Lecture 7

HSS102

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Beginnings of Rational Medicine: Hippocratic Medicine and Ayurveda

 **HIPPOCRATIC MEDICINE:** is the name given to the medical system that developed in Greece around 300 bce.

**Ayurveda**: literally the veda (knowledge/science) of “ayus” (longe longevity (skt. Ayus) that developed around 3-4 c bce

Both systems of medicine share:

1. Naturalistic approach to health and illness; a move away from divine or priestly medicine
2. An understanding of health as balance and equilibrium of “humours” (in Greek) and “dosha” (Ayu).
3. Healing as restoring the balance of humors/dosha

# Historical Background:

Greek medicine was influenced by the medical systems of earlier civilizations;

**Medicine in the Sumerian Civilization**: some 1,000 clay tables (out of the 30,000 surviving tablets from Mesopotamia) deal with medical subjects. A collection of 40 tablets makes up the “treatise on medical diagnosis and prognosis”. It records diseases which are recognizable by modern day doctors. One finds in these tablets description of a disease which resembles what we know of TB today.

In this connection, mention must be made of the Code of Hammurabi (dates back to 1772 BCE) in which the king Hammurabi lays down the law for doctors and surgeons. If a doctor/surgeon ended up harming a nobleman, his hands were to be chopped off, but if the patient harmed was a slave, then the physcian will only have to become a slave (his hands and his life will be spared).

**Medicine in ancient Egypt**: evidence comes from two ancient papyri: the Edwin Smith Papyrus discovered in 19th c by an American Egyptologist. The Papyrus dates back to 1600 bce, and is supposed to contain the collected teachings of an Egyptian healer by the name of Imhotep who lived around 2650 bce.

What is remarkable about Imhotep’s medical writings is the lack of magic and gods: in a world immersed in spells and charms and mantras to gods, Imhotep wrote about broken bones and dislocated vertebrae with a scientific detachment. This papyrus describes 48 case histories including injuries and broken bones etc.

The 45th case study stands out: It is the first recorded case history of what looks like breast cancer. Imhotep describes it in these words: “a bulging mass in the breast… large, spreading and hard… touching it is like touching a ball of wrappings or an unripe hemat fruit which is hard and cool to touch.” Under therapy, Imhotep writes “ there is none.”

The second source is the Ebers Papyrus which dates back to 1500 bce, and was discovered by a German archeologist. This papyrus describes various treatments, mostly purges, laxatives and also spells and incantations.

**Religious/magical medical practices in ancient Greece and India**

As in other ancient civilizations, medicine in ancient Greece had its origins in religion. The Greek God of healing was called ASCLEPIUS (pronounced AS-KLEE-PIUS)..

 Asclepius was referred to by the poet HOMER as a great doctor, who was later turned into a god (sun of Apollo) in the 3 and 4 centuries BCE. Temples to Asclepius were built in many places – archeological remains of many have been found. The sick used to flock to these temples for cures. Central to the cure was the healing vision or the dream as the patients slept in the temple after performing purification rites and rituals to the god.

**Ancient medicine in Indus Valley/Atharvaveda**: magical power of amulets, expulsion of demons, etc. One example of the old beliefs that is still a part of Ayurvedic writings called the Kashyapa’s Samhita, which is dated sometime before the 1000 CE and which deals with women’s diseases, is entirely given to magical-supernatural causes of diseases. For example, it teaches that miscarriages in women are caused by the anger of a goddess called Revati who was created at the time of sagar-manthan when the gods and demons got into a fight. Revati took it upon herself to slay not just the demons but also the demons who were being reborn in the wombs of those women who had done bad karma. So Revati swears to kill the demons through their rebirth, killing them again and again. Miscarriages were explained as the work of Revati who was supposed to snatch away children only from those women who had bad karma.

# Hippocratic Medicine in Greece:

HIPPOCRATES of Cos (460-377 BCE) : He is to Greek medicine what the name Charaka is to Ayurveda: Both of them are legendary founders of medical systems and presumably, authors/editors of texts that bear their names.

There is uncertain whether Hippocrates actually wrote the entire body of the so-called Hippocratic writings.

The Hippocratic corpus is made up of 60 or so texts, of many authors, all united in their rejection of supernatural intervention in matters of disease and health. HIPPOCRATIC DOCTORS WERE NATURALISTS (as described in an earlier lecture) because they believed that

1. Health and disease are capable of explanation by reasoning about nature, independently of supernatural forces
2. The human body is governed by the same physical laws the cosmos
3. These laws can be understood by reason and close observation
4. Health can be improved by improving the patient’s relationship to the environment.

