Basti Therapy of Elephants According to Sage Palakapya

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Abstract. Sage Pālakāpya’s elaborate treatise from the 5th or 6th century BC titled the ‘Hastyāyuveda’ deals with elephant diseases, their remedies as well as elephant behaviour. Basti therapy is one of the main treatments in Ayurvedic literature, involving the introduction into the body of oils, herbal decoctions or other medicinal liquids to treat diseases. Here I describe Basti therapy in elephants, indications for such treatment, and the procedures employed in ancient times, based on the text of ‘Hastyāyuveda’.

Introduction

In Asia since ancient times, Asian elephants (Elephas maximus) have been used for transport, logging, war and religious purposes. Elephants have fascinated humans for millennia and a vast literature related to their characteristics, diseases and treatment developed in eastern cultures. Elephants in captivity are generally healthy and require few therapeutic interventions. However, when they do become ill, treatment is a serious issue. The large body size of the elephant and dearth of pharmacokinetic studies make determining appropriate medications and dosage for elephants a challenging task (Mikota & Plumb 2003). Aside from the weight of the animal, the size, thickness and density of various anatomical structures can physically hinder drug administration. The single most important factor in administering drugs to an elephant is the animal’s cooperation in accepting the medication (Isaza & Hunter 2004). Working around elephants can be dangerous and this is magnified with sick or injured animals subject to increased stress, pain and unusual situations associated with treatment.

In Ayurvedic literature Basti (known also as Vasti) literally means ‘bladder’ or a ‘container’ for medications to cleanse and detoxify the body, as in ancient times sterilized urinary bladders of animals were used to administer medications. An enema is defined as a fluid injected into the lower bowel of the patient by way of rectum and is the commonest form of Basti therapy. Unlike enemas, which are used only for evacuating the bowels and cleansing the rectum and sigmoid colon, Basti therapy treats the entire length of the colon from the ileocecal valve to the anus and is thus used in treatment of a wide range of disorders of the body. It involves the introduction of oils, herbal decoctions or other liquids through the perineum anus, urethra, vagina and their intravenous or intramuscular administration to treat diseases. Classical Ayurvedic texts mention three types of Basti namely Āstāpana Basti (non-oily, using herbal decoctions), Anuvāsana Basti (oily, with medicated oils or ghee remaining in the body for some time without causing harm) and Uttara Basti (upper tract medication that uses a combination of both herbal decoctions and medicated oils). Basti therapy is also classified based on the site of administration of enemas such as the head, eyes, chest, abdomen and back.

Most texts attribute the initiation of elephantology to the Sage Pālakāpya (Harbola 2003). Maharshi Pālakāpya’s treatise titled the ‘Hastyāyuveda’ is an elaborate text dealing extensively with elephant diseases and their remedies (Sharma 1894). It runs to about 20,000 or more verses and is in the form of a discourse between king Romapāda and Sage Pālakāpya and divided into four sections named Mahārogasthāna, Kṣudrarogasthāna, Śalyasthāna and Uttarasthāna. Here I present gleanings from this text about Basti therapy of elephants.

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Enema in early Indian literature

The *Suśruta Sanhitā* (Bhishagrata et al. 1983) mentions the use of a bladder and pipe contraption in detail and provides an excellent description of administering enemas in antiquity for the treatment of piles. He mentions tubular instruments for this purpose and describes them in his text. Traditional enema equipments consist of a tube (*Vastinetra*) and a bag (*Vastiputaka*). The tube is generally made of silver, copper, tin, brass, bell metal, ivory, cow’s horn, bamboo or gold in the case of treatment of royals. The bag is made by curing an oval shaped bladder of an animal, then heated with herbal antiseptic solution and rubbed with oil until it is germ free. The narrow end of the bag is heated and secured to one end of the tube and the other end of the tube shrunk so as to enable injection.

The *Charaka Samhitā* (Sharma & Dash 2001) refers to knowledge of administering enemas as he quotes Dhṛdavala who in turn mentions that disciples of sage Ātreya enquired from him about enemas to be made in case of animals such as elephants, camel, cows, horses, lambs and goats. Similar to *Suśruta, Charaka* also mentions the bladder and tube contraption. *Charaka* prescribes buffalo’s urinary bladder for goats, sheep, elephants, cows and horses (Mukhopadhyaya 1913). He states that injections into the rectum are done by means of a tube with a membranous leather bag (or sterilized urinary bladder of an animal) tied to one end. The other end of the tube is inserted into the rectum. The *Vasti* (enema tube) is 18 angulas (a measure equal to the normal width of a human thumb, approximately 16-20 mm) for elephants and is termed ‘Suvasti’ in *Charaka Samhitā* (Chapter 11, Siddhisthāna).

