCLUSION

The *Vankshan Sandhi* which is *Chestavanta* and comes under *Ulukhal Sandhi* is very much similar to concept of modern science which considers hip joint as a movable and ball and socket type of synovial joint. *Sandhigata Vata* can be correlated osteoarthritis. Amongst several type of *Sandhi Mukta*, *Vivartita* can be

correlated to the anteroposterior dislocation of a joint, which resembles to the anterior and posterior dislocation of the *Vankshan Sandhi* and *Avakshipta* type of *Sandhimukta* can be correlated to the downward displacement of a joint, which resembles to the central dislocation of the *Vankshan Sandhi*. Various types of hip dislocation can be understood clearly with the types and *Lakshana* of *Sandhi Mukta* mentioned by *Acharya Sushruta*. As a result, the treatment's mention is unchanged from what *Acharya Sushruta* mentioned. After reduction, *Bahyachikitsa*, which are suitable for joint stability, can be given, such as *Seka* and *Abhyanga*, to strengthen the joint. *Shamana Oushadhis* can be used to relieve pain and swelling. It may be suggested to take the *Pathya Apathya* that *Acharya Sushruta* suggested in order to quickly regain joint stability. Therefore, it is crucial to comprehend the idea presented by *Acharyas* in order for a doctor to successfully treat the condition.

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