

MEDICAL LEGACY OF ABU BAKR MUHAMMED AR-RAZI

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Abstract:

This article widely covers the path of medical research of the Iranian scientist-encyclopedist, physician, philosopher, chemist Abu Bakr Muhammad al-Razi, who lived in 850-923, and his contribution to the development of medicine. His works on medicine describe in great detail and in an accessible form the methods of diagnosing and treating patients. The medical views of Abu Bakr Muhammad al-Razi on the etiology and pathogenesis of diseases were close to modern ones.

Key words: *Abu Bakr Muhammad al-Razi, medicine, diagnosis, smallpox, chickenpox, neurosurgery, ophthalmology.*

Introduction

The medicine of the peoples of the East during the Arab caliphates preserved and spread Greek medicine, awakened a living sense of nature, brought medicine closer to nature and the natural sciences, contributed to the development of theoretical and practical medicine, introduced many medicinal substances, and improved its preparation. Before the emergence of Islam, there was a close connection between magical rites and medicine. Whether famous Arab and Muslim doctors were magicians and sorcerers, history is silent. However, we can say for sure that their discoveries had a huge impact on the development of medicine as a science. Even before the emergence of Islam in the Muslim world, the names of such doctors as Al-Harith ibn Kalada al-Taqafi, An-Nadr ibn al-Harith, Ibn Abi Ramtha at-Tamimi and Dimad ibn Taalba al-Azdi, who were contemporaries of the Prophet Muhammad, were known. An important period in the history of Islamic medicine included the activities of three great doctors, authors of major treatises on medicine, who were also philosophers: al-Razi, al-Majusi and Ibn Sina.

One of the greatest and most original doctors of the Muslim world, who left behind a rich legacy, whose works not only moved medicine from a dead point, but laid the foundation for many discoveries and developments of unique medicines, scientist, philosopher, doctor, chemist Abu Bakr Muhammad Ar- Razi (this is what his full name sounds like, Rhazes, 850-923) was born in 865 in

Iran (in Ray, near Tehran). He spent most of his life in Baghdad. A new hobby forced al-Razi to move to Baghdad, where he soon acquired students and became the manager of a local hospital. An early interest in chemistry determined the interests of the scientist - he began to research the use of mercury salts and was the first to conduct clinical trials on animals (monkeys). Al-Razi used his talents not only in science: he designed the first “ENT instrument” for removing foreign bodies from the larynx, and also began to use cotton wool for dressings and threads from sheep intestines for suturing abdominal wounds.

He made significant contributions to various sciences, including medicine, chemistry and physics. In addition, al-Razi is often called the “imam of medicine” of his time, since people from all over the world came to him to gain knowledge. He owns many important medical works and writings, one of which is “Kitab al-Mansuri”, which contains a detailed anatomical description of all human organs. He has another famous book - “Al-Hawi”, which is a medical reference book. By the way, it was mandatory for medical students to study in Europe until the 17th century, and the treatise “Smallpox and Measles” was the main textbook for university graduates until 1617.

He soon became famous as a very skillful doctor; ran a clinic in Ray, then in Baghdad. Al-Razi was well acquainted with ancient science, medicine and philosophy; he left works on philosophy, ethics, theology, logic, medicine, astronomy, physics and alchemy - a total of 184 works, of which 61 have reached us; Many of Al-Razi's works were translated into Latin in Europe in the 10th–13th centuries. The works of al-Razi that have reached us testify to the versatility of his talent. Describing each disease, Al-Razi analyzed it from the points of view of Greek, Syrian, Indian, Persian and Arab authors, after which he outlined his observations and conclusions. “Kitab al-Hawi,” subsequently translated into Latin, was published many times in medieval Europe and, together with Ibn Sina’s “Canon of Medicine,” was the main source of medical knowledge for several centuries. It was he who wrote the first works devoted to diseases such as smallpox and chickenpox. Al-Razi became a pioneer in neurosurgery and ophthalmology, while making enormous contributions to the development of inorganic and organic chemistry. In parallel with this, the scientist wrote several more treatises on issues of philosophy and religion.

Al-Razi dedicated another of his serious medical works in 10 volumes, “Al-Kitab al-Mansuri,” to the ruler of Khorasan, Abu Salih Mansur ibn Ishaq. This included theoretical medical principles, knowledge of pathology, pharmacy, dietetics, cosmetics and hygiene, and also described the skills acquired by the famous doctor from his practice in the fields of surgery, toxicology and infectious diseases.

Al-Razi’s work “On Smallpox and Measles,” although it did not claim to be large, is still recognized as educational literature as one of the most interesting treatises in Arabic medical literature. Here the clinical picture of these life-threatening infectious diseases is outlined, the theory of their contagiousness, differential diagnosis is formulated, as well as treatment methods, diet for the patient, possibilities for preventing infection and methods of caring for the patient.

Many legends about this famous physician, pharmacist and philosopher have been preserved in Arabic literature. One such parable is the story of the construction site of the Baghdad hospital. When the ruler of Baghdad asked al-Razi for advice, the doctor replied as follows: “Pieces of fresh meat should be hung in different parts of the city, and where it will spoil last, there should be a hospital.” Of course, in the early Middle Ages the concept of the existence of microbes was still far away. However, the knowledge and experience of a practicing physician was sufficient to make and justify such a decision.

