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INTRODUCTION OF HUMAN ANATOMY ACCORDING TO AYURVEDA

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ABSTRACT:

Anatomical knowledge in ancient India was derived principally from animal sacrifice, chance observations of improperly buried human bodies, and examinations of patients made by doctors during treatment. The Vedic philosophies form the basis of the Ayurvedic tradition, which is considered to be one of the oldest known systems of medicine. Two sets of texts form the foundation of Ayurvedic medicine, the Susruta Samhita and the Charaka Samhita. The Susruta Samhita provided important surgical and anatomical information of the understanding of anatomy by Indians in the 6th century BCE. Here we review the anatomical knowledge known to this society.

KEYWORDS: Anatomical, Human, Vedic, Ayurvedic, Susruta, Charaka.

INTRODUCTION:

Ayurveda the science of medicine dealt with the aim of Swastha Sharir. The knowledge of Sharir Rachna is very important to understand any physiological deformities. The Rachna Sharir is the ayurveda term which mainly deals with the anatomical compositions of body. Healing traditions and medical practices are inextricably tied to human history. The oldest known civilizations have healing traditions associated with them and have added to our current knowledge of the medical sciences, particularly anatomy. Areas such as Greece, Mesopotamia, Egypt and China have shaped the study of medicine and human anatomy. As one of the oldest civilizations, India is rich in such history and tradition, which includes significant contributions to our understanding of human morphology. According to tradition, the Ayurveda originally consisted of eight parts (astranga), in which major surgery (salya), minor surgery (salakya), treatment of diseases of the body (kayaacikitsa), demonology (teachings on the diseases caused by demons) (bhutavidya), healing of diseases of children (Kaumarabhrtya), toxicology (agadatantra), elixir (rasayana) and aphrodisiac (vajikarana) were included . Two main sets of texts form the foundation of

Ayurvedic medicine, the Susruta Samhita and the Charaka Samhita. The Susruta Samhita was written by the famous physician and surgeon Susruta in the 6th century BCE who taught at the University of Benares (alternatively Kasi or Varanasi) on the Ganges River. He is best known for his tome of surgical wisdom, practices and tools. In Susruta's work, it is evident that considerable thought was given to anatomical structure and function, as Susruta was a proponent of human dissection ; his texts include a systematic method for the dissection of the human cadaver. Charaka lived in the mid 2nd century and was associated with the north-western part of India and the ancient university of Taksasila. Charaka Samhita contains 120 chapters arranged in five books. The Sarira-sthaka discusses mainly anatomy, embryology and technique of dissection. The original date of the Charaka Samhita is not known but some estimate its composition to have occurred early in the 4th century BCE . The Charaka Samhita is often philosophical and ethical in its considerations and includes an Oath of Initiation that is akin to the Hippocratic Oath. The teaching of medicine in ancient India followed a hereditary model, with the knowledge being passed from 'Guru' to 'Sisya'. These ancient Indian texts were written solely in Sanskrit and were inaccessible to anyone who was not a direct disciple of that Guru or that particular school. Anatomical knowledge in ancient India was derived principally from the sacrifice of animals, by chance observations of improperly buried bodies, and examinations of patients by physicians. Susruta was believed to have been born in the Eastern part of India near Bihar. Known as the father of Indian surgery, Susruta was the first to practise rhinoplasty in India. When he lived has long been a controversial subject among many medical historians. Susruta's famous work, the Susruta Samhita, has not survived and its only existence is in the form of revisions and copies. Late Vedic hymns ascribed to Susruta suggested that he must have flourished during the latter part of the Vedic age, which would place him around 1000 BCE.

Susruta's Samhita emphasized surgical matters, including the use of specific instruments and types of operations. It is in his work that one finds significant anatomical considerations of the ancient Hindu. There is also compelling evidence suggesting that the knowledge of human anatomy was revealed by both inspection of the surface of the human body and through human dissection, as he believed that students aspiring to be surgeons should acquire a good knowledge of the structure of the human body. Interestingly, in neither the writings of Susruta or of Charaka is there any indication that animal dissection was practised. Their anatomical knowledge, therefore, appears to have been gleaned from human dissection. Moreover, their writings show a considerable familiarity with the bones of the human body. Susruta's description of anatomical specimens included over 300 bones, as well as types of joints, ligaments and muscles from various parts of the body¹. Critics suggest that Susruta's overestimate of the number of bones contained in the human body may be due to the large number of child cadavers he observed (i.e. it is very possible that Susruta accounted for individual parts of bones that had not yet fused.) Despite his erroneous accounts of the skeleton, Susruta offered an in-depth understanding of bones, muscles, joints and vessels that far exceeded the knowledge of the time.² It was Susruta's belief that for one to be a skilful and erudite surgeon, one must first be an anatomist. The Sarirasthana is made up of 10 chapters regarding the study of human anatomy.

