

Medicine and Surgery—History, Change and Challenge

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Abstract

In this lecture I will discuss the history of medicine and surgery in ancient China and India, and examine the value systems underpinning medical and surgical practice in these two civilizations. I will touch on some of the enduring “Asian” values that may be abstracted from the past to ensure that modern medicine along with surgery remains first and foremost a moral activity that renders public service, and is practiced with compassion and altruism.

I will outline briefly the spread of Western or allopathic medicine into Asia and the rest of the world. Finally, I will look at the challenges that confront us today with the intrusion of high technology and the market economy into the practice of our profession. I will show how this has fundamentally altered the way we practise medicine and surgery and the delivery of health care.

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Mr Koh Yong Guan, guest-of-honour; Dr Tan Ser Kiat, Master, Academy of Medicine; Dr K C Tan, Chairman, Chapter of Surgeons; Dr Robert Jalleh from Malaysia; Dr Idris Darwis from Indonesia; Dr P B Chacha, my esteemed partner; Dr John Isaac, Master of Ceremonies; fellow academicians, practitioners and friends, allow me to express my sincere thanks to the Chapter of Surgeons of the Academy of Medicine for the opportunity to address the distinguished audience before me. It is indeed a great honour for me to deliver the 8th Chapter of Surgeons' lecture.

I would like to take this opportunity to acknowledge my gratitude to my first surgical mentor, Mr Yahya Cohen, who is not here today but I am very grateful for the presence of Mrs Nina Cohen.

I would also like to acknowledge Dr Chacha for his kind words—he has been my partner for many years but thankfully, familiarity has not bred what it sometimes does.

Introduction

The subject of my lecture is Medicine and Surgery—History, Change and Challenge. I will link this subject to the theme of the combined surgical meeting, which is “Technological Advances in Surgery”.

Despite some recent hiccups in our part of the world, it appears that the focus of global economic activity has shifted to Asia. The resurgence of Asia has prompted

some thinkers to attribute the region's economic success to some Asian values. Values such as discipline, thrift and hard work are seen as instrumental in driving the Great Asian Economic Miracle forward. Therefore, in true surgical style, it may be instructive to probe into the history of medicine and surgery in ancient China and India and examine what “Asian” values underpinned medical practice in these civilizations. We may then assess if these values have relevance for our modern medical practice. Let us, therefore, take a trip through the pages of medical history.

Ancient China

Classical Chinese medicine was based primarily on works ascribed to three legendary emperors.

1. The most ancient was Fu Hsi (c. 2900 BC) who originated the “*pa-kua*” symbol which represents the basic yin-yang (male-female) dichotomy. The divided and undivided lines of the trigrams, initially thought to be elements of good and evil fortune, were later interpreted as cosmic forces. When the 8 trigrams, each containing 3 lines, multiply themselves to form 64 hexagrams, they are taken to represent all possible forms of change, situations and institutions. Thus a complex civilisation is conceived of as having a simple beginning and then undergoing systematic and progressive development. This philosophy tries to dispel the view that the universe is controlled by

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spiritual beings and needs divination to be discovered and instead propagates the view that there is a natural operation of forces that can be determined and predicted objectively.

2. The next emperor was Shen Nung (c. 2800 BC) also known as the Red Emperor or Hung Ti. He compiled the first medical herbal encyclopaedia consisting of more than 300 medical drugs all of which had been personally tested by him. Shen Nung also drew up the first charts of acupuncture.
3. The third emperor Yu Hsiung (c. 2600 BC) was otherwise known as the Yellow Emperor or Huang Ti and his fame rests on his great medical compendium called the *Nei Ching* (canons of medicine). This was transmitted orally for centuries until the Han period (206BC to AD200) when it was formalised and written down as a text.

Chinese physicians viewed illness as the result of an imbalance between the 5 basic elements—earth, fire, water, wood and metal, and between the forces of yin and *yang*. The Chinese, unlike early Greek thinkers and modern thinkers of Western medicine, were not as taken up by the causal relationship of illness as they were with the synchronic pattern of things and events. In other words, the Chinese established patterns by contrasts and comparisons instead of a chain of cause and effect. Professor Joseph Needham of Cambridge University, who has researched and written extensively on science and civilisation in China, has referred to this attitude as “correlative thinking”.

