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A Review on Inter Vertebral Disc as per Ayurveda

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ABSTRACT

Intervertebral disc are the essential structures between two vertebra. Anatomically each disc has outer annulus fibrosus and inner gelatinous nucleus pulposus. Functionally disc gives the mobility to the spine and acts as shock absorber. Disc pathology presents with simple backache to that of gross motor and sensory deficits based on the level of injury. The description of disc in modern anatomy and the developed imaging techniques helps in the identification of anatomical and pathological changes in the disc. But, in *ayurvedic samhitas*, there is no direct description of disc. Hence an effort has been made to identify the description of disc in *ayurvedic* texts based on anatomical, functional and pathological descriptions at various contexts.

Comparison of number of *asthis* with vertebra in modern anatomy shows that there is no direct reference of disc in *Ayurveda* as the number is not matching. Based on the functional similarities between of *snayu* and disc as *bharavahana* and binding the *sandhi*, based on flat shape of *snayu* in *prusta*, and as some of the *snayu* pathologies presents with similar symptoms of disc pathology, disc can be compared to *snayu* as per *Ayurveda*.

KEYWORDS

Intervertebral Disc, Asthi, Snayu, Marma, Marmabhighata



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INTRODUCTION

Twenty three intervertebral discs are the essential structures present in between 2 vertebra starting from 2/3 cervical intervertebral space to lumbo sacral vertebral space. The disc is thinner in the thoracic region and thicker in the lumbar region¹. Anatomically each disc consists of narrow outer annulus fibrosus made of collagenous fibres and wider inner gelatinous nucleus pulposus which is fibrocartilagenous. Functionally disc gives the mobility to the spine and acts as shock absorber. The intervertebral disc in adults is avascular. They are nourished by the diffusion of the nutrients through the pores in the bodies. Movement and weight bearing helps in the diffusion².

Presently the incidence of disc lesion as disc bulge, herniation, sequestration and extrusion are increasing. Disc lesion presents with simple backache to that of gross motor and sensory deficits in the body based on the level of injury. The description of disc in modern anatomy and the developed imaging techniques helps in the identification of anatomical and pathological changes in the disc. The *ayurvedic* management of a disease needs assessment from the point of *dosha*, *dhatu*, *upadhatu* or the *marma* and so on involved in the *samprapti*. Hence an effort has been

made to identify the description of disc and its pathogenesis in the *Ayurvedic* texts. Here, the references on anatomical, functional and pathological descriptions in various contexts of different *samhitas* were considered.

Based on the anatomical description:

The classical reference about the number of *asthi* in *prustavamsha*(vertebral column) is; The *prustavamshagata asthis* are 45 according to *Acharya Charaka* (excluding 15 *asthis* in *greeva pradesha*)³*Sushruta* counts 30 *asthis* in *prusta*,⁹ in *greeva pradesha*, 1 in *trika* and *gudasti* is 1⁴.

Discussion

Even with including or excluding the intervertebral discs, the number of bones explained in the modern anatomy will not match with the classical reference. According to modern anatomy, the spinal *vertebrae* are 26 in number and Inter vertebral disc are 23. Total will be 49 which do not match with any of the classical reference. So we may consider that there is no direct reference about the anatomical identification or description of intervertebral discs in classics. Even *Acharya Sushruta* who dissected the dead body, has not described about the structure similar to intervertebral discs.



Based on the functional description:

Disc as Snayu ?: Based on the functions of disc, we may consider disc as a variety of *snayu* as per Ayurveda. The functions of *snayu* as per *Sushruta* are – it binds the *asthis* in *sandhi* and helps in *Bhara vahana*⁵. Type of *snayu* in *prusta* is *Prutula* which means Flattened⁶.

Discussion: As per modern anatomy, the disc is a flat, round structure. The main function of disc is giving mobility and acting as shock absorber. Hence, we may consider disc as type of *snayu*. But the number of *snayu* in *prusta* is 80, 36 in *greeva* and in *Kati* – 60⁷ which will not match with the number of disc as 23.

Pathologically when the *snayu* is involved, it will present with the symptom as *stambha*, *sankocha*, *supti*⁸. As per the modern pathogenesis, disc lesion will present with stiffness, restricted movement and numbness based on the severity of the lesion. Hence we may consider the involvement of *snayu* in disc pathogenesis. In severe conditions, the *snayugata vata* presents with *bahya* or *abhyantaaayaama* (forward or backward contracture). In acute and severe disc herniation with nerve root compression, the patient will maintain the forward, backward or any lateral positions so that the pain will be minimized. Even though, it is not the

exact co relation, the involvement of *snayu* can be justified.

Snayu is the *upadhatu* of *medho dhatu*⁹. So based on this reference, we may say that, there may be involvement of *medodhatu* in the disc lesions.

Disc as sandhi ?:

Number of *sandhis* in *prustavamsha* are 24 and 8 in *greevapradesha*¹⁰. Based on the following references, we can assume intervertebral joint as a type of *sandhi*. *Sandhi* is a place where *snayu* binds the *asthi*¹¹. So in intervertebral region, disc which is a type of *snayu* binds adjacent bones. Second reference is, the type of *sandhi* in *prustavamsha* is *pratara* which allows gliding movement¹². In intervertebral joint, the disc helps in gliding movement between adjacent vertebrae.

One of the pathological presentation in the involvement of *sandhi* is *prasarana akunchana pravrittischa vedana*¹³(painful restricted movement) which will be the symptom in disc lesion too. So in the disc lesions, there may be involvement of *sandhi*.

CONCLUSION

Even though there is no direct description of disc in *samhitas*, based on the anatomical, functional and pathological description, we may infer *snayu* as disc.



Clinically, minimum pathology of disc (in the form of bulge or degeneration) presenting with painful movement can be treated on the lines of *snayu* pathology (continuous *snehana*, *swedana* and repeated course of *basti chikitsa*)¹⁴.

Extensive and acute disc lesion with extrusion or sequestration, presents with severe, gross motor and sensory loss in different levels. In such conditions, the diagnosis may be *marmabhighata* based on the level of lesion and the presenting symptoms. Here, treatment is on the lines of *marmabhighata* as *yapana basti*¹⁵. But in all the disc lesions, *marma* involvement cannot be diagnosed. Hence, disc cannot be compared to the *marma*. In all the disc lesion, the involvement of *snayu* can be justified. Hence based on functional and pathological description, intervertebral disc can be compared to the *snayu* as per description in *Ayurveda*. But to some extent, in some severe lesions in some areas, it can be identified as *marma* also.

Even though there is involvement of *sandhi*, the management is similar as regular *snehana*, *swedana* and *basti chikitsa*.

Hence, in all the disc pathology, *snayu* involvement may be justified. But in some exceptional cases, *sandhi* and *marma* involvement may be justified based on the symptoms. But, in all these conditions,

treatment is continuous and regular *snehana* and *swedana* with *basti chikitsa*.



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