



HISTORY OF THE DEVELOPMENT OF DENTISTRY AS A SCIENCE AND PRACTICE

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Abstract: Article is devoted to the history of the development of dentistry as a science and practice. Particular attention is paid to the stages of development of this area, as well as the history of dentistry in the East, in particular in Central Asia.

Keywords: Dentistry, science, medicine, modernization, Muslim East, medical education.

INTRODUCTION

Any manifestation of the disease brings suffering to a person. People's teeth hurt at all times, from the primitive period to the present day, and healers have always helped people get rid of pain in ways known to them. Toothache was quenched by healers, barbers, horse-dressers, blacksmiths.

The first mention of such a profession as a dentist dates back to about 7500 years before our era, and the prototype of the drill appeared more than 9000 years ago. Even then, judging by the remains found, the ancient dental masters had skills that made it possible to drill hard-to-reach molars. Thanks to archaeological research, it was found that the Etruscans were the first to comprehend the art of dentistry. They knew how to make false teeth by grinding the teeth of animals. Such prostheses were strong and allowed not to limit oneself in food.

Recent archaeological research suggests that Neolithic people were already familiar with the method of drilling and dental treatment. On the territory of modern Pakistan, the remains of people with even holes of clearly artificial origin in the teeth



were found. These burials are about 9 thousand years old. It is assumed that ancient healers used a substance similar to asphalt as a filling material.

In ancient Mesopotamia, they used a special paste made from henbane and other plant components. In combination with the utterance of a spell, it was laid in the hollow of a diseased tooth. The spell was called «Conspiracy Against Toothache.» It is an impressive poetic work of that era.

There is a lot of evidence that in ancient Egypt the profession of a dentist was very common and prestigious. The papyri brought to us the deep knowledge of the Egyptians about the medicinal properties of plants, which doctors of that time used in the manufacture of filling materials and anti-inflammatory compounds used to treat gingivitis, erosion and pulpitis. It is to the ancient Egyptian civilization that we owe the invention of toothpaste, which was then made from eggshells, pumice, myrrh and ashes. The Egyptians brushed their teeth with wooden sticks with a split end.

The level of development of dental art in ancient Egypt can also be judged by the mummies found. Doctors of that era already knew how to perform rather complex operations, drill the jaw and attach fallen or artificial teeth using gold wire.

The name of the most ancient dentist known to historians has survived to this day. His name was Khesi-Re, and on the hieroglyphic tablet it is written about him: «The greatest of the doctors who treats teeth».

Excavations in the territory of modern Mexico have shown that the technology of drilling teeth was also known to the Mayan civilization, although they were used more for cosmetic purposes. The Indians inserted precious stones into their teeth, decorated them with inlays, gave them intricate shapes, and even painted them with turquoise and jade.

Scientists of ancient Greece, including the famous Hippocrates, were also looking for a way to rid people of dental problems.

True, the methods used by them sometimes did not differ in particular elegance. For example, for the treatment of acute pain, an inflamed nerve was burned out with a red-hot iron - an effective method, but not very humane. To perform their manipulations, doctors used a semblance of anaesthesia, for example, henbane smoke. Hippocrates was the first to describe in detail many diseases of the oral cavity, which he proposed to treat with decoctions of medicinal plants[1].

To the credit of the ancient Greek scientists, it must be said that many of them were in no hurry to remove a tooth at the slightest pain and tried to find a way to treat



it. Some of the ideas and methods proposed by them (for example, splinting for a fracture or dislocation of the jaw) are still used in an improved form today.

LITERATURE REVIEW

In ancient Rome, not only doctors, but also healers, sorcerers, barbers and jewellers were engaged in the treatment and prosthetics of teeth. To get rid of toothache until the II century BC. e. the Romans used infusions and decoctions of plants, incantations and rituals, but still the main method was tooth extraction. For rich people, prostheses were made from precious metals, animal teeth or the poor. However, these prostheses were not practical. The Romans used urea powder to clean their teeth[2].

He dug a new page in the history of dentistry in the 1st century BC. e. Roman physician Archigen, who for the first time opened the pulp chamber of a tooth with a drill for therapeutic purposes.

At the same time, the differences between pulpitis and periodontitis were described. This was done by the famous Roman physician Claudius Galen, after observing the course of these diseases from his own experience.

Unfortunately, these discoveries of ancient Roman doctors never received wide practical application and remained unclaimed for many centuries.

The ancient Japanese had an original method of removal - with the help of a hammer and a chisel, they shook the diseased tooth, and then removed it with their bare hands without any tools.

