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Review Article

### An Ayurvedic approach for *Greevagata Sandhivata* w.s.r Cervical Spondylosis

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#### Abstract-

In *Ayurveda Acharyas* has given importance to *Rachana Shareera* as well as *sandhi shareera*. Especially *Acharya Susruta* explained structures which comes under *greeva* i.e. *sira, snayu, sandhi* etc. in detail.

*Greeva sandhi* holds important place among all *sandhis*. It present in between *shiras* and *Madhya shareera*, as *shiras* holds *mastishka* from where many important anatomical structures exit and travel through the *greeva*. The *greeva* become most important and less protected part of the body. As it is most flexible part of the spine and also the area which is exposed to lot of stress and strain. That causes so many diseases, *Greevagata sandhivata* is one among them.

*Greevagata sandhivata* is included under *vatajananatmaja* vyadhi by our classics. It is having *ruja* and *stambha* of *greeva* as symptoms which are similar to

Osteoarthritis of neck. Osteoarthritis of neck includes four diseases namely cervical spondylosis, degenerative disc disease, cervical stenosis and cervical spondylolisthesis.

In x-ray and MRI we have seen structural changes which occurred in *Greevagata sandhivata* as osteophytes formation, reduced disc space, degeneration of disc, straightening of curvature of neck etc..

The study reveals that patient of *Greevagata sandhivata* had structural changes in *Greevasandhi* and it is a disease which is having similarity with Osteoarthritis of neck clinically as well as radiologically.

**Key words:** *Greeva*, *Greevasandhi*, *Greevagata sandhivata*, Osteoarthritis of cervical spine, cervical spondylosis, degenerative disc disease, cervical stenosis and cervical spondylolisthesis.

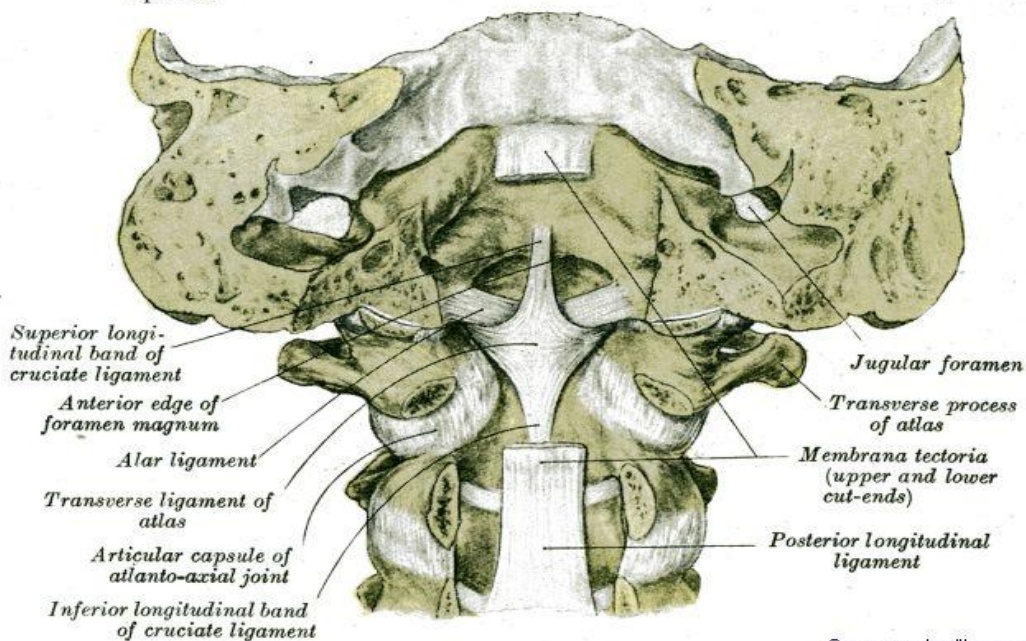
## INTRODUCTION:

In present days, people are suffering from stress and strain due to increasing competition in all walks of life. This leads to many diseases which though are not fatal but hampers the quality of life of effected person. Since ancient era *Ayurveda* has been emphasizing on a healthy life as the priority.

The impact of dietary and behavioural habits has an importance in *Ayurvedic* literature. According to *Ayurveda* excess or inappropriate movements of the body or actions will lead to relevant pathologies.

*Sandhi* is where two or more articular surfaces of bone are articulated as per Modern definition. This has been quoted by *Susruta* in the following quotation.

FIG. 517.—The atlanto-occipital and atlanto-axial joints, shown from behind after removal of the posterior part of the occipital bone and the laminae of the upper cervical vertebrae. The atlanto-occipital joint-cavities have been opened.