The correlative and dynamic way of thinking is basic to the concepts of Chinese medicine. The healthy individual is an integral part of a greater pattern, and illness is a disharmony in the order of things. The Chinese physician wanted to learn how the patient had violated the right path or *tao*. The patient had to be put back on the *tao* to be well.

The Chinese regarded the individual, like the cosmos, in a state of dynamic balance. The concept of *Ch'i* embodies this state of dynamic balance. *Ch'i* is not a substance or an energy. *Ch'i* is a subtle concept describing the various patterns of flow and fluctuation in the organism as well as the continual exchanges between the organism and the environment. When there is an imbalance, the *ch'i* does not flow well and causes illness. It is therefore logical that preventive measures are emphasised in the Chinese system of medicine.

It is said that doctors in China used to be paid only while their patients stayed well and payments stopped when they became ill.

The *Nei Ching* explains that “to administer medicines to diseases which have already developed..... is comparable to the behaviour of those persons who begin to dig a well after they have become thirsty, and of those

who begin to cast weapons after they have already engaged in battle. Would these actions be not too late?”

The concepts and attitudes I have related imply a role for the doctor in ancient China quite different from that of the doctor of modern Western medicine. In the western system, it is the specialist with the detailed knowledge of a specific part of the body who is accorded the highest reputation. In Chinese medicine the ideal doctor is a sage who knows how the patterns of the universe work together and how a patient fits into the total pattern. This is a system based on degree and order, pattern and hierarchy.

The traditional Chinese diagnosis is necessarily a lengthy process in which the patient must actively participate by giving information about his or her personal way of life. The entire diagnosis relies heavily on subjective judgements by doctor and patient, and is based on a body of qualitative data obtained by the doctor through the use of the senses of vision, touch and hearing, and through close interaction with the patient. It is qualitative rather than quantitative data that is considered more important.

In contrast, the modern Western culture which encompasses the type of medicine that we practice, is preoccupied with objectivity, quantification and rational knowledge. Such are the values inherited from the European philosophical tradition known as the Enlightenment, which placed the quantifiable over the intuitive. The effect of this philosophy has created a basic insecurity in dealing with messy human values and subjective human experience in our modern, technological medical culture. In medicine and surgery, all good physicians and surgeons use intuition and subjective knowledge but these values are not acknowledged in the professional literature and are rarely taught or passed on in our medical schools.

Modern Western medicine, of which we are products, promotes the view of the human body as a machine to be analysed in terms of its parts. This is the system we follow for accreditation of a specialist e.g. cardiac surgeon, hand surgeon, gastroenterologist, ENT surgeon, gynaecologist, psychiatrist etc. Health is seen as the absence of disease, disease is seen as a malfunctioning of a biological mechanism, and the mind is seen as separate from the body. Our present institutions are based on a narrow biomedical approach to the treatment of diseases and not a **holistic** approach that is the bedrock of ancient Chinese medicine.

When we speak of the **holistic** approach, we should distinguish between two kinds—in a narrower sense **holism** in medicine means that we construe the human organism as a system whose components are all interconnected and interdependent. In a broader sense, the **holistic** view regards the human organism as an integral

and interdependent part of a larger physical and social environment. Chinese medicine is **holistic** in the broader sense in the diagnosis of illness. It is this aspect which is extensively discussed in the medical classics.

However, it is the narrower concept of **holism** that is taken into consideration by the Chinese practitioners when prescribing therapy. Such therapy usually ignores the social and psychological aspects of illness. This reluctance to therapeutically affect the social situation of the patient was the result of the strong influence of Confucianism on all aspects of Chinese life. The Confucianist system was mainly concerned with maintaining social order. Illness, in the Confucian scheme of things, could arise from an inadequate adjustment of the individual to the mores and customs of society. Hence, it was up to the individual to change to fit the system and not for the social order to be altered. Thus, great stress was laid on the patient's duty to take responsibility for the maintenance of his or her own health.

While medicine attained a fairly high degree of sophistication, surgery in ancient China did not evolve to the heights found in other civilisations of the same period. Two reasons may explain why:

One reason is the philosophy of trying to restore balance and harmony to reduce disease-the therapeutic techniques advocated were for the purpose to assist the organism to return to its natural state of balance. Therefore, one of the most important principles of Chinese medicine is to give as mild a therapy as possible and not to turn to more drastic measures that would upset the natural state. Surgery would therefore be a last option. Surgery was not highly regarded and surgeons were known as "third rate graduates".

