



A REVIEW OF ANATOMICAL CONCEPTS OF NIZAM- E-ASABI IN TIBBE UNANI

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ABSTRACT

1-Background: The Nizam-e-Asabi (Nervous system) is a highly complex part of the human body that coordinates its actions and sensory information by transmitting signals to and from different parts of its body. The nervous system detects environmental changes that impact the body, then it works in tandem with the endocrine system to respond to various events. The nervous system is divided into two different systems. The first is Nizam-e-Asabi markaji (central nervous system) consist of the brain and spinal cord. Dimag (brain) is the part of the CNS is located in the skull and contains about 85 billion neurons. The Nukha (spinal cord) connected to brain through the foramen of magnum of the occipital bone. **2- Aim & Objectives:** To Collect the Concepts of Nizam e asabi given by unani physician, To know who were the pioneers and discoverer of anatomical organisation of nervous system. **3-Method:** In this paper we search & collect the Material from Unani Classical books Alqanoon fi'tib, Kamil-us-Sana, kitabul Mansoori, & Modern books, Journal, Reasearch Paper etc. **4- Conclusion & Future prospects -** This paper will provide the work and literature of Nizame asabi given by unani physicians, which can open many doors for review as well as clinical researches in future on Nizam-e-Asabi.

KEYWORDS: Nizam-e-Asabi (Nervous System), Tibbe Unani (Unani System), Dimag (Brain), Nukha (Spinal cord), Asab (Nerves), Jalinus(Galen).

INTRODUCTION

Unani Medicine is the oldest & classical system of medicines because it gives basic definition of Health, philosophical logics behind health and diseases. In present, all mode of treatment of diseases is depending upon the logic and concepts of classical medicine. The Nizam-e-Asabi (Nervous system) is a highly complex part of the human body.

The nervous System are divided into two different systems. The first is Nizam-e-Asabi markaji (central nervous system) consist of the brain and spinal cord. Dimag (brain) is the part of the CNS is located in the skull and contains about 85 billion neurons. The Nukha (spinal cord) connected to brain through the foramen of magnum of the occipital bone.

Second, is the Nizam-e-Asabi Muhiti (peripheral nervous system) consists of all nervous tissue outside the CNS. Components of the PNS include nerves as sensory receptors.

Human Dimag (brain) is the Markaji Aaza (central organ) of the Nizam-e-Asabi (nervous system). The brain consists of the cerebrum, brainstem and cerebellum. It controls most of the activities of the body, processing, integrating, and coordinating the information which receives from the sense organs, and making decisions as to the instructions sent to the rest of the body. The brain is contained in, and protected by, the skull bones of the head. The cerebrum is the largest part of the human brain. It is divided into two cerebral hemispheres. The cerebral cortex is an outer layer of grey matter, covering the core of white matter.^[2]

Jalinus (Galen) of Pergamum was the most famous Greek physician during the Roman period (129 - 200 AD). He was a brilliant anatomist and pioneer of experimental physiology.^[3] He demonstrated that a pig with ligated recurrent laryngeal nerves (which ultimately branch off the brain) lost its ability to squeal.⁴ In this Paper we will describe the Concepts & Views of different Unani physician Regarding Nizam-e-Asabi.

MATERIAL AND METHODS

In this paper we search & collect the Material from Unani Classical books “AL-QANUN FI’L-TIBB”, Kamil-us-Sanaa, kitabul Mansoori, “Kitab Al- Umda Fil Jarahat”, “Kulliyat-e-Nafisi” & Modern books, Journal, Reasearch Paper etc.