*Charaka* states that the basic formulations of enemas consist of rock salt, jaggery, Indrayava (Holarrhena antidysenterica), Kuṣṭha (Saussurea lappa), Madhuka (Bassia latifolia) and Daśamāla (combination of ten herbal roots). The additive formulations to the basic enema for elephants are Asvattha (Ficus religiosa) Vāta (Ficus benghalensis), Aśvakarpa (Shorea robusta) and Chitraka (Plumbago zeylanica).

Basti therapy in *Hastyāyurveda*

Sage Pālakāpya describes rectal enema equipment for elephants made either of wood or bamboo. The length of the tube is 68 angulas for elephants. There should be a projection 12 angulas high at the end of the tube for firmly tying the leather bag to the tube. In the context of Basti therapy for treating wounds (*Vraṇavastī*), the tubes used for washing wounds of elephants are to be made of copper and shaped like the *Karontaka* flower measuring 16 angulas in length. These are called wound syringes. The *Uttarasthāna* (Chapter 5, Vastidānakathanam) of the text elaborately deals with enema administration to elephants (Sharma 1894). It states that there are nine kinds of enemas such as those administering oils (*Śnehabasti*), to cause increase of digestive fire (*Agniḍīpana*), to give strength, that which causes rasa to increase, to increase blood, flesh and fat or bone growth, to give strength or to increase marrow and semen.

Sage Pālakāpya describes an elaborate mechanism by which an elephant can be secured or laid down in an appropriate position in the *Śalyasthāna* (Chapter 11, Yantravidhi) of the text. The measurements of a device known as the *Bāhuyantra* are given which provides suitable arrangements to secure the head, tail, loins and limbs of the elephant during medical treatments. The *Bāhuyantra* also has an arrangement by which its height can be increased on the sides and back. Before beginning administration of enema, it states that the elephant must be tied carefully to the *Bāhuyantra* at an auspicious time amidst a sacrifice performed by Brahmins chanting *Śvastimantras* (hymns for well-being of the elephant). Persons on either side and in front of it should instil confidence in elephant to accept the medication by slowly massaging its trunk and other parts.

[A] Ophthalmic drug administration – Administering medications to the eyes is accompanied by enemas administered through rectal route. *Basti* therapy used to relieve tensions trapped in and around the eye sockets and thus treat eye disorders in elephants is termed by Sage *Pālakāpya* as *Netrabasti*. It involves pressing a doughnut ring of flour (dough) around
the eye socket ensuring a good seal with the skin and pouring medication into it. Some eye diseases are cured by surgery whereas some by application of medicated oils to cure affected parts or by administering medications. Placement of medication into the eyes of an elephant must be done carefully. Most trained elephants will permit close visual inspection of the eye, but will close the eye if the medication is placed on the conjunctiva or cornea. Once closed, the ocular muscles effectively prevent manual opening of the eyelid by the Vaidya (elephant physician).

The Śalyasthāna (Chapter 29, Pradeśajñāna) of the text deals with members of the eyes such as eye sockets, the regions above it, pupil, corner of the eye, eyelashes, eyelids, conjunctiva, cornea and angles at the corner of the eyes. The ‘Hastāyurveda’ Aksirōghādyāya (Chapter 18, Mahārāgasthāna) gives details about the causes and diagnosis of several eye diseases (Sharma 1894). One such disease is Nātyamprekṣi caused by sleeplessness in the night (Sheshadri 2015) leading to headache, blurring vision and pain in the eyes. Regarding the cure of eye diseases, the text states that the Vaidya should tie the tusks and bind the eyes of the elephant, followed by application of a mixture of decoctions of various medicinal herbs, salts, honey or by applying collyrium (Añjana) after surgery if needed.