Another reason was that Confucian tenets emphasised the sacredness of the human body and forbade anatomical dissection. Hence up to the 18th century, anatomy was still being taught by means of charts and diagrams.

Thus surgery was not one of the 5 methods of treatment listed in the *Nei Ching* (the classic canon of medicine). However, the knife was known and used in ancient China. Physicians knew how to deal with wounds and at least 2 classics are devoted entirely to their treatment.

One of the few names mentioned in connection with surgery is Hua T'o. In the 2nd or 3rd century BC, he is supposed to have removed a poisoned arrow from an arm wound of a famous general called Kuan Kung by cutting his flesh and scraping the bone. While undergoing the operation, the general showed his stoic unconcern by playing chess and drinking wine. As a surgeon, Hua T'o achieved great fame but he foolishly ignored politics when he agreed to treat Kuan Kung's bitterest enemy, Tsao Tsao, for a headache. Shortly before the

operation on the head began, Tsao Tsao became suspicious that this could be an attempt on his life and had the surgeon executed on the spot.

Hua T'o is credited with performing numerous operations ranging from laparotomy to trephination. Hua T'o's work was legendary and he was worshipped as the god of surgery but unfortunately all his writings were destroyed at his death. Despite the achievements of Hua T'o and other surgeons, Chinese surgery progressed little after the Tang dynasty (AD 610 to 907) and no books on surgery were written until the mid-nineteenth century as it was only after the 18th century that the Chinese began systematic anatomical dissections and studies.

In contrast, great progress was made in ancient China in the fields of medical audit and licensing. Physicians were rated according to their results and as early as the Chou dynasty, each physician had to report both successes and failures. This was probably the first audit system in the history of medicine and surgery. In the 7th century AD, examinations were required to qualify as a physician and this was some 4 centuries earlier than the first licensing system in the West.

It is not known when the first women doctors were in practice in China. One female physician is mentioned by name in documents from the Han dynasty (206 BC to AD 220) but women may have been doctors at an earlier age. By the 14th century women were officially recognised as physicians.

Before I turn to ancient India, I would like to say a few words on the influence of Confucianism on the moral aspect of medicine. Confucius considered medicine a noble profession and the doctor had to develop a proper moral character by:

- Banishing his personal desires
- Treating a patient without any regard to his or her social status-everyone had to be treated like a close dear relative
- Being single-minded in relieving suffering

Confucius equated the study of medicine as fulfilling the duty of filial piety and considered benevolence to be very important in medicine. In my view, what the master said in Book IV of the *Analects* should be adopted as the personal motto of all our young trainees-"Do not worry because you have no official position. Worry about your qualifications. Do not worry because no one appreciates your abilities. Seek to be worthy of appreciation."

Ancient Indian Medicine

The foundations of traditional Indian healing (Ayurvedic medicine-knowledge of life) date back to antiquity and rest on Sanskrit teachings called the Vedas. It is noteworthy that Indian religion and mysticism allowed a system of secular medicine based on sound

and rational practices in tandem with elements of magic and religious beliefs.

Indian physicians believed that diseases resulted from imbalances between body substances—wind, bile, phlegm and blood. Some historians believe that this was the origin of the ancient Greek theory of the four humours.

The 2 most renowned healers of ancient India were Sushruta (uncertain, from 800BC to 600BC) and Charaka (uncertain, from 600BC to AD200). They lived some 2000 years before the birth of Christ.

Charaka wrote extensively about hospital systems and worked out the attributes of a good hospital:

- Location in a breezy spot free of smoke and objectionable smells and noises
- Location of cooking areas and details of food supply
- Details of equipment even to the extent of proper brushes and brooms
- Availability of drugs
- Personnel to be clean and well behaved and trained to care for patients
- Patient care to include entertainment

Health care companies and some hospitals may yet have something to learn from Charaka.

The Sushruta Samhita (treatise) written by Sushruta is accepted as the finest surgical document of the rational age in ancient India. Sushruta considered surgery of primary importance in all branches of medicine. His stress on surgery is obvious in his writing when he says that “all hold this branch to be the most important of all the other branches of Ayurveda,..... inasmuch as it contains all that can be found in the other branches of the sciences of medicine, with the superior advantage of producing instantaneous effects by means of surgical instruments and appliances.”

