

Portrayal of Asthi Sharir in Pre- Samhita Kaal

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Abstract

History of mankind is inseparably intertwined in the history of India. *Asthi* has been given ample importance from commencement of life. *Asthi* due to its hardness was used firstly as weapon for killing and self protection, as in Bone Age. As per Hindu Mythology, *Asthi Visarjaan*, which is one of the *Sanskar* to be performed at the last, confirming the definition of *Asthi* as per *Seers*- “as the last entity to be remained after cremation or after demolition of other body parts.”

Due to different principles, faith's and way of learning, there are basic difference in osteological knowledge of ancient India and modern time. There is enough evidence of knowledge of *Asthi Sharir* (osteology) in the ancient India but in *Sutra Rupa* or in dispersed form. Starting from Pre-Vedic period, Vedic Period and Post-Vedic period all have somewhat description of *Asthi Sharir* but not in mannered way. *Atharveda* and *Puranas* especially in *Agni Purana* there is descriptive knowledge of *Asthi's*. Thus, a study was needed to glorify the ancient knowledge of *Asthi Sharir* in this scientific world. Here evidence are presented to show that the Indians were the first scientific cultivators of the most important and essential department of medical knowledge namely Osteology i.e. *Asthi Sharir*.

Keywords

Asthi Sharir, Osteology, *Vedas*, *Purana*



Greentree Group

Received 31/5/15 Accepted 29/7/15 Published 10/5/15

INTRODUCTION

History of mankind is inseparably intertwined in the history of India. Medicine is as old as man and must have come into being with the first commencement of human consciousness. Is it then a wonder that history of medicine should be an integral part of history of India? Indian medicine is not synonymous with *Āyurveda* nor is *Āyurveda* synonymous with the texts of *Caraka* and *Susruta*. *Āyurveda* stands for the medical tradition of India which began with the beginning of the Aryan race, continued through the hymns and charms of the *Vedas* and literature of different epochs. *Āyurveda* and *Veda* have a relation in depth; *Āyurveda* is not merely a medical system, it is a sacred science of life. It helps the human being to lead a happy life with pure body and mind.

Anatomy is the oldest and the most important of all medical sciences. There is enough evidence of practice of this science in the ancient India. Here evidence is presented to show that the Indians were the first scientific cultivators of the most important and essential department of

medical knowledge namely practical anatomy or *Rachana Sharir*.

Among various structures described in ancient anatomy *Asthi* (Bone), has been given ample importance due to its un-destroying character. Description of *Asthi* was both on purviews of Mythology as well as a structural part of human body.

LITERARY REVIEW

Here review is divided in three groups for easier and effective understanding of vast and dispersed knowledge of *Asthi Sharir*. This can be divided in Pre-Vedic Period, Vedic Period and Post-Vedic Period as-

Pre-Vedic Period

Five thousand years ago, around 3000 BC Indus valley civilization flourished on the banks of the river Indus, contemporaneous with mesopotamian civilization. Medicine was practiced by priests, who were considered next only to Kings and the practice itself was a mixture of magic, rites and rituals. Archeological excavations from this ancient period show clear evidence of knowledge of comparative

anatomy. There are cave paintings depicting pictures of animals on which the critical areas are marked. These areas when hit would have killed the animals. Thus, these paintings provide first ever evidence of the lessons in surface anatomy.

Vedic Period

Around 1500 BC northern India was invaded by Indo-European tribes such as the Aryans and that led to the start of Vedic period. *Srila Vyasadeva* also known as *VedaVyasa* rendered the four *Vedas Rig, Yajur, Sama and Atharva Vedas* to his disciples.

They preached the philosophy of life. *Āyurveda* is considered as *Upaveda* of *Atharva Veda*. *Vedas* are ancient doctrines of great knowledge on earth. *Vedas* are collections of *Mantras*. It reflects the living habits of ancient people, their thought, customs etc. *Vedas* also contain the methods and measures, adopted for health care and treatments. This ancient Indian medical tradition has passed through successive stages; *Charaka* and *Susruta* summarized perhaps the high ideals and achievements of this tradition during their respective ages.

Rig Veda- The *Rigveda* mentions the heart, lungs, stomach and kidneys. Reference of three *Doshas* of the body can be found in *Rig Veda*. It also mentioned about five elements of the earth (*Pancha Bhoota*) and the equilibrium of the three *Doshas* is called as health. The names of the three *Doshas* are mentioned as *Vata, Pitta, and Kapha*.

