



View of physicians in context of Aaza (Organs) in Unani System of Medicine

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Abstract

Simply, an organ is a group of tissue that have an similar functions. To survive, to develop, to reproduce, the human body relies on major internal body organs to perform certain vital function. When two or more organs along with their associated structures work together they become component parts of a body system. For example: Cardiovascular system; Digestive system; Endocrine system; Excretorysystem; Lymphatic system etc.

Aaza (organs) is having important place in unani system of medicine. It is the 4th factor in Umoor-e-Taba'iyah. The solid components of the body are called Aaza; As the liquid components are called Akhlat (Humoural) and Gaseous components are called Arwah (Pnema).

In Unani system of Medicine, among all organs, there are three organs that are considered vital (Important for life). They are Brain, Heart and Liver.

Keywords:- Aaza, Arwah, Ribaah, Asab.

Introduction

It is the plural of Uzu --- Organ

The A'za comes on number four in Umur Tabiyah (Ibn Nafis) As per Hippocrates and Abu Sahl Masihi:

Human body is composed of three kinds of things –

- 1. Solid parts (Jamid) – A'ZA (organs)*
- 2. Liquid parts (Sayyal) – AKHLAT*
- 3. Gaseous parts (hawai) – ARWAH*

The last two things being enclosed within the spaces of the A'za As per Ibn Sena and Ali Ibn Al- Abbas:

Akhlat are the proximate principles for the human body

But the more approximate are A'za Basitah (cells and tissues) which are composed of akhlat, and A'za aliyah (organs) composed of A'za Basitah

CLASSIFICATION OF A'ZA

According to Unani Tibb, A'za have been divided into two categories (Qarshi)

- 1. A'za Mufradah (simple organs – cells and tissues)*
- 2. A'za Murakkabah (compound organs)*

A'ZA MUFRADAH (Simple Organs)

A'za Mufradah are also known as A'za Basitah or A'za Mutashabih ul-ajza (Simple Organs)

DEFINITION:

Uzu Mufrad (Simple Organ) is defined as the organ, the smallest part of which exactly resembles the whole.

It is homogenous in structure throughout, eg. A piece of bone is still a bone.

These organs apparently doesn't differ from each other. Looks similar. Although their structure and composition might be different.

Thus A'za Mufradah are as follows:

1. *Azam (Bone)*
2. *Ghazruf (Cartilage)*
3. *Ribat (ligament)*
4. *Asab (nerve)*
5. *Watr (tendon)*
6. *Ghisha (membrane)*
7. *Lahm (muscle)*
8. *Shahm-o-samin (fat)*
9. *Sharain (arteries)* 10. *Auridah (veins)*

Ali Ibn Abbas and Abu Sahl Masihi, have also included the following in A'za Mufradah

1. *Muq (marrow)*
2. *Naqun (nail)*
3. *Sha'r (Hair)*

Abu Sahl Masihi has used the term URUQ, instead of Sharain and Auridah, which is more appropriate as it includes other vessels too.

1. AZM (BONE)

- *Bone is white and hard organ, which cannot be bend (Nafis)*

Functions:

- *These provide a frame- work for body and form the means for movement.*
- *Some bones provide a foundation for the body - Vertebral column.*
- *In most places bones unite to form movable joints - elbow joint*
- *Protects vital organs against friction, shock and injuries – Cranium and rib cage*

- *Some bone support other organs like muscles and ligaments, like hyoid bone*
- *Some bone fill the spaces between joints as the Sesamoid bones between the phalanges, to avoid the friction between tendons and ones and ease the movement*
- *Some bones help in specific function of the organ. eg. Ear bones help in audition.*
- *Few bones serve as pathways, which are always open. Eg. Nasal Bones. (For Respiratory function).*

2. GHAZRUF (CARTILAGE) plural Ghazareef.

- *It is softer than the bone*
- *It can be easily bent but is relatively harder than other a'za.*

Functions:

- *It provides the required cushion at the junction of hard bone and soft a'za to avoid discomfort especially during blows and contusions, eg. Costal cartilages*
- *It smoothens the surfaces of joints and thus reduces friction by forming articular surface.*
- *It covers the soft and delicate a'za, eg. Eye lids which are meant to cover the eyes, with the help of muscles they open and close.*
- *Few cartilages serve as open pathways, eg. Larynx, trachea, nasal cartilages and cartilages in ear.*
- *It provides a soft but firm support to a'za in which hard bone would not have been suitable.*

3. RIBAT (LIGAMENTS)

- *Ribat are white and flexible a'za, which feels and looks like nerves - asbani (Ibn Sena)*

- *As it mainly helps in binding - rabt, binds one structure with another it is known as Ribat.*

Functions:

Ribat helps to bind one thing with another (Nafis)

- *Mainly binds two bones in a joint.*
- *Ribat and Asab together form a network and when the spaces are filled with Lahm Azli, it forms - Azla (muscle)*
- *Ribati jawhar is involved in the composition of Watr (tendon), with variation in number of a'sabi fibres (nerve fibres) at different places.*
- *Ribat are also involved in the composition of Ghisha (membranes).*
- *Arteries and Veins are also composed of Ribati jawhar (Nafis)*

4. A'SAB (NERVES)

- *A'SAB are white and elastic, and are easily bent but do not break.*
- *They arise from brain and spinal cord. They serve sensation and movement (Ibn Sena)*
- *According to Hunain Ibn Ishaq, in terms of nu'iyat and asliyat the asabi jawhar and the jawhar of brain is one, except that a'sab are hard and brain is soft, due to which a'sab are protected from calamities and destruction. (Kitab al ashri miqalat fi ain)*
- *Though, there are not any significant pores felt in a'sabi jawhar, but actually they are present, similar to a grass by name BARDII(Ibn Quf Masihi – Kitab Ilal wal A'raz)*

Functions:

- *Main function of a'sab is power of sensation and movement in organs. (Ibn Sena)*
- *Although, center of sensation and movement is brain and spinal cord, but the connection between brain and spinal cord to organs is established through nerves.*

5. WATR (TENDONS)

- *In most muscles, one part is Lahmi, which is red in colour which is actual muscle; and the other part is white. This white part is known as Watr*
- *It is seen either on one end or at both the ends*
- *It is present either one, two or sometimes more at the ends.*
- *It is composed of fibres derived from Ribat and Asab. The Ribati Ilyaf being relatively more in number than Asabi Ilyaf. But they are intertwined with each other and cannot be distinguished by naked eye. As such included under A'za Mufarradah*

6. GHISHA or JHILLI (MEMBRANES)

These are made of intertwined invisible nerve like fibres which are spread into thin sheets over various organs

Types: Based on the nature of function, there is some difference in structure of membranes

- *Ribati Jhilli: This membrane is derived from Ribati Jawhar with minimal or no asabi fibres*

Their purpose is to support and suspend the a'za and help the attachment of a'za to adjacent structures, eg. Fascia covering the muscles.

- *Uruqi Jhilli*: To serve the function of nutrition; there are numerous vessels, eg. Chorion in fetus, Choroid membrane in eye, arachnoidmater of brain.
- *Asabi Jhilli*: Asab are found in abundance in this type of membranes, eg Retina and Tympanic membrane
- *Ghisha Mai (talli)*: It covers the inner surface of thoracic and abdominal cavities. (pleura and peritoneum). Due to abundance of asab, these membranes are sensitive.