Concepts of Nizam-e-Asabi given by Unani physicians

In 500 BC Alcmaeon was the first Greek scholar who recognized the human brain & described it as the most important organ in the human body, connected with sensory organs, it was possible because he recognized primarily the construction of the optic nerve.^[5] And was the first to assert that the Brain was the organ responsible for Intelligence. Alcmaeon was also the first to mention the eyeball and described the poroi connecting the eyes to the brain (the optic nerve).^[6] Thus this philosopher initiated the approach to medicine called encephalocentrism. We can call Alcmaeon “*The father of neuroscience*”.^[5]

The Father of Medicine Buqrat (Hippocrates 460-377 B.C.): *considered* the Brain as a gland secreting mucous that cooled the Body. Many Ancient philosopher considered the Heart to be the seat of consciousness, but Hippocrates assigned that role to the Brain.^[8,10] For the first time, **Buqrat** discussed the anatomy of the spine, spinal cord, and certain diseases associated with them.^[6,7,8]

In 384 B.C. The Founder of Comparative Anatomy **Arastu (Aristotle)**, believed that the Heart, not the brain was the seat of intelligence.^[1] Aristotle’s description of the brain was quite interesting. He saw the brain as composed of two portions enclosed by two membranes, the outer being the strongest. The human brain was considered to be the largest among the animals. Aristotle asserted that the brain “is larger in men than in women”. Because the “region of the heart and of the lung is hotter and richer in blood in man than in any other animal; and in men than in women.”^[6]

About **300 B.C.** The Father of Anatomy Herophilus described the covering of the eye, He considered the nerve originating from the brain. He also recognized the brain as the seat of intelligence and not the heart as postulated by Aristotle.^[6]

Roman physician Jalinūs (129-200 A.D.) provided a detailed description of the dissection of the brains of animals, and the names of many structures that he identified are still used today, including the corpus callosum, corpora quadrigemina, fornix, pineal body, and septum pellucidum etc. He described a nerve that came from the brain on each side of the neck, went down toward the heart, and then reversed course and ascended to the larynx and caused the vocal cords to open. He called these “reversivi” (or recurrent nerves) and stated that he was the first to discover “these wonderful things.”^[4] He identified seven pairs of cranial nerves. Due

to their origin from the brain, the cranial nerves were believed to be nerves of sensation, in contrast to the 30 pairs of spinal nerves, which he recognized as the nerves of motion.^[6] **Jalinūs** says, a nerve or tonos grows from the brain or spinal cord a single organ gets its name from two action because it was made to sag and to pull tight.^[9] **Jalinūs** knew of the cerebral ventricles, their communications, and of the choroid plexus. He give the description of the cerebral hemispheres, and the third and fourth ventricles reflected keen observations.

Mohammad bin Zakariya Razi (850-923 A.D.) was the first to draw a connection between lesions in the nervous system and clinical signs and was the first to describe the recurrent laryngeal nerve as a sensory and a motor nerve. Rhazes was also the first to describe spina bifida in his book **AL- Hawi (Liber Continens)**.^[6] He described the two membrane in the brain one is hard which is called **Umm Ghaliz** (Duramatter) and other is soft which is called **Umm Raqiq** (pia matter).^[10]

About the seat of Nervous faculty **Ibne Abbas Majūsi (930-994 A.D.)** says, “The residing place for **Quwwat-e-Mudrika** (cognitive faculties) is the brain. The specific center for **Takhayyal** is the Muqaddam Batan (Anterior Chamber), the center for **Fikr** is the Batan Ausat (Middle Chamber) of brain.”^[11]

Ibne Sina (980-1037 A.D.) says in his famous Book, **Al Qanoon Fit Tib** that, “The nerves originate from brain and terminate at the surface of the skin. The brain is the seat of two kinds of nerves, those that comes straight from brain and those comes from the spinal cords which comes from the brain.”^[12]

At (936-1036 A.D.) Abul Kasim (Albucassis) is credited with the first recorded description of a thyroidectomy. He echoed the same warnings with regard to the recurrent laryngeal nerve: “be most careful not to cut a blood-vessel or nerve.”^[4]

Ibn Quf (1233-1286A.D.) says that, nerves originate from the brain and some nerve originate from the spinal cord. The reason of this, there are two types of Aaza, some are close to the brain, and some are far from the brain. Those Aaza are close to the brain, their nerve originate from the Brain. And those Aaza are Far from the Brain their Nerve originate the spinal cord. Brain is a white organ which has consistency and Temperament is Moist. It’s divided into two parts in length, three part in Width which are called the Ventricles.^[13]

