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, Marmabhigata
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 region\(^1\). 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 diffusion\(^2\).

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 1\(^4\).

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 Sushrutha 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. Type of snayu in prusta is Pratula which means Flattened.

**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 – 60 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. 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. 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. Based on the following references, we can assume intervertebral joint as a type of sandhi. Sandhi is a place where snayu binds the asthi. 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 movement. 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(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)\textsuperscript{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 marmabhighbhata based on the level of lesion and the presenting symptoms. Here, treatment is on the lines of marmabhighbhata as yapana basti\textsuperscript{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.
REFERENCES


