



## HISTORY OF MEDICINE

## Ethics and surgical training in ancient India – a cue for current practice

B Singh, Swami Saradananda

Diseases and ailments have afflicted humanity since antediluvian times. Man's response in treating disease and, on occasion, finding its cause has been synonymous with the evolution of society, no matter how ancient. Therefore, medicine as we know it today is as old as Man, and must have developed with the first awakening of human consciousness, evolving with successive civilisations. It is therefore not surprising that the antiquity and the rich tapestry of ancient India has been long associated with seminal contributions to the development of medicine.<sup>1,2</sup>

Ancient India's contributions to ethics and surgical training are remarkable – and, almost 3 000 years later, continue to have great relevance today, given current widespread concerns about the erosion of long-held value systems and cherished codes of medical practice.

In this era of enormous technical advances and innovative therapies, the influence and power of crass materialism and rampant commercialisation grows ominously. Sadly, the benefits of advanced technology are far from available to all, and the business of health care becomes increasingly venal. Doctors are better informed about their conditions of service and their career opportunities than the rights and welfare of their patients. It is inevitable, under such circumstances, that deviant practices and tendencies will come to taint ethical medical practice and training.

In the light of this state of affairs, a review of medical ethics and some principles of surgical training from ancient India may be pertinent.

In brief, the history of ancient India extends from the pre-Vedic period (around 6 000 BC), through the Indus and Saraswati civilisations (2 500 – 1 550 BC), the Vedic period (1 700 - 500 BC) and the rise of Jainism and Buddhism (up to 325 BC), to the Mauryan period which extends up to 500 AD.<sup>3</sup>

Department of Surgery, Nelson R Mandela School of Medicine, University of Kwa-Zulu-Natal, Durban

B Singh, FCS (SA), MD

The Ramakrishna Centre of South Africa, Durban

Swami Saradananda, D Litt et Phil

Corresponding author: B Singh (singhb3@ukzn.ac.za)

March 2008, Vol. 98, No. 3 SAMJ

### The Vedic period

The spirituality and philosophy of ancient India recognised a degree of divinity in all beings, hence the sanctity of all life; it held that all beings should be treated with respect and dignity. This implied non-violent interpersonal relations. Selfless service to fellow beings was seen as a pathway leading to the highest spiritual culmination of life – to God.

Before the advent of writing, healing was a part of the spiritual tradition of the *Sanatana Dharma* or Vedic religion. The roots of modern medicine are found in the earliest known texts of ancient India, the Vedas, which are at least 5 000 years old.<sup>4</sup> The earliest known protagonists of Indian medicine (such as Dhanvantari, Atreya, Kashyapa and Bhela) based their work on these ancient texts about spiritual philosophy and ethics.<sup>5</sup>

### The concept of *dharma*

*Dharma* (right behaviour)<sup>6</sup> constituted the bedrock of ancient Indian society; *dharma* required a man to live in society as a civilised being, subordinating his selfish urges to the interest of others. Through inculcation of *dharma*, a high standard of ethics and a defined code of conduct were achieved. In addition, there was widespread acceptance of non-material values being more virtuous than material pursuits. In more recent times – into the early 20th century – this philosophy was expounded by Swami Vivekananda as: 'Service to man is service to God'.

### The Samhita period

The early Vedic period was followed by the Samhita (compendium, treatise) period (about 800 - 700 BC). During this time, Indian civilisation produced very evolved forms of ethics, rational thinking and conscience;<sup>7</sup> profound intellectual turmoil ushered in an era of scientific method that transformed magico-religious medicine into rational scientific medicine. The legacy of this transformation is reflected in the *samhitas* of Susruta and Caraka. These great works of medical literature detailed scientific research, patient examination and experimentation that served as reference works for students and practitioners.<sup>8</sup> Thus developed '... one of the best developed medical systems of antiquity'.<sup>9</sup>

Caraka, the protégé of Atreya, represented the school of physicians. The Charaka *samhita* provides an elaborate code of conduct, stressing that the medical profession has to be



motivated by compassion for living beings;<sup>10</sup> thus, '... he who treats his patients only on humanitarian grounds without desiring any money or personal benefits in return, supersedes all other physicians'.<sup>11</sup>