Regarding Aaza Basira (organs for Quwwat-e-Basira), **Allama Nafees (1210-1288 AD)** says in **Kulliyat Nafisi** that, “The place of this Quwa, where both Asab (Nerves) of eye’s meet together known as **Taqatae Salebi** (Optic Chiasma). Due to round tubular shape of both Asab, it is known as in the name of Asab-e- Majufa. One Asab emerges from right side of anterior brain and bends towards left side, Second Asab emerges from left side

and bends towards right side, bending of both nerves in such a manner, that they meet together at Taqatae Salebi (optic chiasma). A hole is formed by the meeting surfaces of both the nerves which ultimately becomes a single connecting tube. The nerves which arises from right side of anterior brain goes to the right eye and other, which arises from left side of anterior brain goes to the left eye.^[14]

Allama Nafees also says that, “The Major composition of brain is Nerve fibres, grey matter and white matter. Mizaj of Brain is Barid-Ratab in comparison of other organs because in brain there should be dominance of Rukn-e-Ma (watery elements) and Rukn-e-Ard (earthy elements). The moisture of organs is due to Rukn-e-Hawa (airy elements) and Rukn-e-Ma present in them.”^[15]

DISCUSSION AND CONCLUSION

Alcmaeon was the first Greek scholar who recognized the human brain & described it as the most important organ in the human body, connected with sensory organs, it was possible because he recognized primarily the construction of the optic nerve. Later Buqrat (Hippocrates) *considered* the Brain as a gland secreting mucous that cooled the Body. He discussed the anatomy of the spine, spinal cord, and certain diseases associated with them.^[3] In 300 B.C. Herophilus recognized the brain as the seat of intelligence and not the heart as postulated by Aristotle. **Jalinus** dissection of the brains of animals, and the names of many structures that he identified are still used today, including the corpus callosum, corpora quadrigemina, fornix, pineal body, and septum pellucidum etc. He described a nerve that came from the brain on each side of the neck, went down toward the heart, and then reversed course and ascended to the larynx and caused the vocal cords to open. He called these "reversivi" (or recurrent nerves) and stated that he was the first to discover "these wonderful things. He identified seven pairs of cranial nerves. Due to their origin from the brain, the cranial nerves were believed to be nerves of sensation, in contrast to the 30 pairs of spinal nerves, which he recognized as the nerves of motion. **Jalinus** (Galen) named the glossopharyngeal, vagus, and spinal accessory nerves as the sixth pair of nerves, and the hypoglossal was considered to be the seventh. **Jalinus** (Galen) says, a nerve or tonos grows from the brain or spinal cord a single organ gets its name from two action because it was made to sag and to pull tight.¹⁵ **Jalinus** (Galen) knew of the cerebral ventricles, their communications, and of the choroid plexus. He give description of the cerebral hemispheres, and the third and fourth ventricles reflected keen observations. Zakariya Razi (850-923 A.D.) was the first to draw a connection between lesions in the **Nizam-e-Asabi** (nervous system) and clinical signs and was the first to describe the recurrent laryngeal nerve as a sensory and a motor nerve. He also described the two membrane in the brain one is hard which is called **Umm Ghaliz** (Duramatter) and other is soft which is called **Umm Raqiq** (pia matter). About the seat of Nervous faculty Ibne Abbas Majūsi

(930-994 A.D.) says, “The residing place for Quwwat-e-Mudrika (cognitive faculties) is the **Dimag** (brain). The specific center for Takhayyal is the Muqaddam Batan (Anterior Chamber), the center for Fikr is the Batan Ausat (Middle Chamber) of **Dimag** (brain). Ibne Sina (980-1037 A.D.) says in his famous Book, Al Qanoon Fit Tib that, “The nerves originate from **Dimag** (brain) and terminate at the surface of the skin. Abul Kasim (Albucassis) is credited with the first recorded description of a thyroidectomy. Ibn Quf (1233-1286A.D.) says that, nerves originate from the **Dimag** (brain) and some nerve originate from the **Nukha** (spinal cord).