Yajur Veda- It is estimated to have been composed between 1,400 and 1000 B.C. There are two primary versions of *Yajur Veda, Sukla, Yajur Veda* and *Krishna Yajur Veda*. References about the anatomical structure of human beings and animals have been widely discussed.

Sama Veda- Its earliest parts are believed to dates back from 1700 B.C. *Sama Veda*, records the number of bones in the human body as 360. It also explains about the process of digestion, assimilation, metabolism and nourishment of the body.

Atharva Veda- *Narayana* is author of the *Atharvan* hymn which takes us back to that period of prehistoric or semi-mythical age of the medicine men who combined the functions of priest and physician. *Narayana* is representative of this Indian medicinal tradition. He is also author of famous “*Purusha Sukta*” (RV.X.90=AV.XIX.6),

which contains many anatomical references. The hymn X.2.1-8 is reported here to show how *Atharvan* mentioned *Asthi* (bones) of human body¹.

1. *Parsni*- (two) heels. *Charaka* counts one *Parsni* for each foot.
2. *Gulphau*- (two) ankle bones. There are four *Gulphas* (according to *Charaka*, *Susruta* and *Kashyapa*).
3. *Angulih*- (plural) digits. There are sixty digits. (*Charaka*, *Susruta*.)
4. *Ucchlankhau*- (two) Metacarpal or Metatarsal bones of the hand and feet. “*Panipadasalakah*” are twenty (*Charaka*).
5. *Pratistha*(one) base. “*Panipadasalakadhithana*” (*Charaka*); “*Sthana*” (*Yajnavalkya*); “*Kurcha*” (*Susruta*, who also gives “*Tala*”). In the *Kashyapa Samhita* both “*Adhithana*” and “*Kurcha*” are found side by side.
6. *Asthvantau*-(two) knee-caps; (Patella).
7. *Janghe*-(two) shanks--*Kashyapa*. The tibia and the fibula in the leg. (*Charaka*, *Susruta* and *Vagbhata* describe this organ as consisting of two bones). Four-fold frame having its ends connected together- is the exact description.
8. *Janunohsandhi*- (two) knee joints.
9. *Sroni*- (two) pelvic cavity.
10. *Uru*- (two) thigh bones; one in each leg (*Charaka*, *Susruta*, *Vagbhata*.) “*Urunalaka*”- *Charaka*.
11. *Urah*- (one) breast-bone. There are 14 bones in the breast according to *Charaka* but there are 8 bones in the breast according to *Susruta* and *Vagbhata*.
12. *Grivah*-(many) wind pipe. It is composed of four parts but it is counted as one bone. “*Jatru*”- *Charaka*; “*Kanthanadi*”-*Susruta*.
13. *Stanau*-(two) breast. There are 24 ribs; *Susruta* speaks of 36.
14. *Kaphodau*- (two) shoulder blades (scapula); “*Amsaphalaka*”- (*Charaka* and *Kashyapa*).
15. *Skandhan*- (many) shoulder bones. There are 15 bones in the neck according to *Charaka* and 9 according to *Susruta*.
16. *Prastih*- (many) back-bone.
17. *Amsa*- (two) collar-bones. “*Aksaka*”- (*Charaka*, *Susruta*.)
18. *Lalatom*- (one) brow- two superciliary ridges at the eye-brow.
19. *Kakatika*- (one) central facial bone.
20. *Kapalam*- cranium with temples. (*Charaka*; *Susruta*).
21. *ChityamHanvoh*-(one) the pile of the jaw. (*Charaka*; *Susruta*). It will be seen from above that the AV. knows all the important bones of the body.
22. *Kikasah*- Spinal column (probably cervical portion of the vertebral coloumn)
23. *Anukya*- Thoracic portions of spine.

Table 1 Comparison of nomenclature of *Asthi* between *Atharva Veda*, *Caraka* and *Susruta*