(They are named as such because of watery secretion from these membranes. If inflamed, the quantity increases, eg. Ascites

- *Ghisha Mufassili*: membranes lining the joints.
 - Similar to *ghisha mai* except that it produces fluid egg white in colour
 - Therefore, also known as *Aghshiyah Zulaliyah*.
- *Ghisha Mukhati*: Similar to *Ghisha mufassili* except that it produces *mukhat* (mucus) known as *Rutubat Lazijah* (Ibn Sena)
Eg. Digestive tract, respiratory tract, genitor-urinary tract
- According to few physicians defined this type of *balghami jhilli* as *Aghshiyah Suhrujiyah*

Functions:

- To preserve the shape of organs enclosed by them, eg. Membranes covering brain
- To encapsulate and suspend them by ligamentous attachments, eg Kidneys are attached to spine with help of peritoneum.
- To provide sensitive coverings to insensitive organs and thus recognition of ailments, eg pleura and peritoneum
- To protect the soft organs against hard organs, eg. Meninges of brain- dura mater and pia mater

- *To protect the lining organs from hazards of fuzla ghizaiyah, eg. Diaphragm. Waste gases formed in Abdomen as a result of digestion cannot ascends upwards.*
- *Some membranes consist of network of vessels which provides nutrition to the organ to which it covers. Eg Placenta -- provide nutrition to the growing fetus.*
- *Some membranes helps in preserving the innate heat of the body. Eg Peritoneum.*
- *Some membranes secretes the fluid which helps in digestion of certain substances. Eg mucous membranes of mouth, oesophy, stomach, intestinal membranes secretes fluid which helps in digestion.*
- *Iris of the eye is also a membranous structure which contracts and dilates, and changes the size of pupil. And thus controls the amount of light entering the eye.*
- *The inner most layer of eye, Retina is a light sensitive membrane which provides the nutrition to the eye via vessels, and also absorbs the light and helps in vision.*

Leham:-

The description of Leham is described in detail by the physicians.

Types of Leham:-

Leham-e-Uzli :- Skeletal muscles

Leham-e-Ghuddi or Ghududi:- Muscles of glands.

Leham ul Adnan:- Muscles present in Jaws, near the teeth. Leham

ur Riya:- Muscles of Lungs

Leham ul Qalb:- muscle of heart. Although like other muscles it have construction and relaxation capacity, but the movement of heart are Superior and different. Anatomically, structure of cardiac muscles are different from the other muscles.

Functions of Leham e Uzli:-

1. *Helps in movement of the body.*
2. *Preserves the innate heat of the body. Keeps the body warm. (Nafis).*
3. *Fills the spaces between Aaza e basitah, which helps in maintaining the shape and position of the organs.*
4. *Muscles also protect some organs from external trauma. It also protect the soft organs from the hardness of hard organ.*
5. *Some muscles act as a cushion eg Muscles of Gluteal region.*
6. *Muscles are responsible for beauty in the shape and structure of the organ.*
7. *Protects the body from external heat and cold.*

Two important functions of this Leham is Tehreek --- Movement and dasqeen --- Heat production.

Functions of Leham-e-Ghuddi:-

Alama amla says some glands secrete a fluid, which is essential for preservation of species. Eg Testis produce and stores sperm.

Some glands secrete fluids which are concerned with Nutrition.

Sheham and Sameen (Fats)

These are white structure that is full of oily matter. Fats is of two types:-

1. *Soft, attached to muscles is aameen or Rawaaj.*
2. *Dry and thick. Which becomes dry and hard very early. Fat of Gluteal region.*

Functions of Fats:-

As discussed in mizaaj e Aaza, According to shaikh, temperament or mizaaj of fat is haar (hot), it increases heat in the body.

Alama nafis says that as fats are sticky in nature, it absorbs more heat than other organs. That's why it dissolves on excessive heat.

2. Since innate heat is important or essential for the process of digestion and metabolism, and fats preserving the innate heat. So it indirectly helps in digestion. So, fats are mentioned as *Muyyin e hazm*, helper of digestion.

3. Because of its sticky nature, it stores heat for longer duration. Eg:- when oils or fats are heated, it doesn't cool down early.

4. Fats keeps the organs soft and moist (*Nafis*).

5. Responsible for beautiful appearance of the body.

6. Protects the organs from external shock and injuries.

Avardah plural of *vareed* (veins).

Long, hollow tubular structure. Which carries deoxygenated blood to heart.