**HUMORAL UNDERSTANDING OF HEALTH AND DISEASE:**

The Hippocratic tradition considers health as the balance of four humors.

What is a “humour”? It simply means “bodily fluids.” In Greek medicine, the word ‘humour’ could be used for any fluid. So plants and animals, as well as people, have humours. Other humours emerged only in illness, such as mucus and diarrhea. These seemed to disappear when the patient was well again, providing evidence that imbalanced or excessive humours cause illness.

Four bodily fluids were singled out to play a role in health and disease

1. Blood
2. Phlegm
3. Yellow bile
4. Black bile

Bile and phlegm most important: winter colds due to excess of phlegm, summer diarrhea and vomiting due to excess of bile, while mania due to bile boiling over into the brain.

Historians think that it is possible that the four humors may have been suggested by clotted blood: the darkest part corresponds to black bile, the serum above the clot, the yellow bile, the light matter at the top, phlegm.

All these were normally present in the body, but their levels changed with disease. E.g. phlegm (mucus\_ was normally present in small amounts; but in large amounts when someone catches a cold; similarly, vomiting results when black bile is in excess.

Now, here medicine joins hands with philosophy of the Pre-Socratic naturalists.

If you recall from the last lecture, Empedocles (450 bce) had proposed that there were four elements: earth, fire, air, water.

Hippocrates (and later Galen) associated the four humors with the four elements in this manner:

Blood with air

Yellow bile with fire

Black bile with earth

Phlegm with water

Gradually many more correlations were drawn, for e.g.

**Humor element Quality temperament organ**

Blood Air Hot and Wet Sanguine heart

Phlegm water cold and wet phlegmatic brain

Yellow bile Fire Hot and dry Choleric Liver

Black bile Earth cold and dry Melancholic Spleen

Every person and every organ in the body was supposed to have a unique balance of the four fluids. The role of the doctor was to figure out what humour was out of balance and try to bring it back into balance through diet, rest etc.

# Ayurveda:

**MAJOR TEXTS that make up the Ayurvedic corpus:**

1. Charka Samhita (Charka’s compendium), originally composed around the time of Buddha (600 BCE). But the earliest available manuscripts date back to around 100 CE, developed in the North West of India, particularly in the universities of Nalanda and Takshila.

A huge compilation, some three times the size of the Hippocratic corpus: made up of 120 chapters arranged in eight books.

Charka Samhita, like the Hippocratic corpus, is the work of many people and records a wide variety of debates and difference of opinions among the physicians. Their working philosophy is as follows:

**“THAT there are causes, there are diseases, and there are ways of curing the curable diseases.**

i.e, the underlying causes of diseases can be rationally understood and diseases can be cured.

Charka Samhita is written partly in prose, and partly in poetry: the body of the work is cast as a teaching from the sage Atreya to one of his pupils, Agnivesa with someone called “Charka” serving as the “re-drafter” or the editor.

BUT who IS Charka? Not clear if Charka is a proper name of a person, or simply implies what it literally means, i.e. “the roving one”.

A physician named Charka is mentioned in a Chinese text of the late 5th century, also in the Bower manuscript. So it is probable that a person called Charka actually edited the text.

1. Sushruta Samhita (SS): the extant work – in the form that is available to us – dates to 300-400 CE.

Its chapter-endings present the text as “ teachings of dhanvantari to his pupil susruta.” Dhanvantri is supposed to be the king of Benaras, but nothing more is known about him.

SS specialized in surgical practices. There are descriptions of ophthalmic (i.e., eye-related) couching the dislodging of the lens of the eye), perineal lithotomy (cutting for stone in the bladder), removal of arrows and splinters, suturing and the examination of dead bodies for the study of anatomy.

So did India have a well-developed surgical tradition? The scholarly opinion is as follows:

In spite of SS elaborate description, there is little historical evidence to show that these practices persisted beyond the time of the composition of the Samhita. There is some evidence, however, that although surgery ceased to be a part of the professional practice of traditional physicians (or vaidyas), it migrated to the practitioners of the “barber-surgeon” type. This tradition was no longer supported by the Sanskrit literary tradition. Since barbers-surgeons came from lower, non-Sanskrit castes, their experience and knowledge was not recorded. As the caste system grew in rigidity through the first millennium CE, it is likely that vaidyas began to reject surgery. So it looks like a well-developed science was lost most probably due to the caste hierarchy.