Sushruta also declared “Only the union of medicine and surgery constitutes the complete doctor. The doctor who lacks knowledge of one of these branches is like a bird with only one wing”. Although Sushruta considered surgery to be the foremost medical science, operative procedures were to be a last recourse in the therapeutic armamentarium. We find a similarity here with ancient Chinese medicine.

Sushruta was very particular in the selection of an individual who wished to study medicine and surgery. The disciple was expected to study for 6 years. The teacher and the student had a high sense of responsibility to each other. Only 4 to 6 students were permitted to each teacher. Before commencement of his training the disciple took a solemn oath. The oath demanded:

“Thou shalt renounce lust, anger, greed, ignorance, vanity, egotistical feelings, envy, harshness, niggardliness, falsehood, idleness, nay all acts that soil the good

name of a man.”

Only when the teacher found the student sufficiently trained did he submit him for certification by the ruler. This student-teacher relationship is worthy of emulation by our medical schools.

The Sushruta Samhita provides many details of pre- and postoperative care, indications and contraindications for operations and possible complications. Sushruta described a detailed list of at least 125 surgical instruments and included forceps, hooks, catheters, sounds and tubes. Fourteen types of dressings were listed and splints were fashioned from bamboo, bark and branches of trees. Some of the operations described were laparotomy and intestinal repair, caesarean section, cataract operation, hernia repair, cleft lip repair and various amputations.

Cutting off the nose was an official punishment for adultery and other transgressions and so Indian surgeons benefited from such opportunities to develop and refine reconstructive rhinoplasty. Sushruta's description of the technique is quite extraordinary and is the basis of modern rhinoplasty.

In ancient India, as in ancient China, the behaviour of the physicians was expected to conform to the highest ideals of professional and personal life. Even their appearance, dress, speech and manners had to be impeccable. Ethically, Brahmin priests, friends and the poor were supposed to be treated without charge. The finances of the other patients were to determine the bills rendered.

It is very instructive to look at the pledge taken by the medical student in ancient India on completion of his training and indicates a very high standard of personal and professional commitment. The pledge went thus:

“Dedicate yourself entirely to helping the sick, even though this may be at the cost of your own life. Never harm the sick, not even in thought. Endeavour always to perfect your knowledge. Treat no women except in the presence of their husbands. The physician should observe all the rules of good dress and good conduct. As soon as he is with a patient, he should concern himself in word and thought with nothing but the sufferer's case. He must not speak outside the house of anything that takes place in the patient's house. He must not speak to a patient of his possible death if by so doing he hurts the patient or anyone else. In the sight of the gods you are to pledge yourself to this. May the gods help you if you follow this rule. Otherwise, may the gods be against you.”

Thus from ancient China the ethos that emerges is a **holistic and preventive** medical philosophy. The escalating cost of health care today cannot be reduced until our citizens assume individual responsibility for health maintenance rather than seeking health care after an

illness develops. This refocusing from treatment to prevention would reduce health care costs, of which technology is a major part.

From both ancient India and China we learn of a code of **altruistic** medicine practiced with compassion.

These Asian values from ancient China and India can guide us today to practice medicine and surgery as a moral activity and at the same time enable us to render public service by looking after the health needs of the community.

The authority of Chinese culture and philosophy as well as Chinese medicine moved east as well as west by the 7th, and 8th centuries. On the other hand, Arabic and Indian missionaries of Islam, and Buddhism made their way to China to seek converts. Translations allowed medical knowledge to pass back and forth. Consequently, the crossroad areas of Southeast Asia developed a medical system combining aspects of Chinese, Indian and Arabic practice.

The global spread of western health care is a by-product of the expansion of European colonialism from the 16th century onward. The British East India Company started the Madras Hospital in India in 1664. The establishment of colonial medical schools helped to spread western medical ideas.

Missionaries were also active in the colonies developing health-related facilities including public sanitation. From 1830, medical missionaries travelled to China from the West and set up rural health services that led to the "barefoot doctors" of the 1960s. In today's developing and Newly Industrialised Economies (NIEs), health systems generally reflect the organisational approach favoured by the relevant colonial power.