Netrabasti for elephants involves the tying of eyes of elephants using a skin bereft of holes as dealt in Uttarasthāna (Chapter 5, Vastidīnakathanam; Sharma 1894). Netrabasti causes sweating in the elephant. By suitable arrangement, the Vaidya should administer treatment using specially medicated oils, taking care that the eyes do not go up or down. Similar internal therapy is given through the mouth while pleasing the mind of the elephant by playing music of a flute or a Vīnā (a stringed musical instrument) as well as soft words. After the eyes are treated, the area around the eye sockets is massaged. The elephant is made to sweat out by sprinkling hot water, which eases the stressed optical nerves in the region surrounding the eyes (termed as Nādisveda). Sometimes herbal fomentation (application of moist warm compresses) is used to reduce pain and swelling in these regions. This is followed by taking the elephant for a walk and having brought back, it is offered rice moistened by milk, barley, salt, oleaginous materials and made to sleep.

Netrabasti medications can be small measures of barley gruel and ghee. The elephant is tied to the Bāhuyantra and as the medications are slowly administered over the eyes, there is easing of all nerves (Nādis). The Eśani (a probe type) instrument is used to pour medications over the eyes. Medication in eyes should not be in excess as then it causes the windy humours in the body to rise upward and cause pain in the anus, obstructing evacuation of faeces. The text therefore mentions the use of suppositories (a medicated dosage form inserted for evacuation of faeces or urine). These suppositories are termed generally as Phalavarti (Gudavarti if through the anus Sisnavarti if through urethra and Yonivarti if through the vagina). The essence of Bṛhati fruits (Solānum indicum), Apāmārga (Achyranthes aspera), rice, Nirmuḍi (Vitex negundo), Aragyadh (Cassia fistula), Sahachara (Strobilanthes heynianus), Surasa leaves (Vitex trifolia), Pippali (Piper longum), Maricha (Piper nigrum) are smoked and mixed together and made into a wick (Vartī) and inserted into the anus to the extent of 12 aṅgulas causing urine to flow out (Rajan 2005). One must insert the wick while simultaneously applying clarified butter on the pechaka (part around the root of the tail). Sage Pālakāpya mentions some precautionary measures such in tying of the eyes during Netrabasti treatment, where it should not be too tight as it affects the medication. If the medicine is affected there are dośas (fundamental bodily humours due to wind, phlegm and bile). As the eyes get unsteady or get squeezed, the medication causes wind to rise upwards and for faeces affected to pass out through the anus. If the medications poured are less than optimal, then the desired result obtained is also less. If it is afflicted, then death occurs. If medication intake is long and more, then only oils are given. Medications should also not be too strong or soft or cold.

[B] Snehabasti – Sage Pālakāpya states that oleaginous materials and oil can be administered as medications and is termed as Snehabasti. The Uttarasthāna (Chapter 4, Snehavidhikathanam)
describes these oils, giving the opinion of Sages Garga and Bhāradvāja (Sharma 1894). Administration of oleaginous materials and oils give good digestive fire and clear the joints, provide good skin color, remove pitta from the upper belly, removes fatigue, ticks and lice and pacify doṣas of the body. Sage Pālakāpya states that medications are to be given if disorders arise in ears, eyes, tongue, face, teeth and head. Care should be taken so that oils that are administrated are not hot and introduced in haste.

[C] Āsthāpana Basti – This therapy helps in maintaining the body dhatus and doṣas. The ‘Hastiyāurveda’ recommends it for aged elephants, and those suffering from thirst or rut flows. Decoctions made of herbs or oils are used as medications. For excitement of amorous desires, treating diseases related to swooning, worms in the belly or wearing of body dhatu (fundamental principles that support the basic structure and functioning of the body such as lymph, blood, muscles, fat, bone, marrow and semen) this method can be used. Before administering it, the elephant must be tied well and then given the dosage based on its strength, disease, place and time. Āsthāpana Basti eases passage of faeces from the anus of the elephant. The medications are generally mixed with oils or milk and then administered.