No pulsation that's why called as *Urooq e Sakina*, silent vessels.

Most veins carry deoxygenated blood from the tissues back to the heart; exceptions are the pulmonary and umbilical veins, both of which carry oxygenated blood to the heart. In contrast to veins, arteries carry blood away from the heart.

Veins are less muscular than arteries and are often closer to the skin. There are valves in most veins to prevent backflow.

Arteries:- *Shiryaan* or *sharayen*

Arteries are muscular and elastic tubes that must transport blood under a high pressure exerted by the pumping action of the heart. The pulse, which can be felt over an artery lying near the surface of the skin, results from the alternate expansion and contraction of the arterial wall as the beating heart forces blood into the arterial system via the aorta. Large arteries branch off from the aorta and in turn give rise to smaller arteries until the level of the

smallest arteries, or arterioles, is reached. The threadlike arterioles microscopic vessels called capillaries, which supply nourishment and oxygen to the tissues and carry away carbon dioxide and other products of metabolism by way of the veins.

Each artery, no matter what its size, has walls with three layers, or coats. The innermost layer, or tunica intima, consists of a lining, a fine network of connective tissue, and a layer of elastic fibres bound together in a membrane pierced with many openings. The tunica media, or middle coat, is made up principally of smooth (involuntary) muscle cells and elastic fibres arranged in roughly spiral layers. The outermost coat, or tunica adventitia, is a tough layer consisting mainly of collagen fibres that act as a supportive element.

Urooq e sha'rya:- capillaries Capillaries are very tiny blood vessels – so small that a single red blood cell can barely fit through them. They help to connect arteries and veins in addition to facilitating the exchange of certain elements between blood and tissues.

How Aaza e mufradah are formed? There are two views related to this:-

1st group:- All simple organs are formed from Semen (Mani) Semen of Both father (sperm) and mother (ova) participates. Further blood takes part on nourishment and development.

Abu sahl is also of same opinion that All simple organs are formed from semen and further nourished by Blood.

These organs which are formed from semen are called as Aaza e Aaliyah or Aaza e manwiyah.

2nd group:- All organs except muscles and fats are formed from thick and viscous blood. Because of excess of heat, it's fluid components are absorbed.

Fats are formed from the Mahiyat of Blood. Because of burudat, it is freezed, and heat dissolves them . (Alama Qarshi).

Alama Nafees explains that all organs are formed from semen or Mani, but during development, blood of mother provides Nutrition.

Organs which are formed from blood are called as Aaza e Damwiyah.

Aaza e murakkaba (Compound organs).

Second type of aaza are Aaza e murakkaba or (Compound organs). These organs are not similar or homogenous in structure. One part of the organ doesn't resembles the whole. For example is face, it has eyes, nose, lips, cheeks etc . So if we ask what it is answer will be different for different parts.

These Aaza are also called as Aaza e Aliya. Aala means tools. As they are working as Aala or tool for the body functions and movement, that's why called as Aaza e Aliya.

Aaza e Murakkaba are classified on these basis 1-Hypothetical or Assumed classification (Farzi taqseem) a)Primary classification (Tarkeeb e Ula)

Organs are Composed by first composition. These are made up of different types of Aaza e mufrada.

Eg. Muscles -> Composed of many Aaza e mufrada such as Nerves, vessles, ligaments and tendons.

b)Secondary Classification (Tarkeeb e Sanwi)

Organs are formed by 2nd type of composition. That is, it comprises of organs from 1st composition and also other structures.

Eg. Eye -> Consist of muscles (From 1st composition) + other structures.

c)Tertiary Composition

Organs are formed by 3rd type of composition. That is, it comprises of organs from 2nd composition and also other structures.

Eg. Face -> Consist of Eye (From 2nd composition) + other structures.

D)Quaternary Composition

Organs are formed by 4th type of composition. That is, it comprises of organs from 3rd composition and also other structures.

Eg. Head -> Consist of Face (From 3rd composition) + other structures.