Susruta –Samhita said:

‘The different parts or members of the body as mentioned before including the skin, cannot be correctly described by one who is not well versed in anatomy. Hence, any one desirous of acquiring a thorough knowledge of anatomy should prepare a dead body and carefully, observe, by dissecting it, and examine its different parts.

Tasmat nihsamsayam jnanam harta salyasya vanchata/

Sodhayitva mrtam samyag drastavyah anga-viniscayah//

Pratyaksatah hi yat drstam sastra-drstam ca yat bhavet/

Samasatah tat ubhayam bhuayh jnana-vivardhanam//³

Dissection Preparation:

The issue of using humans for dissection was in opposition to the religious law of the time; however, it was an essential tool for the true understanding of human anatomy. The following is the method that Susruta developed that enabled him to work within the confines of these laws.

‘Therefore for dissecting purposes, a cadaver should be selected which has all of whose parts of the body present, of a person who had not died due to poisoning, but not suffered from a chronic disease (before death), had not attained a 100 years of age and from which the fecal contents of the intestines have been removed. Such a cadaver, whose all parts are wrapped by any one of “munja” (bush or grass), bark, “kusa” and flax, etc. and kept inside a cage, should be put in a slowly flowing river and allowed to decompose in an unlighted area. After proper decomposition for seven nights, the cadaver should be removed (from the cage) and then dissected slowly by rubbing it with the brushes made out of any of usira (fragrant roots of plant), hair, bamboo or “balvaja” (coarse grass). In this way, as previously described, skin, etc. and all the internal and external parts with their subdivisions should be visually examined’.⁴

Interestingly, the Susruta Samhita mentions the role of a student in the dissection: ‘A pupil, otherwise well-read, but uninitiated, in the practice (of medicine or surgery) is not competent to take in hand the medical and surgical treatment of disease.’ According to the Susruta Samhita, medical students should be taught the art of making cuts in the body of a puspaphala (a kind of gourd), alavu (bottle-gourd) or ervaruka (cucumber) prior to dissection of human cadavers.⁵ The Hindu Laws of Manu that governed much of life in ancient India dictated that the punitive measure for the crime of adultery was to have the offender's nose cut from the face. It is in the Susruta Samhita that a procedure for repairing such damage is discussed, and this represents the equivalent of a modern ‘free flap’ used in reconstructive surgical techniques and thus implies a good knowledge of human facial anatomy.⁶

In ancient India, piercing of the earlobes and subsequent enlarging of the hole was a widely practised method for warding off evil. However, this often resulted in the tearing of the earlobes. Susruta instructed that a pedicle flap reconstructive procedure be done where the graft of skin is taken from an adjacent area, carefully leaving its vascular supply intact. The graft is then rotated to the area of the defect and reattached.

‘A surgeon well versed in the knowledge of surgery should slice off a patch of living flesh from the cheek of a person so as to have on its ends attached to its former seat (cheek). Then the part, where the artificial ear lobe is to be made, should be slightly scarified (with a knife) and the living flesh, full of blood and sliced off as previously directed, should be adhered to it (so as to resemble a natural ear lobe in shape). The flap should then be covered with honey and butter and bandaged with cotton and linen and dusted with the power of baking clay.’ Again, such a procedure would necessitate a good working knowledge of human anatomy of the facial region including blood supply. Susruta gave considerable time to ophthalmic study, as conditions such as cataracts were common in his region of the world. His description of the eye included five basic elements: earth (Bhu), fire/heat (Agni), air (Vayu), fluid (Jala) and void (Akasa). The extraocular muscles are the solid earth; heat/fire is the blood flowing through the vessels. Air forms the iris and pupil; fittingly, the vitreous part is attributed to the fluid element. Finally, the lacrimal ducts are derived from the void. Susruta delineated five anatomical divisions (Madalas) of the eye: eyelashes, eyelid, sclera, choroid and the pupil⁷.

The Hindu religion places a great deal of emphasis on reproduction and sexual energy. Male urogenital issues received a great deal of attention in the Susruta Samhita, though the health of women was also addressed. Susruta advocated the use of dilators, irrigating syringes and catheters. The following is a method of management of a urethral stricture via dilation and urethroplasty:

‘In the case of Niruddhaprakasha (stricture of the urethra), a tube open at both ends made of iron, wood, or shellac should be lubricated with clarified butter and gently introduced into the urethra. Thicker and thicker tubes should be made to dilate in this manner and emollient food should be given to the patient. As an alternative, an incision should be made into the lower part of the penis avoiding the sevani (raphe) and it should be treated as an incidental ulcer’.⁸

DISCUSSION AND CONCLUSION:

So by above observation we have seen that Acharya Sushruta has given a very systematic description of human body based on observation, examination as well as cadaveric study. Other Acharyas have also given detailed description of human body but there was a lack of practical observation approach fulfilled by Acharya Sushruta by cadaveric dissection. Susruta's seminal work, the Susruta Samhita, forms the basis for the Ayurvedic tradition, which is still widely practised today. The contributions of ancient civilizations to our modern understanding are well appreciated, with ancient India being no exception.

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