[D] Anuvāsana Basti – The therapy, which helps the elephant digest food easily by stimulating its digestive fire by enemas through the rectal route is Anuvāsana Basti. It varies according to seasons and is generally given after meals. In the case of Anuvāsana Basti, the elephant is first subjected to massage of the pelvic and abdominal regions after food intake and made to sweat by light physical exercise. Oils are given along with soft warm salts as a moisturizer to moisten dry tissues, reduce digestive disorders - especially those arising from wind (vāta). Salts remove all poisonous wastes and give strength. If the bowel and bladder are empty after evacuation, it indicates that medication is retained without causing harm to the elephant. Nasyakarma or inhalation as a method of drug delivery is limited. However Sage Pālakāpya mentions Nasyakarma for elephants in several sections of his text, to treat diseases of the head. Medications through the naso-oral tract (as in Nasyakarma) is detrimental along with Anuvāsana Basti (involving unctuous substances given after meals) as it makes the stimulated doṣas to move in an upward direction causing other diseases related to vision and the head. 

[E] Kṣīrabasti – Elephants can be administered milk as it is the best medication for treating blood disorders according to Sage Pālakāpya. For disorders of flesh, bone and fat, salt can be used, while for disorders of semen and marrow, water can be used as an additive. The text states that milk is added to a decoction of five roots (Pañcamūla), til seeds (Sesamum indicum), Uṣira (Vetiveria zizanoides), Padmaka (Prunus cerasoides), lotus, sandal, Rāśna (Vanda roxburghii), Prapaundarika (Nelumbium speciosum), Mustaka (Cyperus rotundus), Mṛdvīka (Vitis vinifera), Māmśi (Nardostachys jatamansi), Maḥīṣīṭha (Rubia cordifolia), sugar and honey. Kṣīrabasti is also used to cure thirst, swooning, breathlessness and decreased flow of blood in arteries. It is generally practiced in case of elephants that are old, weak, whose rut flow has ceased or whose body dhatu are worn out.

[F] Medications to remove doṣas – The text gives a long list of herbal formulations used as enemas to treat afflictions of the doṣas. The urine of elephants, ass and camels mixed with sour curd, liquor, grains, Badara (Ziziphus jujuba), moist black til seed oil (Sesamum indicum) made bitter with salt are to be given as medications to remove phlegm. To pacify pitta (bilious) disorders, a herbal decoction of ‘milk trees’, Rodhra (Smplocos racemosa), Piṇḍśraka (Randia dumetorum), Kaseruka (Scirpus grossus), Abhirupatrika (Asparagus damosus), Śyāma (Ipomomoea turpethum), Dhara (Emblica officinalis), Khadira (Accacia catechu), Turanti (unidentified), Agnimantha (Clerodendrum phlomoides), Nīpa (Barringtonia racemosa), Katphalacetasa (Myrica esculenta), Shadi (unidentified), Suwarnakṣīri (Argemone mexicana), Vajrajambu (Syzygium cumini), Dhātuki (Woodfordia fruticosa), til seeds (Sesamum indicum), Padmaka (Prunus cerasoides), and Uṣira (Vetiveria zizanoides) are
given. They ease the faeces from the anus of an elephant. Warm medicated oils that are strong
are good enemas for curing flatulence. The text
also mentions certain enemas to be given to
pacify the belly as well as treat blood disorders.
Certain enemas are mentioned to cure diseases
of genitals, painful passage of urine or urine
entering into the belly.

[G] Rectal drug administration – Rectal
administration is rare in veterinary medicine
but considering the size of elephants it is a
benefit as it can hold large quantities of drugs
(Isaza & Hunter 2004). It requires acceptance
of manual manipulation of the rectum and colon
and cooperation of the elephant. Knowledge
of administering the correct enemas through
the rectum or anus is required so that they do
not cause irritation in the colon or walls of the
intestine. Further, such enemas are to be carefully
deposited manually inside the anus so as to reach
as far as the cranial and pelvic portions rather
than being prematurely ejected from the rectum
in the form of faeces. The procedure is initiated
now-a-days by manually removing the large
faecal balls (Mikota & Plumb 2003).

The ‘Hastyāyurveda’ mentions that if the
anus is affected, the pitta disorders are more
in elephants and gives several formulations to
ease faeces. The Kṣudraragasthāna (Chapter
40, Śonitāndādhyāya; Sharma 1894) describes
inflammation of the scrotum in elephants and how
it leads to urinary disorders. These also can be
treated by enemas. The Uttarasthāna (Chapter 5,
Vastidānakaṭhanam) of the text mentions that one
must follow Uttara Basti therapy for treatment
of urinary diseases such as painful passage
of urine, excess or scanty flow, urine entering
the belly, and blood passing along with urine.
Sage Pālakāpya recommends the use of tubular
instruments (called Puspanetra) for injections
into the vagina and urethra. These tubes have a
length and circumference that is in accordance
with the length and breadth of the passages into
which they are to be inserted (generally penis of
the elephant for Uttara Basti therapy).