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We come across many people suffering from joint related health problems like *Manyastambha*, *Avabahuka*, *Amavata*, *Vatarakta*, *Greevagatasandhivata* etc. These joint related problems are being attributed mainly by inappropriate and sedentary life style ,occupation, food habits trauma etc. occurrence of these problems are showing rising proportion in today's life style. As the *GreevaSandhi* is one of the most mobile joint in the body it works as a system involving many structures so that the cost of such versatility is an increased risk factor of injury, leading to the pathological condition like *Greevagatasandhivata*.

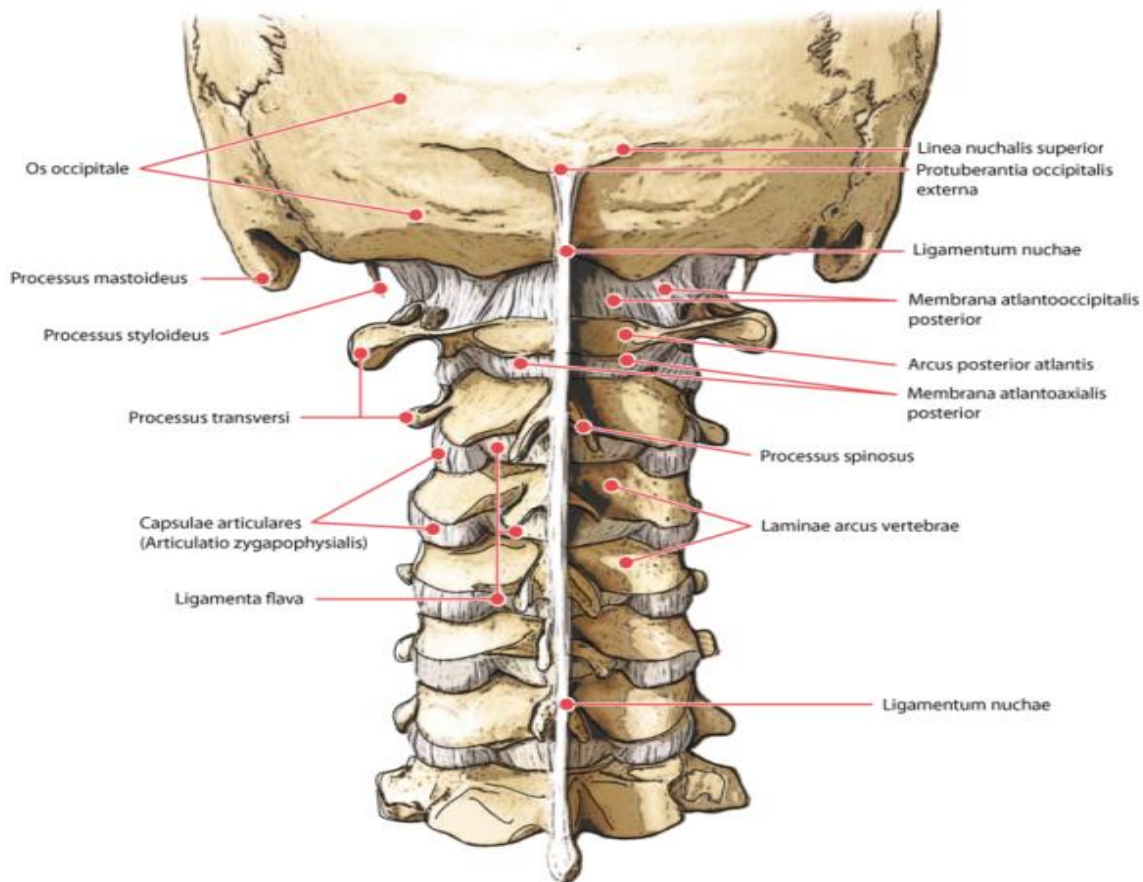
So to understand the importance of the applied anatomical aspects of the

*greevasandhi*, to study the anatomical changes like osteophyte formation, reduction of disc space , straightening of curvature of the neck ,disc degeneration etc in *Greevagatasandhivata* and to suggest improved remedial measures from the clinical anatomy and orthopedic points of view, hence present study has been undertaken.

### AYURVEDIC REVIEW

#### GREEVA

*Acharya Charak* has divided *Shareera* in to six *Anga* i.e. *Shadanga shareera* .4 *Shakha*, 1 *Madyashareera* 1 *Shirogreeva*. *Greeva* is present in between *shira* and *madhyashareera* .



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**LIMITATIONS OF NECK :****Front of the neck:**<sup>4</sup>

- Root of the neck i.e. *Greevamula* is *jatru* .*Jatru* is considered as suprasternal notch.