WE WILL RETURN TO SUSHRTA IN A LATER LECTURE.

# Fundamental concepts of Ayurveda

1. Panch-bhutas: According to Ayurveda, the human body is made up of:
2. Psychic being (sattava)
3. Soul (atman)
4. Body (sharira) which is made up of panch-bhutas:
5. Earth
6. Water
7. Fire
8. Air
9. Aakash, or empty space

Sharira is made up of Panch-bhuta, or five elements, presided over by atman, which is non-material. The panch-bhutas are: earth, water , fire, air, aakash (or empty space).

“earth that which is solid in man, water is that which is moist, fire is that which heats up, air is breath, ether (aakash) the empty space and Brahman is the inner soul. (charka Samhita 4.5.5).

This human self , according to Ayurveda, is the exact replica of the entire cosmos: “Indeed, this world is the measure of the man… however much diversity of corporeal forms and substance is there in the world, that much diversity is there in man; however much there is in man, that much there is in the world.” (charka, 4.4. 13).

1. . “Cooking” : the fundamental metabolic process

The central process of the body is digestion. The Sanskrit words for digestion (pachana, deepana) all imply “cooking” or “burning.” The digestive fire is simply called the fire, or agni.

1. “Dhatus” the food has been eaten and “cooked” by this digestive fire, it turns into the first of the seven body “tissues” (dhatus), namely, rasa, or chyle, which produces the other tissues in thiese stages:

Food →rasa →blood→flesh (mansa) → fat (meda) →bone (asthi)→marrow (majja) →semen (sukra). [In women???}.

 The seventh and the HIGHEST essence of the body is then formed which is the SEMEN . (This is the biological basis of brhamacharya, i.e., not to waste the highest essence, conservation of semen means conservation of metabolism which can be used for “higher” (nobler) purposes.

1. TRI-DOSHA: Three “humors” or dosha (the Tri-dosha theory)

Quite like the Greek humor, a dosha is a substance that flows or circulates within the body, bringing disease through excess or deficiency.

In contrast to Hippocratic medicine that recognizes four elements and four humors, Ayurveda recognizes five elements (panch-bhutas, above) and three doshas. These are:

Vatha, or wind localized in the intestines

Pittha, or bile or choler, localized in the navel

Kapha, or phlegm, localized in the lungs.

What are these doshas?

They are a part of waste products of the food and general metabolism. Even though they are waste products, they are also considered essential constituents of the body – thus they are called “mala (waste) dhatus” whose proportion to other dhatus has to be maintained. If the proportion is disturbed, disease occurs.

So here is a definition of doshas:

“Vatha, pittha and kapha are waste products (malas) of digestion taking place in the stomach and in the body components with an essential role in maintaining body functions. But they are mala-dhatus only when they remain in normal range; as soon as they become deficient or excessive, they become doshas capable of upsetting the functions of the other dhatus.” ( Valiathan, Introduction to Ayurveda, p 29)

## Historical Significance of the Greek and Indian medical systems

1. EXCLUSION OF GODS: Hippocratic doctors were united in opposing the idea that diseases have divine causes.

A well-known work in this tradition is called *“on the Sacred Disease*” written around 5th to 4th century BCE. This book deals with epilepsy which was considered a disease caused by the wrath of god.

Hippocratic doc who wrote this book asserts that:

“Epiplepsy is no more sacred than any other disease” and that “epilepsy and all other diseases have natural cuases. (see ppt for a more complete quote)

How does the naturalist doctor explain what causes epilepsy, if not the gods? He says that epilepsy is caused by a defect in the brain: when vein supplying air to the brain gets blocked, the brain gets flooded with the humor phlegm and THAT he says, causes epilepsy.

IN Ayurveda, too, a separation between moral virtue (dharma) and physical health: Not virtue but health: although Ayurveda teaches moderation and moral uprightness, it’s primary objective is to promote health.