According to Ali Ibn Abbas, 3 major classification of Aaza Murakkaba are there, according to the types of Quwa and Af'aal.

Types of Quwa and Af'aal are

Quwat e taba'iyah and Af'aal e taba'iyah Quwat e Nafsaniyah and Af'aal e Nafsaniyah Quwat e Haiwaniyah and Af'aal e Haiwaniyah

So types of Aaza e Murakkaba according to the above will be

- *Aaza e taba'iyah*
- *Aaza e Nafsaniyah*
- *Aaza e Haiwaniyah*

Aaza e taba'iyah:- Organs pertaining to Natural power (Quwat e taba'iyah) and natural functions (Af'aal e taba'iyah).

Aaza e taba'iyah are the organs which have Quwat e taba'iyah and it performs natural functions.

It comprises of Aaza Al Ghiza -> organs concerned with Nutrition and Aaza Al tanasul -> concerned with reproduction.

Aaza al Ghiza includes Organs of GIT and organs of excretion.

Organs of Digestion:- mouth, salivary glands, oesophagus, stomach, intestines, liver, Gall bladder, pancreas, Spleen.etc

Organs of Excretion:- Kidneys, ureters, Urinary bladder, and urethra.

Organs for Reproduction:- In females. Ovaries, fallopian tubes, uterus and other structures.

In males:- Testis, Scrotum etc

Aaza e Nafsaniya:- organs pertaining to Quwat e Nafsaniya and performing Af'aal e Nafsaniya.

Brain, spinal cord, nerves (Sensory and Motor)are included in this.

Aaza e Haiwaniya:- organs pertaining to Quwat e Haiwaniya and performing Af'aal e Haiwaniya.

Organs concerned with Circulation:- Heart, Arteries, veins and capillaries

Organs concerned with Respiration:- Trachea, Bronchi, Bronchioles, Lungs, Pleura, Thorax, Diaphragm.

Aaza e Rayeesa:- Vital organs

According to Buqrat :- Brain is the vital organ.

According to Arastu:- Heart is the first formed organ and it is last to stop. So, Heart is the vital organ.

According to Jalinus:- As the Types of Quwa are there, that much vital organs are present-

Depending on survival of individual there are three vital organs :- Heart, Brain and liver.

Depending on survival of Species there are four Vital organs:- Heart, Brain, liver and Testis/Ovaries.

Aaza e taba'iyah:- These organs are concerned with Growth and development, Concerned with Nutrition, Digestion , Excretion, and metabolism. Leader of All aaza e taba'iyah is liver.

Liver is the largest gland of the body. It is called as matbaq or kitchen of the body, by physicians.

Situated in right hypochondriac region. Protected by ribcage. The liver has two large sections, called the right and the left lobes. The gallbladder sits under the liver, along with parts of the

pancreas and intestines. The liver and these organs work together to digest, absorb, and process food. The liver's main job is to filter the blood coming from the digestive tract, before passing it to the rest of the body. The liver also detoxifies chemicals and metabolizes drugs. As it does so, the liver secretes bile that ends up back in the intestines. The liver also makes proteins important for blood clotting and other functions.

Aaza e Haiwaniya:- these organs are Concerned with Circulation and Respiration. Vital organs or leader of these organs is Heart.

The heart is a muscular organ about the size of a fist, located just behind and

slightly left of the breastbone. The heart pumps blood through the network of arteries and veins called the cardiovascular system.

The heart has four chambers:

- *The right atrium receives blood from the veins and pumps it to the right ventricle.*
- *The right ventricle receives blood from the right atrium and pumps it to the lungs, where it is loaded with oxygen.*
- *The left atrium receives oxygenated blood from the lungs and pumps it to the left ventricle.*
- *The left ventricle (the strongest chamber) pumps oxygen-rich blood to the rest of the body. The left ventricle's vigorous contractions create blood pressure. The coronary arteries run along the surface of the heart and provide oxygen-rich blood to the heart muscle. A web of nerve tissue also runs through the heart, conducting the complex signals that govern contraction and relaxation. Surrounding the heart is a sac called the pericardium.*

Aaza e Nafsaniya:- These organs are concerned with all sensory and motor functions. Vital organ among this is Brain.