Brain is composed of the cerebrum, cerebellum, and brainstem .as shown in fig.1

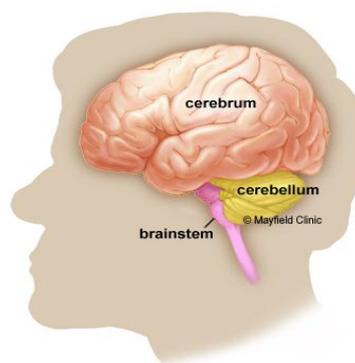


Figure 1: Main parts of Brain: the cerebrum, cerebellum and brainstem.

Cerebrum: is the largest part of the brain and is composed of right and left hemispheres. It performs higher functions like interpreting touch, vision and hearing, as well as speech, reasoning, emotions, learning, and fine control of movement.

Cerebellum: is located under the cerebrum. Its function is to coordinate muscle movements, maintain posture, and balance.

Brainstem: acts as a relay center connecting the cerebrum and cerebellum to the spinal cord. It performs many automatic functions such as breathing, heart rate, body temperature, wake and sleep cycles, digestion, sneezing, coughing, vomiting, and swallowing.

Right brain – left brain

The cerebrum is divided into two halves: the right and left hemispheres. They are joined by a bundle of fibers called the corpus callosum that transmits messages from one side to the other. Each hemisphere controls the opposite side of the body. If a stroke occurs on the right side of the brain, your left arm or leg may be weak or paralyzed.

Not all functions of the hemispheres are shared. In general, the left hemisphere controls speech, comprehension, arithmetic, and writing. The right

hemisphere controls creativity, spatial ability, artistic, and musical skills. The left hemisphere is dominant in hand use and language in about 92% of people. As shown in fig.2

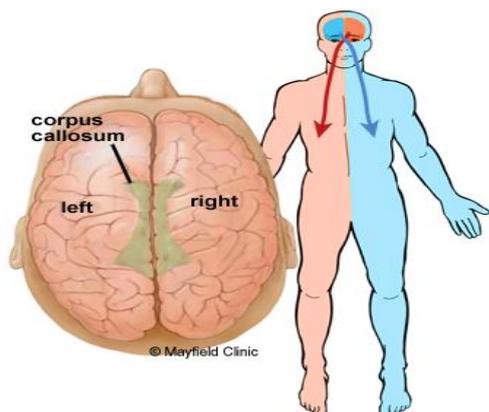


Figure 2: The cerebrum is divided into left and right hemispheres.

Lobes of the brain

The cerebral hemispheres have distinct fissures, which divide the brain into lobes. Each hemisphere has 4 lobes: frontal, temporal, parietal, and occipital each lobe may be divided, once again, into areas that serve very specific functions. It's important to understand that each lobe of the brain does not function alone. There are very complex relationships between the lobes of the brain and between the right and left hemispheres. As shown in fig.3.

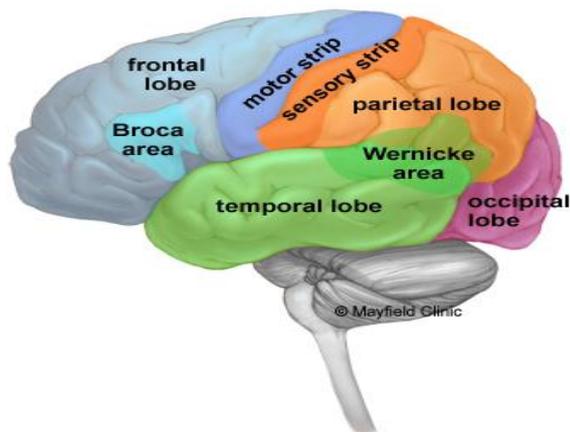


Figure 3: Four lobes of cerebrum : frontal, parietal, occipital and temporal.

The cerebrum is divided into four lobes: frontal, parietal, occipital and temporal.