The Second World War was responsible for much technological advancement and thus high-tech medicine was born. Since then there has been an explosive growth in this area resulting in an extraordinary change in the field of medicine-both the social organisation and the techniques of medical care have been radically altered. Every new advancement has brought with it burdensome ethical and economic considerations.

There is no doubt that technological advances in medicine and surgery have improved patient care and quality of life and also extended the duration of life. But have we become addicts and use technology as a substitute for common sense, reason, judgement and a satisfying patient-doctor relationship?

Furthermore; until recently, medicine was considered to be a social good. Physicians were not impervious to economic pressures but these pressures were weak and professionalism was strong. But, increasingly, professionalism seems to be giving way to entrepreneurialism. A major reason for the intrusion of commerce into medicine is the appearance of investor-owned health-care

businesses. It is only these corporations that can afford to buy the machines and instruments that provide the latest medical technology. But it is the physicians who have the expertise to utilise the technology and so many physicians are forced into mutually dependent relationships with hospitals. We medical doctors have become the bedfellows of the multi-million dollar medical-industrial complexes. The new mantra is "more medicine is more profit." Surgery has become a business to some of our surgical colleagues who spend more time "on the books" than "in the books" or with their Patients. If most of our hospitals and health-care facilities become businesses, paying patients will get more care and poor patients will get less. The danger of such a system is that we will no longer be trusted as physicians because the traditional bond of fiduciary responsibility will have been broken.

However, from its earliest origins the profession of medicine has steadfastly held that physicians' responsibility to their patients takes precedence over their own economic interests. In the ancient world when medicine had less to offer by way of specific therapies for various conditions, there was a marked concern with the ethics and regulation of the profession. That concern is all the more relevant today when technological advances and commercial pressures demand the need for scrupulous conduct. We have to be able to differentiate between the rights and claims of providers, professionals and patients.

One specific concern that has arisen is whether doctors paid on a fee-for-service basis can really give advice to patients free of economic self-interest. One of the most caustic critiques written on this subject is by George Bernard Shaw in his preface to "The Doctor's Dilemma". It begins:

"It is not the fault of our doctors that the medical service of the community, as at present provided for, is a murderous absurdity. That any sane nation, having observed that you can provide for the supply of bread by giving bakers a pecuniary interest in baking for you, should go on to give a surgeon a pecuniary interest in cutting off your leg, is enough to make one despair of political humanity.

But that is precisely what we have done. And the more appalling the mutilation, the more the mutilator is paid. . . .

Scandalised voices murmur that. . . . **Operations** are necessary. They may be. It may also be necessary to hang a man or pull down a house. But we take good care not to make the hangman and the housebreaker the judges of that. If we did, no man's neck would be safe and no man's house stable."

Even if we allow for some artistic licence here, the point that clearly emerges is whether the patient's best interests are served when the physician has a double role

as a purveyor of services and as the patient's advocate.

In closing, I would like to enumerate some of the other challenges that confront the health care profession:

- Advances in medical technology pose an expanding range of ethical dilemmas;
- The increase in medical litigation—this is damaging to patient care as it encourages defensive medicine;
- The rise of pharmaceutical industries and the increasing use of medical technology have greatly increased the cost of health care;
- Access to health care and effective use of resources is variable and some population groups are disadvantaged in their ability to obtain services. The medical-surgical community is receiving divergent, contradictory mandates: provide the best health care for all, says the citizen-patient; but don't allow costs to rise says the citizen-taxpayer;
- Patterns of illness and disease are shifting towards chronic disabling conditions as the population ages and as acute medical services save more lives;
- The public has greater expectations of the provision of health care by professionals who are also expected to show empathy and have good communication skills;
- The rise of profit-seeking health maintenance organizations and the new mantra for them being "less medicine is more profit".

In confronting these challenges and more, do we have

a guiding principle to which we can turn to? Yes, we do.

We physicians have enjoyed a privileged position in society assuring us of high social status and a good living. We have been accorded these privileges in the expectation that we will remain competent and trustworthy and will faithfully discharge our fiduciary responsibility to patients. This sentiment has been proclaimed in our ethical codes even from ancient times. Can we live up to this expectation? This is our biggest challenge. In the rating table on human values, the striving to retain our moral integrity must always score higher than our quest for knowledge or our scientific achievements, and undoubtedly higher than our hankering for material wealth. Perhaps we can meet this challenge with an injection of values from the practice of medicine and surgery in ancient China and India.

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