### Contribution of Susruta

Among medical historians, the historical provenance of Susruta has long been a controversial subject. Susruta's era has variously been placed between 900 BC and 100 AD, a possible reflection on the lack of direct evidence. However, the discovery and review of the Bower Manuscript, which includes references to ancient Indian medicine, places Susruta in the 5th century BC or earlier.<sup>12,13</sup> It is mentioned that he taught surgery at the eastern University of Benaras, on the banks of the river Ganges. An accomplished surgeon, philosopher and above all a great teacher, his compilation of the Susruta *samhita*, a monumental treatise of seminal value, established him as arguably the brightest jewel in the history of surgery in the ancient and medieval period.<sup>8</sup>

Allen O Whipple commented in 1963 that, 'All in all, Susruta must be considered the greatest surgeon of the medieval period'.<sup>14</sup>

K K Bhishagratna, the highly respected authority on the life and works of Susruta, wrote: 'To Susruta may be attributed the glory of elevating the art of handling a lancet or forceps to the status of a practical science'.<sup>15</sup>

### Medical ethics in ancient India

The training of doctors, and their code of ethics and practice, in ancient India holds a salutary position in the history of medicine. The high ideals of medical practice and the responsibility of the physician are emphasised in Caraka's poignant statement: 'No other gift is better than the gift of life'.<sup>16</sup>

Caraka clearly outlined four ethical principles of a doctor: 'Friendship, sympathy towards the sick, interest in cases according to one's capabilities and no attachment with the patient after his recovery'.<sup>17</sup> The Caraka *samhita* emphasises the values central to the nobility of the profession, thus: 'Those who trade their medical skills for personal livelihood can be considered as collecting a pile of dust, leaving aside the heap of real gold'.<sup>15</sup> Furthermore, 'He who regards kindness to humanity as his supreme religion and treats his patients accordingly, succeeds best in achieving his aims of life and obtains the greatest pleasures'.<sup>17</sup>

In the Susruta *samhita*, the doctors's duty and obligations to the patient are stressed: 'The patient may doubt his relatives, his sons and even his parents but he has full faith in the physician. He [the patient] gives himself up in the doctor's hand and has no misgivings about him. Therefore, it is the physician's duty to look after him as his own son'.<sup>18</sup>

Prospective medical students were carefully selected according to the criteria of the noble ethos of the profession. Students were expected to study for 6 years before being allowed to practise the art of healing. At the onset of training, a solemn injunction (that preceded the Hippocratic Oath by several centuries) was delivered to the student, who had to: '... renounce lust, anger, greed, ignorance, vanity, selfishness, envy, rudeness, miserliness, falsehood, sloth and all other acts that bring a man to disrepute. At the proper time, you must clip your nails and trim your hair, and put on the saffron robe of the student. You must live the truthful, disciplined life of a student and obey and respect your teacher. At rest, asleep or awake, at meals, at study and in all your acts, at all times you must be guided by my instructions. All actions should be pleasant and beneficial to me, otherwise your knowledge and study will be ineffective and you will never achieve fame'.<sup>18</sup>

Significantly, the conduct of the teacher was also subject to scrutiny, thus: 'If I [the teacher] act unjustly towards you even when you obey me totally and faithfully carry out my instructions, may I incur sin, and may my knowledge, rendered futile, never be displayed or come to fruition'.<sup>19</sup>

The current erosion of ethical practices has been of sufficient concern to prompt professional associations, organisations controlling registration, as well as parastatal structures, to set out detailed guidelines on ethical practices and to provide regular continuing medical education in this area. However, the prostitution of principles continues. Endeavours to restore these are often misdirected:

- The teaching of ethical conduct, in most curricula in South Africa, is dialectical.
- Despite well-intentioned clinical vignettes, teaching is invariably in lecture halls far removed from clinically relevant situations.
- Standard textbooks address the subject in a perfunctory manner.
- Medical ethics is generally taught by those having acquired subject certification, rather than by definitive role models or credible exemplars.
- There are fundamental shortcomings in social attitudes and value systems.

The reality is that, despite concerted efforts by professional bodies and committed teachers and the institution of appropriate legislation, further decline in ethical practice is likely to continue unchecked.

### Surgical standards

Notwithstanding all its refinements and advanced techniques, modern surgery could yet benefit from the seminal contributions of ancient Indian society to the human spirit. In the context of the current erosion of value systems, we can



draw great inspiration from the code of practice, nobility of profession and ethos of service to humanity that was exhibited by Indian surgeons of old. As a profession, if not as part of wider contemporary society, we have not always kept pace with the lofty traditions and value systems of some older civilisations. While it would be impractical now to totally embrace the value systems of ancient India, among which was that of selfless conduct, the infusion of some aspects of their philosophy into modern teaching and instruction can still be beneficial.