S.NO.	NAME OF BONE	OF	ATHARVA VEDA	CARAKA ^[2]	SUSRUTA ^[3]
1	Heel		<i>Parsni</i>	<i>Parsni</i>	<i>Parsni</i>
2	Ankle		<i>Gulpha</i>	<i>Gulpha</i> and <i>Manika</i>	<i>Gulpha</i>
3	Phalanges		<i>Anguli</i>	<i>Anguli</i> with <i>Nakha</i>	<i>Anguli</i>
4	Metatarsals /metacarpals		<i>Uchalakha</i>	<i>Salaka</i>	<i>Tala</i>
5	Tarsals/ carpals		<i>Pratistha</i>	<i>Adhsthana(Sthana)</i>	<i>Kurcha</i>
6	Knee		<i>Astivat</i>	<i>Janu</i> and <i>Kapalika</i>	<i>Janu</i>
7	Leg bone		<i>Jangha</i>	<i>Jangha</i> and <i>Aratni</i>	<i>Jangha</i>
8	Pelvic cavity		<i>Sroni</i>	<i>Sroni-Phalaka</i> with <i>Bhaga</i>	<i>Sroni</i>
9	Thigh		<i>Uru</i>	<i>Uru-Nalaka</i> and <i>Bahu Nalaka</i>	<i>Uru</i>
10	Breast bone		<i>Uras</i>	<i>Uras</i>	<i>Uras</i>
11	Windpipe		<i>Griva</i>	<i>Jatru</i>	<i>Kanthanadi</i> (or <i>Griva</i>)
12	Ribs		<i>Stana</i>	<i>Parsvaka</i> with <i>Sthalaka, Arbuda</i>	<i>Parsava</i>
13	Shoulder		<i>Kaphoda</i>	<i>Amsa-Phalaka</i>	<i>Amsaja</i>
14	Neck		<i>Skandha</i>	<i>Griva</i>	<i>Griva</i>
15	Backbone		<i>Prsti</i>	<i>PrsthAsthi</i>	<i>Prstha</i>
16	Clavicle		<i>Amsa</i>	<i>Aksaka</i>	<i>Aksaka</i>
17	Superciliary/ brow		<i>Lalata</i>	<i>Nasika-Gandakuta-Lalata</i>	<i>Nasa, Ganda, Aksikosha, Karna</i>
18	Facial		<i>Kakatika</i>		
19	Cranium		<i>Kapala</i>	<i>Kapala</i> with <i>Sankha</i>	<i>Kapala</i> with <i>Sankha</i>
20	Jaws		<i>Hanvoh Citya</i>	<i>Danta</i> with <i>Dantolukkhala</i> , <i>Talusaka, Hanvasthu</i> with <i>Hanu-Mula-Bandhana</i>	<i>Danta, Talu, Hanu</i>

The *Vedas* were followed by other writings. The '*Brahmanas*' which can be considered as guide books for the *Vedas* came next. '*Aranyakas*' and then '*Upanishads*' followed *Brahmanas*. *Upanishads* contain knowledge acquired sitting around one teacher in the "Guru Shishya tradition" where the disciples sit around the teacher and learn. One of such called *Garbha Upanishad* (1400 BC) describes the development of embryo in an astonishingly precise manner.

Satapatha Brahmana- In tenth and twelfth sections (*Kanda*) of this book, while performing the sacred rituals with *Agni*, there is description of using 360 bricks comparing it with 360 bones of body. In the tenth *Kanda*, fifth chapter (*Adhyaya*), fourth paragraph (*Brahmana*) and twelfth clause the total number of human bones is compared to 360⁴. Again in twelfth *Kanda*, third chapter, second paragraph and 3, 4 clause it is stated that 'There are three hundred sixty nights in year and three

hundred sixty bone man; and these two are one and same; and there are 720 days and night in the year and 720 bones and parts of marrow in man; and these two now are one and the same⁵. The numbers of bones in certain parts of body are compared to certain hymns in section 12, 2, 4, clauses 9-14 as follows- the three versed hymn-form (*Trivrt*) is the head (*Siras*), where that head is threefold- skin, bone and brain. The fifteen-versed hymn-form (*Pancadasa*) is the neck-bones (*Griva*); for fourteen of these are transverse processes (*Karukara*); and their strength (*Virya*) is the fifteen; hence by means of them, though small, man can bear a heavy load. Therefore the fifteen versed hymn is neck bones. The seventeen versed hymn (*Saptadasha*) is the breast (*Uras*); for there are eight costal cartilages (*Jatru*) on the one side, and eight on the other, and the breast bone (*Uras*, sternum) is seventeen.

Thee twenty-one versed hymn forms (*Ekavimsa*) is the abdominal portion of the spine. For within the abdomen there are 20 transverse processes (*Kuntapa*), and the abdominal portion of spine is the twenty first. The position of costal cartilage is described in section 8, 6, 2, clause 7 and 10 as follows-“The *Tristubh* (meters) are the breast bone (*Uras*) ; he (sacrificer) places

them on the range of the two *Retahsic* (brick), for the *Retahsic* are two back-bones(*Pristi*), and the back bones lie over against the breast bone.”