**Back of neck**

- Upper limitation could be *krukatika marma*.<sup>5</sup>
- Lower a limitation could be *urdwatrika*.<sup>6</sup> *Acharya Dalhana* tells about definition of *trika i.e trika* which region where *shira* and *bahudwayasadhana* takes place.<sup>7</sup>

**STRUCTURES PRESENT IN GREEVA.**

Chief structure that came in *greeva* region are: *asthi, sandhi, sira, snayu, dhamani, kandara and marma*.

**MARMAS OF GREEVA:**<sup>8</sup>

Marma which comes in *greeva* are

1. *Amsa*
2. *Nila*
3. *Manya*
4. *Shiramatraka*
5. *Krukatika*

*Greebastambha: Acharya Caraka, Vagbhata, Kashyapa* has counted *Greevagata sandhivata* disease in *vatajananatmaja vyadhi* . *Greevagata sandhivata* is a disease which produces *ruja*, and *stambhata* in *greevapradesha* .and all the movements of *greeva* are restricted.

**Morphophysiological aspects of****Greevagatasandhivata:**

“*Sleshmadharakala*” and *Sleshakakapha*” have physiological importance in the normal function of *greevasandhi*.

“*Sleshmadhara Kala*” - ‘*Kala*’ is defined as a fine anatomical structure which separates *dhatu*s from *ashayas*. There are seven *kalas* in human body. *Sleshmadharakala* is one of them which remain within *sandhis*. This is comparable with synovial membrane in modern science. The inner layer of articular capsule is formed by *Sleshmadharakala* (synovial membrane) which secretes synovial fluid.

It has functions such as –

- Lubricates the joint
- Provides nourishment to the joint
- Give protection to the joint

So this *kala* is considered as protective, secreting and absorbing layer of the joint.

*Sleshakakapha* – ‘*Kapha*’ is originated from *jalamahabhuta* have five divisions. *Sleshakakapha* is one of them, which is present in the *sandhi*. This *SleshakaKapha* possess the given qualities –

- It contributes to the integrity of the bony joints and their smooth functioning
- It also, unites together *dhatu*s as well as those of *kalas*.

The function of *SleshakaKapha* closely resembles with synovial fluid of modern physiology. The *SleshakaKapha* nourishes, protects and lubricates the *asthisandhi* and enables them to function smoothly, like a wheel which easily turns upon a well greased axle. *Asthisandhis* are constituted by articulating bones and are covered by *Snayus* and *Peshis* which provides strength to it and acted by *Sleshmadhara Kala* and *SleshakaKapha*. This *Asthisandhis* also



protected by *Sleshmadhara Kala* and nourished by *Sleshakakapha*.

### **Visheshasamprapti (SampraptiGhatakas)**

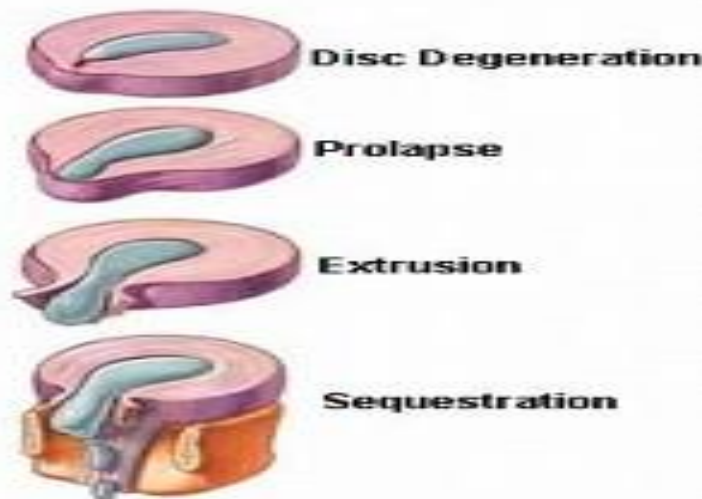
*Visheshasamprapti* of *Greevagatasandhivata* can be documented as –

- 1) **Dosha** – Vayu – Vyana and Samana.  
Kapha – Sleshaka, Kledaka.
- 2) **Dushya** – Rasa, Asthi, Majja,.
- 3) **Srotas** – Asthivaha, Majjavaha.
- 4) **Srotodusti** – Sangha.
- 5) **Agni** – Mandagni, Vishamagni.
- 6) **Adhithana** – GreevaSandhi.
- 7) **Udbhavasthana** – Koshtha.
- 8) **Bhedavasta** –Asthikshaya,  
Margavarodha.

