

REVIEW ARTICLE ON APPLIED ANATOMY IN ANCIENT INDIAN HISTORY

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ABSTRACT

Ever since the evolution of species Homo-sapiences are always eager for knowing about his body system. There are enough facts available in ancient india to proof about the practice and knowledge of anatomical science. The ancient Indian scientists / Seers are explored importance and essential knowledge of practical anatomy. Surgical practice has been considered as an art to protect life and health to an acceptable professional standard. In *Rigveda*, Various surgical examples performed by *Ashwini kumars*, are reflection of great medical knowledge mainly applied anatomy. There is no doubt that Legendary *Acharya Sushruta* and the Indian surgeons of ancient times were well versed with the principles and techniques of surgery. *Ayurvedic* knowledge originated in India more than 5,000 years ago. *Acharya Sushruta* is very well known for his better contribution in the field of anatomy and surgery. In *Ayurveda*, *Rachana Sharir* (Human Anatomy) deals with the study of structural organization of the human body, Under its so many branches like Syndesmolgy (*Sandhi Sharir*), Osteology (*Asthi Sharir*), Anthropometry (*Praman Sharir*), Genetics (*Anuvanski*), *Marma Sharir* (vital weak points), etc. Human Anatomy is one of the field of Priority of *Sushruta-Samhita-Sharire Sushrutah Sresthah*. The critical, scientific analysis and explanation of related various surgical and medical care examples in ancient Indian history which are deep-rooted or hidden in the scientific world and approaches given by our ancient intellectual persons has been provided the new dimension for the research.

KEYWORDS: History of anatomy, Vedic Science, Ayurveda, Surgery, Sushruta., Sharir Rachana.

INTRODUCTION

Anatomy is the oldest and the most important cornerstones of all medical sciences. There is enough evidence of medical knowledge namely practical anatomy in ancient india. The physician and surgeon. without knowledge of anatomy can neither understand the site of disease nor can select the appropriate treatment. Ancient India, with its rich cultural heritage and deep-rooted traditional system of medicine associated with religion and spirituality. The *Sushruta Samhita*, one of the oldest surgical texts in the world, describes various surgical procedures. Today, many of these techniques and practices concepts are still used in modern era. Those who practiced in medical care were called *Vaidyas* who specialized in medicine or surgery. In ancient Indian literatures, mention the examples of medical care provided by Some *Vaidyas* such as *Ashwini kumars*, *Sushena*, *Charak*, *Sushruta*, *jivak* etc have reflected great knowledge about human anatomy. *Sushruta* performed various surgeries such as cataracts, trachoma, laparotomies for the removal of foetuses and

created over 100 surgical instruments, would have showed as his brilliant knowledge of anatomy in those days. All ancient civilizations of the world developed their own medical systems, but the ancient Indian system of medicine is considered to be the oldest and well developed medical system in the world.

AIMS AND OBJECTS

To explore and analyze the text books of ancient Indian history to trace out significant and utilization of applied anatomy in the past and its relevance in modern era.

MATERIALS AND METHODS

The materials are collected from the available concerned literatures in *Ayurveda* especially *Brihatrayi*, Various publications, internet, books related to the modern anatomy, research papers related to the topic are collected. Literary review is related to examples and procedures to utilized the knowledge of human anatomy in medical care in ancient Indian history.

Literature Review:- In Hindu Mythological, the first origin of medical science was none other than the creator *Brahma* himself. *Brahma* shared this knowledge with *Daksha Prajapati*, who in turn passed on the tradition to *Ashwani Kumaras* and *Indra*. Surgery was revealed by *Indra* to *Divodasa*, the king of *Kasi*. he was also an incarnation of the divine *Dhanvantri*. According to *Varuna purana* the God *Shiva* was appeased and the transfixed the head of a goat in the body of *Daksa* who was restored the life again and it provided the example of hetrotranplantation of the whole head. Ancient days in healing the traumatic wounds and also provided in replaced the head of *yajna* (sacrifice incarnate). It is told that the god *Rudra*, severed the head of the God of Sacrifice (*Yajna*). Whereupon the gods approached the celestial *Ashvins*, and spoke: Sirs, you both will be the foremost amongst us, the head of *yajna* should be rejoined by you. They spoke: let it be so. Then the gods propitiated *indra* by a share of the sacrificial offering in favour of the twin gods (*Asvins*).^[1]

Applied Anatomy in ancient india.