## Surgical training in ancient India

Almost 2 000 years before the traditions of the barber surgeon, surgical apprenticeship and residency, clear guidelines existed for the training, evaluation and registration of surgeons. In the Susruta *samhita*, it is stated that '... practice can be started only after having read and thoroughly studied the science of medicine; having seen and performed the operations himself; having passed the appropriate tests and thence obtained the permission of the governing authority'.<sup>20</sup>

Being fundamentally a surgical treatise, the Susruta *samhita* lays more emphasis on practical training. Susruta insisted that the enormous amount of oral training should be balanced by practical efficiency. He thus stated, in colourful and poetic language, that '... he who knows theory only but is not so good in practical work, gets bewildered on being confronted with a patient, in the same way as a coward feels on the battlefield'.<sup>21</sup>

The successful outcome of an operation follows from the surgeon being familiar with the procedure undertaken. Susruta advised that '... he who wants to be expert in the use of surgical operations ... should practice the same experimentally on similar problems'<sup>22</sup> (section 1. 9. 6); and '... an intelligent surgeon who does experimental surgery methodically on such articles as stated above does not lose the presence of his mind, while doing the actual operation'.<sup>23</sup>

The special qualities of the surgeon are emphasised: 'Boldness, swiftness, sharpness of instruments, no sweating or trembling of hands and confidence are the qualities of a surgeon at the time of operation'.<sup>24</sup> Anatomy as the basis of surgery was emphasised more than a millennium before the contributions of the like of Galen and Vesalius. Thus: '... the surgeon who knows the structures of all the body cannot be misled into errors of anatomical ignorance'.<sup>25</sup> Furthermore, it was held that '... only he can be considered an expert [surgeon] who is well versed in the practical and descriptive anatomy. Therefore, one should start the procedures [of surgery] after clearing away the doubts by actually seeing [the surgical anatomy concerned] and consulting [the appropriate literature]'.<sup>25</sup>

Sound academic knowledge and practical experience were considered to be of complementary value and equally important for the surgeon; thus, the surgeon '... who is good

in practical work because of his boldness, but lacks theoretical knowledge, is not respected in the cultured society; actually he deserves punishment by the government'.<sup>26</sup>

Knowledge possessed by the doctor had to be thorough; there had to be '... minute consideration of the drug, medical properties ... of viscera, vessels, nerves, joints and bones and cartilage ... of curability, palliativity and incurability of the diseases and of thousands such other problems that baffle even those persons who possess a clear and vast knowledge, not to speak of men with lesser intelligence. Hence it is very necessary for the teacher to explain thoroughly each verse and part thereof and for the students to listen to these attentively'.<sup>27</sup>

The value of related sciences was stressed, since '... a person who studies one branch of science cannot arrive at proper conclusions, therefore a physician should try to learn as many sciences as possible'.<sup>27</sup> Also '... one should listen to the lectures given by specialists of that branch, as it is not possible to include all branches of science in one subject'.<sup>21</sup> In addition, '... in order to broaden your knowledge and outlook, you should study the subject regularly, take part in scientific debates and discussions, observe the allied sciences and take training from specialists of those branches'.<sup>21</sup>

Surgery was considered as an independent field; Caraka stated, '... it is not fair for a physician to interfere in the field of a surgeon, hence I am not going into the details of this subject'.<sup>26</sup> The recognition of sub-specialties in surgery was prescient: 'Thus experts in the use of caustic or hot cauterization should only handle the cases which fall in their domain'.<sup>28</sup>

The initiation of a surgical student and his training in the various techniques was emphasised. In a manner analogous to workshops on surgical techniques, students were expected to hone their surgical skills as follows:

'... the art of making specific forms of incisions should be taught by cuts in the body of a pushpaphala [a kind of gourd], watermelon, cucumber ... the art of making cuts in an upward or downward direction should be similarly taught. The art of making excisions should be practically demonstrated by making openings in the body of a full water-bag, or in the bladder of a dead animal ... the art of scraping should be instructed on a piece of skin on which the hair has been allowed to remain. The art of venesection should be taught on the vein of a dead animal, or with the help of a lotus stem. The art of probing ... on worm-eaten wood, or a bamboo ... the art of extracting by withdrawing seeds from the kernel of a vimbi or jack fruit, as well as by extracting teeth from the jaws of a dead animal. The act of secreting or evacuating ... on the surface of a shalmali plank covered with a coat of bee's wax, and suturing on pieces of cloth, skin or hide. Similarly the art of bandaging or ligaturing should be practically learnt by tying bandages round the specific limbs and members of a full-sized doll of stuffed linen. The art of tying up a karna-



sandhi [severed ear lobe] should be practically demonstrated on a soft severed muscle or on flesh, or with the stem of a lotus lily. The art of cauterising, or applying alkaline preparations, should be demonstrated on a piece of soft flesh; and lastly the art of inserting syringes and injecting enemas into the regions of the bladder or into an ulcerated channel, should be taught by asking the pupil to insert a tube into a lateral fissure of a pitcher, full of water, or into the mouth of a gourd.<sup>29</sup>