In the process of disease manifestation, several numbers of factors invariably take part for the pathogenesis. These are collectively called as “*SampraptiGhatak*”.

**Vyadhiswabhava** – Acuteness, chronicity, severity & progression are the nature of this disease.

### **Curvatures :**



From above description of *Samprapti* it is clear that ‘*Greevagatasandhivata*’ is a specific condition results due to *vataprakopa* associated with ‘Ama’. It is counted among *nanatmajavatavyadhi* by some eminent scholars, such as *Charaka*, *Vagbhat&Kashyapa*. Along with *vata&ama*, *Sleshaka&kledakakapha*, also take an important role in the pathogenesis of this disease.

### **MODERN REVIEW**

#### **Introduction to Neck :**

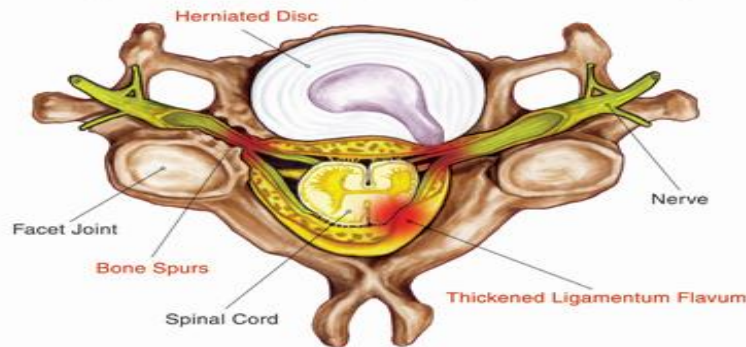
The neck is more or less a cylindrical region connecting the head to the trunk. It is limited above by the lower border of body of the mandible to the mastoid process, superior nuchal line and external occipital protuberance. Its lower limit is formed from before backward by the suprasternal notch of manubrium sterni, upper surface of clavicle, acromial process of scapula and a line extending horizontally from the latter to the seventh cervicle spine.

The vertebral column presents several curves, which correspond to the different regions of the column, and are called cervical, thoracic, lumbar, and pelvic.

Cervical curvatures are not present in a newborn infant. The cervical curve are compensatory or secondary, and are

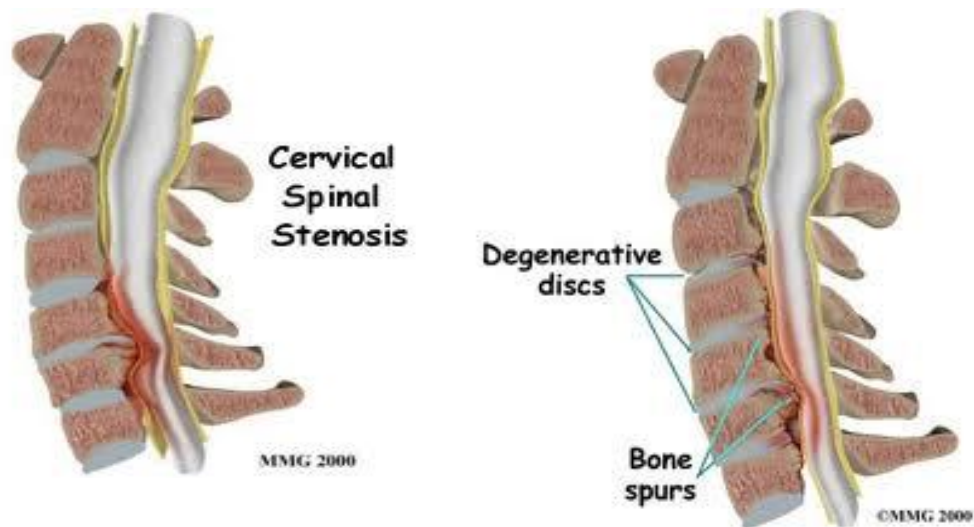
developed after birth, when the child is able to hold up its head (at three or four months) and to sit upright (at nine months). The cervical curve, convex forward, begins at the apex of the odontoid process, and ends at the middle of the second thoracic vertebra; it is the least marked of all the curves.

Example of Spinal Nerve Compression (viewed from above)



#### B) Radiological parameters.

- 1) Reduction of disc space.
- 2) Osteophyte formation.
- 3) Narrowing of joint space of the facet joints.
- 4) Subluxation of one vertebra over another.