1. Pre-Vedic Period- Around 3000 BC Indus Valley Civilization -Medicinal practised by priests, who were mixture of magic, rites and rituals. There are cave paintings depicting pictures of animals on which the critical areas of body (surface anatomy) are marked. These areas when hit would have killed the animals. Archaeological excavations from this ancient period show clear evidence of knowledge of surface anatomy.^[2]

2. Vedic Period - Around 1500 BC, The *Rigveda* has described various human organs as the heart, lungs, stomach and kidneys. The heart and their function in the human body is mentioned in *Yajurveda*. In *Atharveda* "Reference of Veins and Arteries" are present that indicates a specialized knowledge in context of anatomy. *Ashwini Kumars* provided vision of eyesight to blind *Rjasva*, *Kanva* and *Parāvṛk*, surgically restored the body of *Śyāva*, who was cut in three parts, gave a horse to *Pedu*, and put a horse's head on *Dadhyañc*. *Ashwini kumars* were transplanting the broken thigh of *Viśpala* (the wife of king *Khela*) with an artificial iron-made thigh.^[3] In case of obstructed labor childbirth incision and cutting adjacent anatomical structures (Episiotomy) around vaginal were done to save the child of obstructed foetus in the Vedic age. *Indra* turned a male into a female by medicine and break the two testicles of a man apart with two stones. The implantation of a Sheep's testis to the *Indra* is mentioned in *Valmikiramyam*. The *Raj-Vaidya* (Royal doctor) of *Ravan's* kingdom *Sushena* was treat unconscious *Lakshmana* during the battle against *Indrajit* (*Ravana's* son). All above the surgical examples are mention. in ancient Indian literatures but how they perform this processes of surgeries are not available. The *Atharva Veda* refers to "*Dhamanīs*" which are ducts with thick walls equivalent to arteries; "*Sirās*" which are ducts with thin walls equivalent to veins and still finer ducts are referred to as "*Snavas*" similar to capillaries. The surgical knowledge and skill set can be attributed to

the number of wars and small battles that took place during the *Vedic* period. Soldiers were injured with weapons such arrows, swords, and maces. Surgeons had to be skilled in removing foreign objects, controlling hemorrhage, and dressing wounds on the basis of brilliant anatomical knowledge.

3. Upanishadic period - The accurate description of embryology in *Garbha Upanishadis* truly amazing as it matches with present day knowledge. *Garbha Upanishad* (1400BC) describes the development of embryo in an astonishingly precise manner. This accurate description of the embryo in the *Upanishad*, which predated microscopes, is truly amazing as it matches almost accurately with the present day knowledge of embryology.^[5] The "Brāhmanas" which can be considered as guide books for the Vedas, came next. "Āranyakas" and then "Upaniṣads" followed Brāhmanas.

4. The Post-Upanishadic period from (800 BC to 1000 AD) - "The golden age of indian medicine" In this period two great written manuscripts *Charaka Samhita* and *Sushruta Samhita* are form the twin pillars of *Ayurveda*. Both *Samhita* have devoted a complete section *Sharir Sthan* to subject of Anatomy.^[6] *Sushruta* identified the dissection of the body and also the method for preserving the dead body for the landmark and knowledge of anatomy.^[7] *Shareer Sthana* deals with detailed anatomy and embryology, for which *Sushruta Samhita* is regarded as the best treatise, *Chikitsa Sthana* deals with treatment details.^[8] *Acharya Sushruta* gave first order priority to the *Shalya Vigyan* (surgery) among the eight specialities branches of *Ayurveda*. *Charak Samhita*, *Sushruta Samhita* and *Ashtang Hridaya* are the three main treatises of *Ayurveda* (*Bruhutruyee*). *Sushruta* wrote *Sushruta Samhita* and describes many surgical principles along with surgical ethics.^[9] *Acharya Sushruta* belong to *Dhanwantri Sampraday* (Surgical stream), It is mention in *Puranas & Mahabharat*. In ancient times the war was common for empire Expansion that is why the role of *Dhanvantari Sampraday* was obviously important. *Acharya Sushruta* who was primarily a surgeon and recognized as The Father of Surgery in the world.^[10] *Acharya Sushruta* was also describing the surgical anatomy and complications that may arise from vesicolithotomy. *Sushruta Samhita* is the most advanced first textbook compilation of surgical practices of its times. It is also includes around 300 surgical procedures along with the description of over 120 surgical instruments for the operations that is still hold true to surgery in modern times.^[11]