This becomes obvious in Ayruveda’s position regarding **meat and alcohol** which are routinely prescribed for medical and health reasons, even though they are not approved by the dharma shatras. Chakrapanditta’s commentary, written sometimes in 11th CE states that:

**“the recommendations of medicine are not intended to help someone achieve dharma. What are they for, then? They are aimed at achieving health.**

Charaka Samhita on consuming meat, including beef:

*"Cow meat is beneficial in curing breathing problems, Ozaena, Ague, dry cough, fatigue, diseases due to burns and marasmus."*

*[Charaka Samhita, Sutra Sthaanam, 27/79-80]*

Charaka Samhita, Chikitsa Sthaanam 8/163 says,

*"A person of magnanimous heart who eats meat along with a wine named as 'Maadhveek', is quickly relieved of tuberculosis.*

Charaka Samhita, Chikitsa Sathaanam 8/165 says,

*"While consuming the above mentioned kinds of meat, one may have a dose of whichever wine is appropriate such as 'Prasanna', 'Vaarooni', 'seedhu', 'arisht', 'aasava' and 'madhu'."*

Besides the cow, meat of other animals is also prescribes for various diseases. For example, Sutra 158 of the same chapter says,

*"Meat of a peacock, patridge, rooster, goose, swine, camel, donkey, cow and buffalo is beneficial for developing one's body."*

But they did not reject belief in the unseen (and physically un-see-able) forces like atman and karma. In fact, Charka Samhita is explicit in calling unbelief in the Vedas and Upanishads as the “greatest of sins.” Thus, Ayruvedic doctors cannot be confused with Lokayata naturalists who denied the survival and rebirth of the soul after death. (Some scholars, especially Marxists, have tried to do that. But this is a distortion).

Ayurvedic writings largely accept the Vedic/Upanishadic ideas about Brahman/atman and reincarnation. The following three examples will show that Charaka Samhita is not a materialist text (i.e., not in the tradition of Lokayata. See the lecture on naturalism.)

1. CS admits three kinds of medicines: Three kinds of medicines: sacred, rational and moral.

**Sacred:** “mantras, herbs, jewels, good luck ceremonies, food offerings to the gods, presents to the gods, oblations, pledges, penances, pilgrimages… (Wujastyk, 72)

**Rational:** the one which depends upon reasoning employs diet, medicines and drugs.

**Moral:** cultivation of good character.

1. EMBRYOLOGY: Vedic/Upanishadic beliefs about rebirth show up in Ayruveda’s understanding of how reproduction takes place: the fetus is supposed to be the result of union of father’s semen, mother’s menstrual blood and the admixture of atman with the “subtle body” that is in the process of transmigrating from a dead person. (see pp. 102-107 in the attached chapter from my book, Science in Saffron).
2. How epidemics are explained: In a chapter on epidemics (chapter 3.3. of Charka Samhita), the root cause of epidemics is explained as the decline of dhrama or righteousness. This chapter is a good example of how CS mixes up the three kinds of medicines described above: it gives rational explanations of epidemics (stagnant water, bad air, infestation with flies, rats etc, and bad weather). But when asked what causes water, air and land etc. to go bad, the Sage Atreya answers that the root cause of all these problems is the loss of dharma, and bad karma from past action.

**II. Beginnings of evidence-based medicine.**

A well-known book “On Ancient Disease” written by an anonymous Hippocratic doctor makes a case that in medicine, mere philosophical speculation is not enough. The author of this book takes issue with the naturalist philosophes who come up with sweeping generalizations without any empirical evidence. He says that such speculations whose truth or falsity cannot be judged are very harmful for medicine, because human lives are at stake.

Hippocratic doctors generally took the advice of a naturalist philosopher, Empedocles who argued that scientists should use all their senses – sight, hearing, taste etc. – to understand the object fo their inquiry as clearly as possible.

Hippocratic doctors were excellent clinicians and observed all possible symptoms in their patients.

Apart from clinical observations, one finds beginnings of evidence-based arguments:

e.g. 1. : the author of “sacred Disease” says that flooding of the brain with phlegm causes epilepsy. He tries to give evidence for this assertion

-- he says that phelegmatic persons are more prone to epilepsy, while more bilious people are not

-- southerly wind causes phlegm (just as southerly wind causes foods to spoil); analogies with what happens to organic matter outside the body;

-- proposes that IF a goat suffering from epilepsy-like symptoms would be dissected, it would show that the brain was flooded etc.. He only suggests a dissection, but does not actually do one, because dissections of animals (and human bodies ) become a part of science only later, starting with Aristotle.

Example 2: In a book titled *On the Nature of Man,* a Hippocratic doctor tries to PROVE the existence of four humors by observing the vomit of a dying patient. He observes that the patient first vomits yellow bile, then phlegm-like foamy mucus, followed by black bile and then blood. This he says proves the existence of humors.

These are rudimentary beginnings of evidence-based medicine.

Evidence-based reasoning in Ayurveda: all senses.

Ayurvedic texts ask the doctors to use all their five senses (including taste) to make the right diagnosis. By the 15th century the standard was to examine the “eight bases”: pulse, urine, feces, face, toungue, voice and skin.

