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CONTRIBUTION OF AL-RAZI IN NEUROSCIENCES WITH SPECIAL REFERENCE TO FACIAL PARALYSIS (LAQWA)- UNANI SYSTEM OF MEDICINE

Pathology

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ABSTRACT

The contribution of Razi (Razes) is the milestone in medical science. He is one of the glossy faces of the Islamic golden period. He authored 237 books, including Al-Hawi (Liber Continens) and Al -Judri wal Hasbah (Treatise on Smallpox and Measles). He is also known for his pioneering work in neurology, applied neuro-anatomy, and neuropsychiatry. Razes was the first scholar who explained the pathophysiology, clinical presentation, and possible treatment of facial paralysis. He has also mentioned the prognostic comments of this disease based on duration and severity. The term "Laqwa (Facial paralysis)" was derived from the name of a bird "Uqab" due to the similarity of the facial appearance of the patient. In this article, it is trying to summarize the teaching of Razes on the subject of facial paralysis.

KEYWORDS

Razi, Laqwa, Facial paralysis, Al-Hawi, Arab physician

INTRODUCTION

History of medicine is as old as the history of the human being. In this way, noticing the authenticity of medical historical texts and explaining their actual meaning will provide valuable contributions and ideas to contemporary related sciences [1]. The review of the facial palsy suggests that it is as old as the history of human-being and has been exhibited as paintings, sculptures, masks, and papyri [2]. In early 19th AD, Sir Charles Bell explained the anatomy of the facial nerve and its association with the unilateral facial palsy. Peripheral facial nerve palsy was, however, described by earlier physicians such as Sydenham, Stalpart Vander Wiel, Douglas, Friedreich, and Thomasson a thuessink [3]. Hippocrates gave a brief account of this disease and stated," Distortions of the face, if they coincide with no other disorder of the body, quickly cease, either spontaneously or as the result of treatment, otherwise there is paralysis"[4].

Razes and Neurology

Al Razi was born in Al Rayy, Tehran, in the year 865 AD (251 Hegira) [5] and died in Ray in 925 AD [6,7] He has written 237 complete books in his life, out of which only 36 books are available today. His most legendary writing Al Hawi (Liber Continens) was is well-thought-out as a medical encyclopedia then and now also [8]. Razes offered explanations in his books for various mental illnesses i.e. definitions, symptoms as well as differential diagnoses and treatments that overwhelmed the society during his era (10th century AD).

While working as the director of a hospital in Baghdad, the first time he introduced the concept of a special ward for psychiatric patients to proper care. According to him, mental disorders should not be taken easily. It must be considered and treated as serious medical conditions. He explained the clinical observations of psychiatric patients in detail and advised management with diet, occupational therapy, and aromatherapy (as a supportive), medication, etc. Moreover, he adopted cognitive therapy for obsessions [9]. Razes illustrated depression as a melancholic obsessive-compulsive neurosis (related to Atrabilious), which is the consequence of changes in blood flow in the brain [10]. He guided how to eliminate the waste matter from head e.g. through Aml-e-Tatees (sneezing), Ghargharah (gargle), Dalake khishn (massage with jagged cloths) etc. [11].

Razes was aware of about seven cranial nerves and 31 pairs spinal nerves and explained it in 9th CE. He discussed neuro-anatomy to locate the nervous system lesions and brought them into a relation of clinical signs [12]. In the sixth volume of "Liber Continens", Razes has given the anatomical description of the facial and cranial nerves and explained the convulsion and paralysis [13,14]. He introduced motor or sensory functions of nerves. The first time, he alloted a numerical order to the cranial nerves from the optic to the hypoglossal nerves. He classified the spinal nerves into 8 cervical, 12 thoracics, 5 lumbar, 3 sacral, and 3 coccygeal nerves. Al Razes was a pioneer in applied neuroanatomy. Besides, it is supposed that he was the first physician to make the differential diagnosis of concussion from other similar neurological conditions [7,15].

Facial Paralysis (Laqva)

In the early century of Common Era, many Arab and Unani physicians described facial paralysis in a comprehensive way. It was assumed that, Rabban Tabri (author of "Paradise of Wisdom") has originally described the facial paralysis and titled it as Laqwa. But the great Razes was the first physician who explained facial palsy clearly and recommended some treatments also. He wrote a complete chapter on facial distortion, spasm, and paralysis in Al-Hawi. He differentiated facial palsy from a hemifacial spasm for the first time in medical history [3,16]. According to him, the symptoms start abruptly and half of the face sags, paralyzes, disfigures and deviates to the normal side means if the muscle of left-side of the face is involved, the lip is turned to the right side and jaw and cheek of the affected part also deviate to the unaffected side. Facial paralysis is also known as 'Safasmus', 'Farbifus', 'Aframus'i.e. "spasmous musculous cranious " or "spasmous phrenicaus cranious" that means spasm in muscles of head may be due to viscid humor (black bile) that diverge towards the affected side. It is supposed in the Greek Arab system of medicine, that, excess of dryness (Yaboosat) in the body may also lead to Laqva in some patients [4].