In ancient India amputation of the nose, earlobes or genitalia was a common form of criminal by royal and military punishment. The first successful rhinoplasty operation in Europe using the Indian technique was performed by the British surgeon *Carpue* on 23rd October 1814 which was proved the effectiveness of the Indian technique was recognized by British and European surgeons.^[12] *Sushruta Samhita* is one of the

most important surviving ancient treatise on medicine & surgery and is considered as foundational text of *Ayurveda* which contains thoughts, knowledge and works of *Acharya Sushruta* (2nd century BC). It contains dissection of human dead body, measurement of *Anga-Pratyanga's* (major & minor part of the body), surgical *Yanta-Shastras*, and description of eight surgical procedures *Chhedana* (excision), *Bhedana*(incision), *Lekhana* (scraping /scooping), *Aharana* (extraction), *Vedhana* (puncturing), *Esana* (probing), *Vsravana* (blood-letting) & *Sivana* (stitching) in systematic manner.^[13] *Sushruta's* repairing technique of incised ear lobule due to wearing of heavy ornaments, elevating a living flap from cheek connected at its base and should reconstructed the ear lobule after scraping and scraping of nasal bones to reshape was actually a today's plastic surgery. It is best known of nasal reconstruction & otoplasty for this contributions, he has been suitably titled "Father of Plastic Surgery" (*Sandhana karma*).^[14] *Chikitsa Sthana* of the *Charak Samhita* chapter 13th demonstrates disorders like *Pleehodara*, *Jalodara*, *Badhgudaudara*, *Chidrodera*, *Bradhna- Mutravridhi* etc. all these are important examples related to *Udara roga* where anatomical changes can be studied.^[15] *Acharya Charaka* mentioned 15 numbers of *Kosthanaga* which are *Nabhi*, *Hridaya*, *Kloma*, *Yakrita*, *Pleeha*, *Vrikka*, *Vasti*, *Purishadhara*, *Amasaya*, *Pakwasaya*, *Uttaraguda*, *Adharaguda*, *Kshudranata*, *Sihulantara* and the *Vapavahan*.^[16] One of the best examples postulated by *Acharya Charaka* is related to concept of *Beeja*, *Beejabhaga*, *Beejabhagavyava* and *dosha*. Various genetic diseases develop due to deformity in *Beeja* (ovum-sperm), *Beejabhaga* (chromosome) and *Beejabhagavyava* (genes).^[17]

5. Modern period- The modern medical education in India began with the arrival of the British (1600AD). Medical schools were established in the late 19th century. Now a day all medical colleges in india have a full fledged department of anatomy.

DISCUSSION

When surgeon is incised the immature inflammation abscess or boil then possibility to may damage muscles, vessels, ligaments, joints and bones; excessive hemorrhage, appearance of pain, tearing with manifestation of many complications. If anatomical structures are get damaged then there will be complications or they might lose their function. It was *Susruta's* belief that for one to be a skilful and erudite surgeon, one must first be an anatomist. *Acharya Sushruta* being a great surgeon of his times, has contributed a lot and has laid down the foundation of modern surgery. The anatomical structures is always essential to determine the different types of incisions on various sites of body. While making incision care should be taken to avoid injuries to bony prominences and Anatomy of underlying structures, like muscle/nerves/vessels/bowel care should be taken to avoid injuries to deeper. The trainee surgeon learn

enough of applied anatomy to make him safe in his work. Everyone will agree that a sound knowledge of applied anatomy is essential for each and every surgeon.