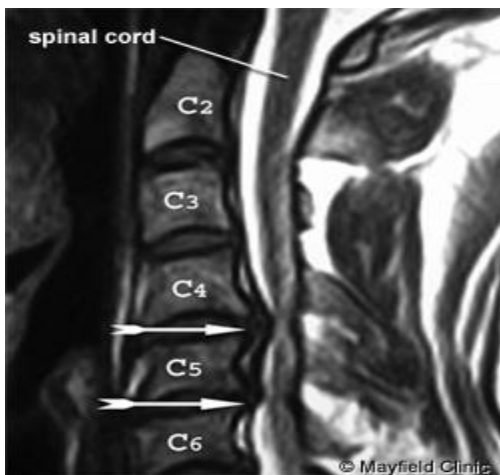
Normal Disc



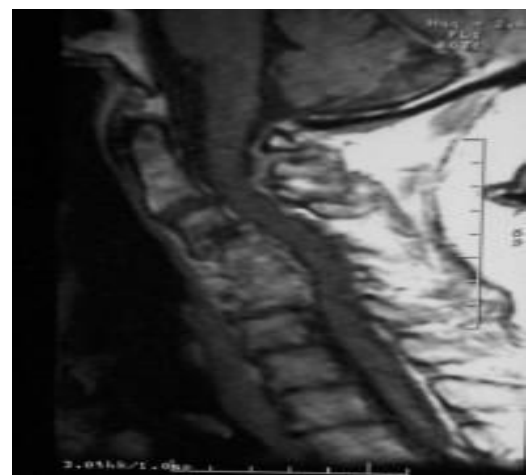
Spondylolisthesis



**Radiological findings:**



MRI (side view) shows a disc herniation between the C4 and C5 vertebrae. Also shown are signs of spinal stenosis, a narrowing of the spinal canal



Severe cervical spondylosis can manifest as a combination of disk degeneration, osteophyte formation and vertebral subluxation

**Discussion on disease related :**

*Greevagatasandhivata* indicates the disease in which pain and stiffness occurs or greeva functions are hampered. It is also included under one of the *vatavyadhi*, where there is prime involvement of *dosha is vata*, which leads to structural changes in the *greeva*.

*Greevagatasandhivata* is the one of the *vatajananatmajavyadhi* so it produces pain in greeva, as name only suggests that stiffness occurs in the neck. Beside that it can be considered as a *samavataja* or *suddhavataja* or *kaphanubandhivatika* disorder. So concerning the symptoms of all above conditions it may produces *shotha*, *sparshaasahatwa*, *guruta*, *aruchi*, *malavarodha*, *nidranasha*, *angamarda*, *apaka*, *tandra* and *toda*.

The *Greevagatasandhivata* may be compared with osteoarthritis of cervical spine in modern science.

Osteoarthritis of cervical spine also includes the Cervical Spondylosis, Degenerative Disc Disease, Degenerative Cervical Stenosis and Degenerative Cervical Spondylolisthesis.

**Cervical Spondylosis:** It is the degenerative disorder of cervical spine characterized

clinically by an insidious onset of pain and stiffness and radiologically by osteophyte formation.

**Degenerative Disc Disease:** The term prolapsed disc means the protrusion or extrusion of the nucleus pulposus through a rent in the annulus fibrosus. It is not a one phenomenon; rather it is a sequence of changes in the disc, which ultimately lead to its prolapse.

**Degenerative Cervical Stenosis:** Cervical spinal stenosis affects the upper section of the spinal column in the area of the neck. It is caused when the spinal canal becomes narrowed as a result of an obstruction, like a bone spur caused by osteoarthritis.

**Degenerative Spondylolisthesis:** It is the condition in which the forward displacement of the vertebra over other vertebra is called Spondylolisthesis. In Degenerative Spondylolisthesis due to osteoarthritis of synovial joint/ facet joint that leads to forward displacement.

- **CONCLUSION:**

*Greevagatasandhivata* is a specific condition due to the *vataprakopa*



associated with ama. So we have to take *Greevagatasandhivata* as separate individual disease keeping in consideration modern and *Ayurveda*. *Greevagatasandhivata* is an age related and work related problem. It effects equally to persons of different age and occupation .Pain and stiffness in the *Greevagatasandhi*, results mainly in the structural changes in the C<sub>5</sub>-C<sub>6</sub> joints. So the proper exercise will help to strengthen the muscles and ligaments and also prevents the disease. In

*Ayurveda* we may give treatment up to the protrusion stage (early stage of disease). That may give more effective result. All the patients of *Greevagatasandhivata* had structural changes in the Cervical spine. Only the X-ray which helps in the knowledge of joint space reduction, osteophyte formation and straightening of curvature of neck. So MRI investigation offers the accurate knowledge regarding the structural changes in the *Greevagatasandhivata*.

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