The philosophy behind the training and teaching of surgical skills to surgeons in the era of ancient India resonates with modern trends in surgical education,<sup>30,31</sup> and is strongly reminiscent of present-day courses such as basic surgical skills and laparoscopic workshops, thus underscoring the view that innovations are seldom truly original. The accountability of the teacher for unacceptable practices, and of the doctor to 'the government', is analogous to the role of present-day professional controlling bodies; this demonstrates a remarkable vision that deserves great admiration.

#### References

1. Udawadia FE. Ancient Indian medicine. In: *Man and Medicine – a History*. New Delhi: Oxford University Press, 2000: 3.
2. Leonardo RA. Hindu surgery. In: *History of Surgery*. New York: Froben Press, 1943: 17-18.
3. Basham AL. *The Wonder that was India*. 3rd ed. London: Picador, 2004: 32-58.
4. Macdonell AA. *A History of Sanskrit Literature*. New York: D Appleton & Co., 1914: 40 - 218.
5. Prasad PB. Evolution of modern surgery. In: Hai AA, Shrivastava RB, eds. *Textbook of Surgery*. New Delhi: Tata McGraw Hill, 2003: 1-10.
6. Prakesh O. *Cultural History of India*. 1st ed. New Delhi: New Age International Publishers, 2005: 83-87.
7. Davids R. *Buddhist India*. Calcutta: Susil Gupta Publications, 1965: 155.
8. Prakash UBS. Shushruta of ancient India. *Surg Gynecol Obstet* 1978; 146: 263 -272.
9. Veith I. The surgical achievements of ancient India: Susruta. *Surgery* 1961; 49: 564-568.
10. Francis CM. Medical ethics in India; ancient and modern. *Indian Journal of Medical Ethics* 1996; 4: 4.
11. Caraka samhita In: Singhal GD, Gaur DS. *Surgical Ethics in Ayurveda*. Vol. XL English translation based on the original Sanskrit text. Varanasi, India: Chowkhamba Sanskrit Series Office, 1963: 30.
12. Raju VK. Susruta of ancient India. *Indian J Ophthalmol* 2003; 51: 119-122.
13. Rana RE, Arora BS. History of plastic surgery in India. *J Postgrad Med* 2002; 48: 6-78.
14. Whipple AO. *The Story of Wound Healing and Wound Repair*. Springfield, Ill.: C Thomas, 1963: 18.
15. Bhashagratna KK. Introduction in: *The Susruta Samhita*. Vol 1. English translation based on the original Sanskrit text. Varanasi, India: Chowkhamba Sanskrit Series Office, 1963: i-xvii.
16. Ibid. p. 31.
17. Susruta samhita. In: Singhal GD, Gaur DS. *Surgical Ethics in Ayurveda*. Vol. XL, English translation based on the original Sanskrit text. Varanasi, India: Chowkhamba Sanskrit Series Office, 1963: 33.
18. Bhashagratna KK. Introduction in: *The Susruta Samhita*. Vol 1. English translation based on the original Sanskrit text. Varanasi, India: Chowkhamba Sanskrit Series Office, 1963: 18-19.
19. Ibid. pp. 30-31.
20. Ibid. p. 42.
21. Ibid. p. 85.
22. Ibid. p. 86.
23. Ibid. p. 35.
24. Ibid. p. 40.
25. Ibid. pp. 42-43.
26. Ibid. p. 41.
27. Ibid. p. 44.
28. Bhashagratna KK. *The Susruta Samhita*. Vol 1. English translation based on the original Sanskrit text. Varanasi, India: Chowkhamba Sanskrit Series Office, 1963: 71-72.
29. Hamdorf JM, Hall JC. Acquiring surgical skills. *Br J Surg* 2000; 87: 28-37.
30. Cox M, Irby DM. Teaching surgical skills – changes in the wing. *N Engl J Med* 2006; 355: 2664-2669.

Accepted 10 May 2007.