Frontal lobe

- Personality, behavior, emotions.
- Judgment, planning, problem solving.
- Speech: speaking and writing (Broca's area).
- Body movement (motor strip).
- Intelligence, concentration, self awareness.

Parietal lobe

- Interprets language, words.
- Sense of touch, pain, temperature (sensory strip).
- Interprets signals from vision, hearing, motor, sensory and memory.
- Spatial and visual perception.

Occipital lobe: Interprets vision (color, light, movement).

Temporal lobe

- Understanding language (Wernicke's area)
- Memory
- Hearing
- Sequencing and organization.^[16]

BIBLIOGRAPHY

1. [<https://web.stanford.edu/class/history13/earlysciencelab/body/nervespages/nerves.html#:~:text=In%20the%20fourth%20>]
2. [Gerard J. Tortora. Edition, (2017), "Principles of Anatomy and Physiology" 15th ed Printed at Shree Maitrey Pvt. Ltd, Noida, 2017; 353-355,418]
3. [Ajita R.K Galen and his contribution to Anatomy. Journal of Evolution of Medical and Dental Sciences, 2015; March 30; 4(26): P-1.]
4. [Kaplan L.E Æ Salti I.G. Æ Roncella M. Æ Fulton N. Æ Kadowaki M. History of the Recurrent Laryngeal Nerve: From Galen to Lahey .World J Surg, 2009; 33: 386–393. DOI 10.1007/s00268-008-9798-z. Pp-1, 2, 5.]
5. [Zemelka A M "Alcmaeon of croton- Father of Neuroscience" ? Brain ,Mind Senses in the Alcmaeon study Neurol Neurosci-2017 <https://sci-hub.mkxa.top/10.21767/2171-6625.1000190>]
6. [Persaud T.V.N., Loukas M., Tubbs R.S. "A History of Human Anatomy" Edition 2nd Charles C Thomas Publisher L.T.D. Spring Field Illinois U.S.A. 2014; 21,24,25,27,30,32,41,42, 48]
7. [Magner L.N. "A History of Medicine Department of History" Purdus University West Lafayette indiana Publication 270 Madison Avenue, New York, 1992; 10016, P-73.
8. [Tsung O. Cheng, Hippocrates and Cardiology, American Heart Journal, February- 2001; 141(2): 173-183.
9. [Garrison H. D. & Hast H.M. "The Fabric of the Human Body" (An Annotated Translation of 1543 and 1555 Edition) Printed by S. Karger AG P.O. Box, CH-4009 Basel (Switzerland) 2014. P-838.]
10. [Abu Baker Mohd bin Zakariya Razi "Kitab Al Mansoori", 1st Edition Urdu translation, CCRUM, Ministry of health and family welfare, govt. of India, New Delhi, 28, 37.]
11. [Majūsi., "Kamil-us-Sanaa", Urdu Translation By Hakeem Ghulam Hussain KantoorI, CCRUM New Delhi, 2010; Pp.118, 322-23]
12. [Ibn Sina, , "AL-QANUN FI'L-TIBB" English Translation of the critical Arabic Text Book-I

Published by Deptt- of Islamic Studies
JamiaHamdard New Delhi India), 2010; P-88.]

13. [Masihi Ibn Al-Quf “Kitab Al- Umda Fil Jarahat”
IST Urdu Translation By CCRUM , Ministry of
health and family welfare, govt. of India, New
Delhi, 1986; Vol-1, Pp: 52-53,104]
14. [Nafees.B, “*Kulliyat-e-Nafisi*”, Translation and
Elaboration (Sharah) by Hkm, Kabiruddin,
IdaraKitabu-al-shifa, New Delhi, 1954; Pp:
56,57,129-130]
15. [Mohd. A.B., et al, “Validation of Mizaj of brain by
estimation of moisture content in vital organs of
three species of animals”, International Journal of
Herbal Medicine, 2017; Pp 1-3.]
16. [<https://mayfieldclinic.com/pe-anatbrain.htm>]