Sage Pālakāpya quotes one instance of rectal drug
administration that is very brief but interesting:

In some cases, pregnant elephants suffer from
a condition of a dead foetus remaining within
the uterus. The animal struggles due to labour
and thus removal of the foetus by instruments
without affecting the mother represents a
severe problem. The Śalyasthāna (Chapter 33,
Mūḍhagarbhāpanayanam) deals with such a
case of a dead foetus and its removal as follows
(Sharma 1894) – “Using a decoction of clarified
butter, śāli rice, Dhanvana (Grevia tilifolia)
plant, one must worship the right portion of the
trunk and also genital openings, slowly instilling
confidence in the elephant. Then slowly injecting
one’s hand into the womb of the elephant one must
pull out the dead foetus. If it cannot be removed
the normal way, one must use instruments,
slowly excising obstructing parts and hurriedly
one must stitch the parts to protect the mother
and remove the foetus.” This shows that ancient
Indians sought divine help for animals even
during surgical procedures for them.

[H] Multipurpose enemas – The ‘Hastyāyurveda’
elaborates on certain enemas to counter diseases
that are caused by wrong administration of
enemas that lead to aggravation of doṣas. In this
context the text states that enemas must not be
too strong, neither too hot nor cold and must be
administered in the proper measures examining
the doṣas of the elephant. Śyāma (Ipomoea
turpethum), Tryvī (Operculina turpetham)
and oil are to be given as medications to go
deep and to be absorbed by the body. Therapy
for the treatment of heart involves Triphala [a
combination of Āmalaki (Emblica officinalis),
Vibhītaki (Terminalia bellirica), Harītaki
(Terminalia chebula)], oils, Śāli (Oryza sativa)
roots, ChiraBilva (Holoptelea integrifolia) and
roots of Śyāma (Ipomoea turpethum), all made
into a decoction. For swooning, cold enemas are
to be given. These can also be given to excite
amorous desires.

Post-enema administration observations

Some interesting details of the elephant’s bodily
response to administered enemas are given in the
‘Hastyāyurveda’ (Sharma 1894). This involves
careful observations, examination and diagnosis.
The Kṣudraragasthāna (Chapter 43) of the text
devotes an entire chapter to treatment of old age in elephants and their daily regimen. Details of anointing the head with medicated oils, making the sleeping place soft by spreading Darbha (Imperata cylindrica) or other grasses are to be done post-enema administration in the case of aged elephants. Sage Pālakāpya states that the eyes treated with weak enemas or in excess, cause pain in the anus of elephants. Oleaginous materials and oils that are administered reach heart portions and affect the elephant if it has not eaten. These may also afflict the belly and wind may rise to the upper portions, eyes, ears, head and nose. If not eaten, oily Anuvāsanas are to be given. One must observe the elephant’s behaviour for seven nights and then administer the oil for three days. By this the strength of the elephant increases. Basti therapy has to be also given based on examination of movements, load carrying capacities, suffering excess heat, cold, rain, fire or sounds.

The text states that leprosy, ulcers and urinary disorders are to be cured by Anuvāsana Basti. If swooning occurs or if it suffers from thirst, yellowish oils are to be given. Enemas that cause pain or which are poisonous are not to be given.

Conclusion

One finds a tremendous development of knowledge of administering medications as well as therapies to both humans and animals from remote periods. It is remarkable that ancient Indian veterinarians recognized such diseases and complications of animals and treated them, especially in large populations of elephants in armies and royal stables as well as those that were in the wild. Inter-disciplinary research into the various Basti therapies recommended by the text for treatment of various diseases as well as the diagnostic and surgical procedures for pregnant or war elephants would be a topic of research that would bring forth the excellent contributions of Sage Pālakāpya. The text is also useful for practically implementing Basti therapy for elephants in modern veterinary health care as post-enema observations are also given in the text. A study of these aspects may allow timely identification and treatment of elephant diseases.

Acknowledgements

I would like to thank the Secretary, Mythic Society, Bangalore and Secretary, Kannada Sahitya Parishat, Bangalore for providing the necessary references

References