The pulse based diagnosis appears only in the later Samhitas, but becomes very important. Ayurveid docs claimed (and still do) that they can make exact diagnosis by reading the pulse, or the nadi.

What did they think was causing the pulse???

Not blood, but various humors. Thus:

--a nadi which feels like the movement of a snake or a leech – means inflamed wind

-- a nadi which feels like the gait of a sparrow, crow or a frog – means a inflamed bile

-- a nadi which feels like the gait of a swan or a pigeon—inflamed phlegm.

**PROFESSIONALIZATION OF MEDICINE: THE HIPPOCRATIC OATH:**

Parts of this oath are a part of the graduation ceremonies of modern-day doctors all over the world. The complete oath is reproduced below

I swear by Apollo the Physician and Asclepius and Hygieia and Panaceia and all the gods, and goddesses, making them my witnesses, that I will fulfill according to my ability and judgment this oath and this covenant:

To hold him who has taught me this art as equal to my parents and to live my life in partnership with him, and if he is in need of money to give him a share of mine, and to regard his offspring as equal to my brothers in male lineage and to teach them this art–if they desire to learn it–without fee and covenant; to give a share of precepts and oral instruction and all the other learning to my sons and to the sons of him who has instructed me and to pupils who have signed the covenant and have taken the oath according to medical law, but to no one else.

I will apply dietic measures for the benefit of the sick according to my ability and judgment; I will keep them from harm and injustice.

I will neither give a deadly drug to anybody if asked for it, nor will I make a suggestion to this effect. Similarly I will not give to a woman an abortive remedy. In purity and holiness I will guard my life and my art.

I will not use the knife, not even on sufferers from stone, but will withdraw in favor of such men as are engaged in this work.

Whatever houses I may visit, I will come for the benefit of the sick, remaining free of all intentional injustice, of all mischief and in particular of sexual relations with both female and male persons, be they free or slaves.

What I may see or hear in the course of treatment or even outside of the treatment in regard to the life of men, which on no account one must spread abroad, I will keep myself holding such things shameful to be spoken about.

If I fulfill this oath and do not violate it, may it be granted to me to enjoy life and art, being honoured with fame among all men for all time to come; if I transgress it and swear falsely, may the opposite of all this be my lot.

What this oath shows is a process of PROFESSIONALIZATION of medical men -- and they were exclusively men! This oath is laying down a code of conduct for physicians as distinct from other professions (such as those who can perform surgeries). It is setting professional standards for the guild of doctors.

The exclusion of women is an obvious feature of this professionalization. Even though women were the primary care-takers, healers and herbalists in all ancient cultures, the Hippocratic oath demands that medical knowledge only be transmitted to the sons of doctors.

Charka Oath

**CHARKA’S OATH**: Charka Samhita also imposes an oath on all physicians. This is what the Ayurvedic oath says (in part, form a translation by Dominik Wujastyk from his book *The Roots of Ayurveda: Selections from Ayurvedic Classics*, published by the Penguin Press. According to Wujastyk, during a rite of initiation, at the beginning of his training in Ayruveda, a pupil had to swear:

“to live a celibate life, to speak the truth, to eat a vegetarian diet, to be free from envy and never to carry arms; he was to subject himself to his teachers completely; he was to work day and night for the relief of his patients and was never to desert them, nor take advantage of them sexually; he was to WITHHOLD TREATMENT (see below) from the enemies of the king, wicked people generally and form women who were unattended by their husbands or guardians; he was to visit the patients’ home only in the company of mutual acquaintance, and was to treat as totally confidential any privileged information acquired concerning the patient’s household.”

While there are many similarities between Charka and Hippocratic oaths, the difference lies in the category of those from whom the doctors are to WITHHOLD TREAMENT: such an injunction does not exist in the Hippocratic oath. The Charka Samhita has the following categories of people who SHALL NOT BE TREATED by the doctors. The following is a direct quote from Charka Samhita, as translated by Wujastyk.

“PATIENTS TO BE ABANDONED

The following kind of sick people should not be treated with humoral drainage, or any other therapy, even if the time is right for it:

* Someone who has taken no action against a denunciation (?, not clear to me what it means)
* Someone poor
* Someone with no servants
* Those who fancy themselves as doctors
* A violent person
* A slanderer
* One who takes pleasure in blatant wrongdoing
* One whose flesh and blood is greatly enfeebled
* Someone assailed by an uncurable disease
* Someone who is about to die

A physician who treats a sick person of this type attracts a dreadful reputation.