CONCLUSION

All the new researches and techniques is also support to the standards concept of Indian surgical concepts and applied knowledge of anatomy for the safe, efficient and cost effective surgical care facilities to the suffering humanity. An appreciation of the evolution of anatomical knowledge can be proved by various surgical examples in ancient indian history. *Acharya Sushruta* was the first medical person in the ancient world who had described dissection of dead bodies (Dissection of The Human Cadavers) to learn minute human body structures and human anatomy, that reflect the sound knowledge of the Anatomy of those days. *Sushruta* was pioneered to recorded many operations and dissecting a dead body in his *Samhita*, paving the way to modern medicine and science in India. So many number of surgical references are available in various literatures in ancient Indian texts. It is proved from these examples that the knowledge of Applied anatomy was well advanced in ancient times. With advancement of the time, science is expanding its wings in every field but basic principles remains always unchanged. That's why modern science also follows all these ancient principles in other words these principles are stayed on the shoulder of ancient principles. So the knowledge generally found in modern medical literature is nothing but the amendment with some advancement of the *Ayurvedic* knowledge. Due to plentiful reasons, it is unfortunate that *Ayurvedic* surgery (*Shalya Tantra*) has almost forgotten and lost its glory. Description in the ancient *Ayurvedic* literature requires refinement, enhancement, standardization and authentication of *Ayurvedic* surgical techniques and their applied anatomy on modern parameters.

REFERENCES

1. Prof.k.R Srikantha Murthy, Chaukhambha Orientalia, Sushrutsamhita, 2017; 1(1): 7.
2. History of anatomy in india, Reproduced with the kind permission of the editor, journal of postgraduate medicine, med., 2002; 48: 243-245.
3. Jamison, Stephanie W.; Brereton, Joel P. (2014). The Rigveda: The Earliest Religious Poetry of India. Oxford University Press. ISBN 978-0-19-937018-4)
4. Narayana A, Subhose V. Evolution of surgery—śūśrta's innovative skills. Bull Indian Inst Hist Med Hyderabad, 2004; 34(1): 17–39.
5. Moore KI, Persaud, introduction to the developing human –historical gleanings in : the developing human clinically embryology 6th, new delhi, Harcourt asia Pvt, Ltd 1999; 9.
6. Reproduced with the kind permission of the Editor, Journal of Postgraduate Medicine J Postgrad Med., 2002; 48: 243-245.
7. Shastri A. (2001) Sushruta Samhita, Part-I (ShareerSthan, Chapter-4 Verse-49), Chaukhambha Sanskrita Sansthan, Varanasi, India.)

8. Bhishagratna KL, editor. An English translation of The Sushruta Samhita: based on original Sanskrit text. author; vol.1, Sutra Sthana chapter 1.
9. Surgical principles evolved in Sushrut Samhita –An ancient textbook of surgery, article in international journal of biology and biotechnology, DOI:10.31032/IJBPAS/2022/11.3.1055.
10. Sushruta Samhita –A unique Encyclopedia of aayurvedic Surgery, DOI: 10.20959/wjpps20174-8948 11. 6–96.
11. Shah S. Ophthalmology in ancient time – the Sushruta Samhita. J Clin Ophthalmol Res 2018;)
12. <https://www.cambridge.org/core>. IP address: 106.67.104.90, on 13 Sep 2020 at 18:21:52, Head and neck diseases in an ancient surgical text.)
13. Prof.k.R Srikantha Murthy, Chaukhambha Orientalia, Sushrutsamhita volu-1, edition: 2017, page-5,)
14. Prof.k.R Srikantha Murthy, Chaukhambha Orientalia, Sushrutsamhita volu-1, edition:2017, Chapter16
15. Dr. P.V.Sharma; Edited Charaka Samhita Chikitsa Sthana 13, Part 2; Reprint 2011 Varanasi: Chaukhambha Orientalia; P-207-225.
16. Sharma R.K. & Das B, Caraka Samhita, Sarira Sthana 7/10, Chowkhamba S.S.O, Varanasi, edition 2020; 454.
17. Pandit Kashinath Pandey and Dr. Gorakhnath Chaturvedi; Edited Charaka Samhita Chikitsa Sthana 7/21, Part 2; Reprint 2009 Varanasi: Chaukhambha Bharati Academy; P-252.