Another parable tells how a hopeless patient with hemoptysis was brought to al-Razi. And the first thing the doctor asked the patient: “What kind of water do you drink?” Hearing the answer “marsh”, al-Razi concluded that in such a situation the patient most likely swallowed a leech. The patient was

prescribed a herbal mixture called “frog hair” for profuse vomiting: the leech came out with the vomit, and “the man sentenced to death by the will of Allah” survived.

He made fundamental and lasting contributions to the fields of medicine, alchemy, music and philosophy, and wrote about 184 books and articles in various scientific fields. Al-Razi was knowledgeable in Persian, Greek and Indian medicine. In the process of becoming Abu Bakr Muhammad al-Razi decided to focus his attention on medicine. He was an early proponent of experimental medicine and is considered the father of pediatrics and became a pioneer in neurosurgery and ophthalmology. Interestingly, it was Razi who was the first to distinguish between smallpox and measles using the clinical characteristics of these diseases. Subsequently, thanks to his professionalism, he became the chief physician of the Ray and Baghdad hospitals [1-3].

An Iranian scientist was the first to come up with the idea of recording medical history. He pinned a piece of paper to each bed on which he wrote down the dynamics of his patient’s condition and the medications he gave him. Ar-Razi was able to obtain alcohol by fermenting sugar. He also discovered the laryngeal nerve and laid the foundation for first aid.

German orientalist Sigrid Hanke said about him: “Al-Razi had extensive medical knowledge. He constantly thirsted for new knowledge, looking for it everywhere: in books, sick patients and chemical experiments.”

As the chief physician of the Baghdad hospital, al-Razi formulated the first known description of smallpox: “Smallpox occurs when the blood “boils” and becomes infected, causing the fumes to be expelled. Thus, juvenile blood (which appears as wet extracts appearing on the skin) is transformed into richer blood, the color of mature wine. At this stage, smallpox appears mainly as "bubbles found in wine" (blisters)... this disease can also occur at other times (meaning not only during childhood). It’s best to stay away from him (the sick person) at the first stage, otherwise this disease can develop into an epidemic.”

This diagnosis was confirmed by the Encyclopedia Britannica (1911), which states: “The most reliable statements about the early existence of the disease are contained in the account of the 9th century Persian physician Rases, who clearly described its symptoms, explained the pathology by the humoral or enzymatic theory and gave instructions for its treatment”.

Al-Razi is also known for discovering “allergic asthma”, becoming the first doctor to write scientific papers on allergies and immunology, explaining the appearance of rhinitis.

The Virtuous Life is a monumental medical encyclopedia in nine volumes. By now it is perhaps the most famous and fundamental in all of Europe. It contains reflections and criticism of the Greek philosophers Aristotle and Plato, and also expresses innovative views on many topics. Only thanks to this book, many scientists became familiar with the activities of the greatest medieval physician al-Razi. Al-Hawi is not a formal medical encyclopedia, but a posthumous compilation of al-Razi's workbooks, which included knowledge gleaned from other books as well as original observations about diseases and therapies based on his own clinical experience. It is significant in that it contains a famous monograph on smallpox, the earliest known. The work was translated into Latin in 1279 by Faraj Ben Salim, a Sicilian-Jewish physician employed by Charles of Anjou. In the book you can find criticism of Galen's views. For example, al-Razi stated that Galen's descriptions of urinaria were inaccurate because he saw only three cases, while Razi studied hundreds of such cases in Muslim hospitals in Baghdad and Raya [4-6].

Al-Razi is considered the father of pediatrics. He is the author of the first book dedicated to pediatrics as an independent field of medicine.

Al-Razi was quite possibly the first Persian physician to consciously write a home medical manual (medicinal manual) aimed at the general public. He dedicated it to the poor, travelers and ordinary

citizens who could turn to this book to treat common diseases when a doctor was unavailable. This work is certainly of particular interest for history, since such books were very popular until the 20th century. Al-Razi described in his 36 chapters the diets and components of medicines that could be found either in the pharmacy, the market, in well-equipped kitchens, or even in military camps. Thus, every reasonable person could follow his instructions and prepare the correct recipe.

He prescribed for feverish headaches “2 parts of Dun (oily extract) of rose, mixed with 1 part of vinegar, in which a piece of linen cloth is dipped and pressed on the forehead.” As a laxative, he recommended “7 drams of dried violet flowers with 20 pears, macerated and well mixed, then strained. Add to this filtrate 20 drams of sugar for a drink.” As a remedy for the eyes, he advised taking myrrh, saffron and frankincense, 2 drams each, mixed with 1 dram of yellow arsenic tablets. Each tablet was dissolved in sufficient amount of coriander water and used as eye drops. Al-Razi died at the age of 60, completely blind, in poverty. The great Arab scientist devoted his last years to studying the issues of longevity, setting out his thoughts and observations in the book “Why very few people reach old age.”

In June 2009, Iran donated the Pavilion of Persian Scientists, located in the central square of the Vienna International Center Memorial, to the United Nations department in Vienna (Austria). The Pavilion of Persian Scientists includes statues of four famous scientists: Avicenna, Biruni, Zakaria Razi (Raze), Omar Khayyam.

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