Kaushitaka Guhyasutra- If anyone is dead in foreign land and his corpses are not found then 360 *Palashavrnta* were used for symbolic cremation⁶.

Agni Purana- Work of about 10-11 centuries AD, discusses mainly about development of human body, obstetrics, physiology and anatomy. This follows the pattern laid by *Charaka* and *Susruta* in relation to *Sankhya* philosophy. It deals with seven *Dhatus*, *Kalas* and *Ashayas* as well as the ten vital points. The *Agni Purana* seems to be non medical version of early Indian view about osteology. Human body here is divided into six branches as two legs, two hands, trunk and the portion above neck. Like *Kashyapa*, *Charaka* and *Susruta*, it states that human body contains 360 bones. He regards 32 teeth as bones though he knows the *Susruta* count of 300. Bones as humerus, sacrum, coccyx, vomer, lacrymal, hyoid, inferior turbinated, maleus, incus, stapes, breast bone etc. are completely left out.

Agni Purana enumerates basically three hundred sixty bones ^[7] though in

description overall number is 361, rightly enumerating three maxillary bones instead of two as done by *Charaka* and *Susruta* and leaves out the styloid processes of the wrist.

Agni Purana in its 370th chapter entitled *Shariravayava Adhayaya* clearly gives a vision on osteology. Though basic theme is same as per *Samhita Kala* but still few differences are to be visualized. The comparisons of *Asthi* in *Agni Purana* [8] and two *Ayurvedic* classical texts is shown in table below:

Table 2 Comparison between number of each *Asthi* of *Agni Purana*, *Charaka* and *Susruta*

Name of <i>Asthi</i>	<i>Agni Purna</i>	<i>Charaka</i>	<i>Susruta</i>
Teeth	32	32	32
Sockets of teeth	32	32	-
Nails	20	20	-
Phalanges	60	60	60
Metacarpal and metatarsal	20	20	20
Radius and ulna		4	4
Tibia and fibula		4	4
Patella		2	2
Elbow pans		2	2

Femur	2	2	2
Humerus	-	2	2
Collar bone	2	2	2
Shoulder blade	2	2	2
Breast bone	17	17	8
Spinal vertebrae	45	35	30
Vertebrae cervix	15	15	9
Trachea and bronchi	1	1	4
Pelvis			
I. Sacrum	-	1	1
II. Coccyx	-	1	1
III. Ilium, ischium	2	2	2
IV. Pubis	1	1	1
Olecranon (<i>Kurpara</i>)	-	2	2
Os-calcis, heel	2	2	2
Cranium(frontal, parietal, sphenoid, ethmoid)	2+4=6	6	6
Os temporal	2	2	2
Superior maxillary	2	2	2
Inferior maxillary	1	-	-
Nasal	1	3	3
Palate	2	2	1
Molar	2	-	-
Ribs	72	72	72
Carpal	4	10	10
Tarsal	6	10	10
Ear ossicles	-	-	2
Total	361	360	300

Post-Vedic Period

The post-*Upanishad* period from 800 B.C. to 1000 A.D. may be considered the "The Golden Age of Indian Medicine". *Āyurveda*, the science of life evolved during this period and two great proponents of this science existed and practiced medicine in India *Susruta* and *Caraka*. The first written evidence of *Āyurveda* is in the Sanskrit writings of *Caraka Samhita* and *Susruta Samhita*. These two manuscripts form the twin pillars of *Āyurveda*. Both these *Samhitas* devote a complete section "*Sarira Sthana*" to the subject of anatomy which also contains elaborate description of *Sankya*, *Types*, *Uttapti*, *Proyog* etc of *Asthi*.

CONCUSION

Such a detailed knowledge of bones necessarily presupposes a careful study of human skeleton by the *Vedic* sages. This shows that the knowledge of osteology was fairly advanced in ancient India but the scholars preoccupied themselves with only hard parts of human skeleton, i.e. the stuff which remains after the softer tissues of the body have been disintegrated or removed and thus not only the bones, but the cartilages and ligaments too. Knowledge slowly get advanced but as we can see since *Veda's*, *Brahmana's* and *Puranic kaal*

knowledge of *Asthi* was elaborated shows the importance of *Asthi*. Though there may be some differences or lacunas from present day knowledge but, we must experience pride in our glorified knowledge of ancient time in every medicinal field especially in Anatomy and in that too of Osteological knowledge.

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