The brain is one of the largest and most complex organs in the human body. It is made up of more than 100 billion nerves that communicate in trillions of connections called synapses. The brain is made up of many specialized areas that work together:

- *The cortex is the outermost layer of brain cells. Thinking and voluntary movements begin in the cortex.*
- *The brain stem is between the spinal cord and the rest of the brain. Basic functions like breathing and sleep are controlled here.*
- *The basal ganglia are a cluster of structures in the center of the brain. The basal ganglia coordinate messages between multiple other brain areas.*
- *The cerebellum is at the base and the back of the brain. The cerebellum is responsible for coordination and balance.*

The brain is also divided into several lobes:

- *The frontal lobes are responsible for problem solving and judgment and motor function.*
- *The parietal lobes manage sensation, handwriting, and body position.*
- *The temporal lobes are involved with memory and hearing.*
- *The occipital lobes contain the brain's visual processing system.*

Aaze e tanasuliya:- these organs are concerned with reproduction of offspring. Vital organ among this is Testis in males and ovaries in females.

Vital organs and their mutual coordination:-

By mutual coordination of organs, Life is maintained. And survival of individual is possible.

Abu sahl masihi says that there is a coordination between all Vital organs. Each vital organ supporting life of another. Vital organs and their coordination is the source of existence of human body. Liver preparing all akhlat (production of

blood) and sending the nutrients to all parts of the body. Heart is Concerned with the supply of oxygen and blood to all parts of the body. Brain is concerned with supplying sensory impulses to all parts of the body.

If we see existence of heart is not possible if liver stops producing blood and nutrients.

Similarly Existence of Brain is not possible If heart stops to supply oxygen and blood to the brain.

And existence of liver is not possible if heart stops to supply oxygen and blood to it.

If heart is not there how liver will perform it's functions. it will not receive the nutrients and it will become cold. eventually it will become non functional.

Liver prepares blood And it's appearance is similar to the blood. Transforming power or power of metabolism of liver is called as Quwat e Mughaiyera, by which it transforms the nutrients into blood.

Uzu e mo'atti and Uzu e Qabil:-

Uzu e mo'atti:- Organs which are donating or giving something to other organs. Giving or donating organs. Mo'atti from aata (To give).

Uzu e Qabil:- organs which are receiving something from other organs are called as Uzu e Qabil. Qabil From Qubool (to accept).

Eg. Lung(Donor or giver) Gives Oxygen to -> Heart (receiver).

Heart (Donor or giver) provides oxygen and blood to ---> other organs/parts of the body(receiver)

Heart (Donor or giver) provides blood and oxygen-> Liver (receiver)

Liver (Donor or giver) gives nutrients (prepare Akhlat or production of blood)

--> All organs / parts of the body (receiving). Khidmat e Muhiyya and khidmat e Mavaddiya:-

If any organ functions prior to the function of Vital organ and it is helping vital organs to perform it's functions. These organs comes under khidmat e Muhiyya. Muhiyya To supply.

If any organ function after the function of Vital organ and it is performing it's function because of receiving help from Vital organs.

Eg.Lungs giving oxygen to heart. Heart giving blood to organs through vessels.

In the example given above, Lungs function prior to function of heart and it is helping heart in it's functions. So khidmat e Muhiyya here is provided by Lungs.

And khidmat e Mavaddiya is seen in Heart. Heart supplying blood to all organs.

So heart is performing khidmat e Muhiyya and the organs here perform khidmat e mavaddiya.

Ibn Sina also included liver in Khidmat e Muhiyya. As liver provides blood to all organs.

Sensory nerves provides Khidmat e Muhiyya to brain. As it provides sensory impulses to brain.

Motor fibers comes under khidmat e mavvaddiya. Functions after the function of vital organ i.e After function of Brain. Carrying motor impulses to the parts of body.