Pathophysiology

The earliest explanation of bilateral facial palsy was given by Razes [4]. He proposed the cause of paralysis that may be either accumulation of viscid Phlegm or Atrabilious in the brain. When causative matter spreads to the brain and accumulates there causes convulsion in lips, eyes, eyelids, and in the skin of the forehead, because those particular nerves come from brain to tongue, eyelids and face are involved. But if there is no lesion in the brain (somewhere else in the route of the facial nerve), the patient does not lose hearing or visual sensations and even facial sensation does not alter. Razes reported two types of facial paralysis one is Tashannuji (convulsive) and the other is Isterkhai (languorous). In the case of convulsive facial paralysis, the muscles of forehead, temple, and cheeks become harder and shrunken but these symptoms are contrasted in the languid facial palsy. He stated that if this palsy is wet convulsive will occur always spontaneously [17]. The patient is not able to whistle or cannot blow air through the affected side [18].

Presentation of Facial Paralysis (Laqwa)

It is a matter of thinking about approaches of Razes regarding facial

paralysis, how he thought the pathophysiology and symptoms of that specific paralytic condition in 9th CE. (see Table 1) [4] First of all, "the patient should be asked either the sensation of the affected side is the same as the other side or not. Also, it should be evaluated whether the sensation of the affected side is exaggerated or not [4]."

Table 1

S. No	Part affected	Presentation
1.	Facial bones, cheek, and skin	Pain in facial bone, cheek, and numbness of the skin, mouth distortion, patient's speech is slurred
2.	Facial muscles	Twitching is there
3.	Frontal skin	Wrinkles disappear
4.	Eye	Unable to close the eyes completely and little motion present, the eye becomes sunken and smaller on the affected side with constant tearing.
5.	Chewing muscle	Not working, the patient chews with the unaffected side
6.	Head	Some patients have headaches in the temporal region
7.	Distal soft palate (uvula)	Paralyzed, and there are some excess secretions and discoloration.
8.	Lips	Unable to close properly, when drinking water, water would flow from his mouth
9.	Others	Crooked appearance due to the involvement of both sides of the mouth. The patient has low morale and looks defeated.

Prognostic Remarks of Facial Paralysis [4,17]

1. Razes stated patient of facial paralysis dies within four days if not, he won't die due to the disease.
2. If paralysis is not so severe, the patient may get better without any treatment only a diet regime is needed.
3. Some patients live with this disease but no other complication present if it does not involve other nerves.
4. The patient may feel slowing of body motions and lack of consciousness.
5. In some cases, patients experience also paralysis of limbs on the affected side.
6. Some patients have cerebral stroke following the disease.
7. It is supposed, if the left side of the body is affected, it has a shoddier course and prognosis.
8. If it exceeds more than six months, it is dubious to resolve. Razes said if the patient remains affected for two months, the disease becomes stable.
9. Prognosis of facial palsy depends upon the involvement of the brain parts, if it involves the frontal part of the brain completely, the patient may have coma or sub coma but one-sided involvement leads to facial palsy.

Special Case Report in Al Hawi (Liber Continens)

Razes reported many cases in Liber Continens, among them few special cases are described here briefly. A man after prolonged fasting and undergoing excessive bloodletting; was affected with facial paralysis and he was unable to close both eyes. Even though, his mouth was not distorted, and not able to hold water in his mouth. Some people are more vulnerable to this disease. Bloodletting could lead to facial distortion, as the disease was seen in an obese old man and a eunuch after bloodletting due to dryness in the body. Razes also mentions "I have seen some cases who have recovered without bed rest and despite their daily activities" [17].

Recommendations of Razes

Razes advised similar treatments for facial palsy and spasms. He gave his treatments and referenced many others. These treatments include massage of oils and ointments on the affected side of the face and cervical vertebrae until the "skin turns red". In Kitab Al Mansoori (Liber Almansoris), he suggested warm fomentation, inhaled and intranasal medicines (emphasis on inducing sneezing). Razes emphasized to gargle, the use of laxatives, and special diets. He also recommended Fasd (phlebotomy) and application of a bandage to the distorted area to minimize the pull of the muscles towards the unaffected side. The patient should take rest in a dark and warm place. In the winter or rainy season, patients should avoid cold and wind. Excessive application of warm and dry cloth on the jaw and cervical vertebra has been advised [18].

The affected side should be wrapped properly and pulled to the other side. The skin of the frontal area should be massaged with some warm oils. Every hour the status of the lip should be assessed and kept in the correct position. Ask the patient to whistle and blow the air to reinforce the facial muscles [17,18].

CONCLUSION

Razes was the great medical scholar of the medieval period. Facial paralysis was always one of the major causes of morbidity and mortality. During the literature review, it was found that Razes had surplus knowledge of paralysis and other nervous system-related illnesses. He gave a detailed description of facial paralysis i.e. etiology, pathophysiology, presentation, prognosis, and possible treatment. It is a need of an hour to review all the writings of Razes and make them more comprehensive for better understanding.

Conflict of Interest
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