It is known that in ancient China the deepest knowledge of medicine was accumulated. e, which the Chinese are rightly proud of so far. It was there that the first prototypes of modern toothbrushes appeared, for the manufacture of which animal bristles were used. Ancient manuscripts and treatises with descriptions of many diseases of the teeth and gums have been preserved. For their treatment, various methods were used, from decoctions of medicinal plants to prototypes of future amalgam fillings[3].

Chinese scholar Su-Kung, who lived in the 7th century AD. e., suggested using molten silver to fill carious cavities.

DISCUSSION

The famous scientist Avicenna presented his original hypothesis of the cause of toothache. In his treatise "The Canon of Medical Science", he spoke about indications and contraindications for tooth extraction, filling materials and instruments, and also gave recommendations for the prevention of oral diseases.

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Doctors in the Middle East at the end of the 1st millennium began to use arsenic to treat toothache. This poison kills the dental nerve and thus saves the person from suffering. Subsequently, the use of arsenic spread in medieval Europe, and dentists were able to abandon its use only at the end of the 20th century[4].

During the Middle Ages, medicine was completely under the supervision of the church, which recognized surgical operations, including the extraction and treatment of teeth, as an occupation unworthy of an educated doctor. It turned out that dental practice ended up in the hands of people very distant from medicine: barbers, bath attendants, artisans and even executioners, who, due to the lack of proper education, were not able to develop and improve dental methods. Most often, treatment was reduced to simply removing the diseased tooth.

The society of that time was dominated by absurd prejudices. People believed, for example, that a certain "toothworm" caused damage to the teeth. The idea that a toothache is sent to a person from above as a punishment for sins was also widely spread, and therefore it does not need to be treated[5].

Surprisingly, because of such views, people ruthlessly removed their teeth, sometimes even at a very young age. Such «treatment» often took place in crowded places: at fairs, market squares, during holidays, as well as in baths and hairdressers, and had the character of a public show. No effective anaesthesia was used, and alcohol was most often used as an «anaesthesia».

The prejudiced plots, as well as the pain and suffering of unfortunate patients, are reflected in many paintings, prints and other works of art of that era.

On them, we can notice that the tools that were used to remove teeth are more reminiscent of metalwork. In fairness, it must be said that many of the so-called «dentists» were quite skilled in their craft due to extensive practice, and even educated doctors turned to them.

Due to the fact that the main method of treatment was the extraction of teeth, people had to resort to prosthetics, however, it was available only to wealthy people. Prostheses were made from precious metals, ivory and other materials. They performed mainly a cosmetic function and were not very comfortable. But there have been some successes. Many new ideas in the treatment and prosthetics of teeth were proposed by French doctors, in particular, Ambroise Pare, who was the court surgeon of several kings of France.



Separate attempts at therapeutic treatment of toothache were nevertheless made, but these were rather isolated cases that did not particularly affect the development of dental methods[6].

For example, in the 15th century, a university professor from Bologna, Giovanni Arcolani, used the method of drilling a tooth discovered by Archigen, then cauterized the pulp and filled the cavity with gold. Some doctors used oil and sulfuric acid for cauterization. By the way, due to the lack of more effective means, the pulp cauterization method was used by dentists even in the 19th century.

The services of educated doctors and surgeons of the Middle Ages were available only to wealthy people: they were treated with arsenic for toothache, put gold fillings, strengthened loose teeth, treated gum disease, and made dentures. The destiny of people from the poor classes almost always was to turn to a dentist, barber or craftsman, who radically solved the problem by removing a diseased tooth[7].

RESULTS

The scientific discoveries of the New Age, which replaced the prejudices of the Middle Ages, forced people to reconsider their views on the world around them. New approaches and research methods have led to the rapid development of various areas of medicine, including dentistry.

At the turn of the 17th and 18th centuries in France, dentistry was first considered as a separate medical specialty, and the degree of surgeon-dentist was established by royal decree.

This happened largely thanks to the famous French doctor Pierre Fauchard, who is considered the founder of modern dentistry. He treated the teeth of King Louis XV, the famous Enlightenment philosopher Diderot, Cardinal de Fleury and others. representatives of the aristocracy. His monumental work, *The Dentist Surgeon, or Treatise on the Teeth*, which was published in 1728, was a real breakthrough. About 130 dental diseases were described in it, and for the first time a coherent system was proposed that combined all sections of dentistry[8].

Pierre Fauchard was the author of many brilliant ideas in dentistry. He used new filling materials and tools, invented plates to align teeth, invented a special system of lenses and mirrors to accurately direct light into the patient's mouth, and other equipment.

Fauchard's contribution to the development of dental prosthetics is also enormous - he began to use pin teeth and complete removable dentures, which were fixed on the edentulous jaws with the help of springs, and also for the first time



proposed to cover the destroyed teeth with gold crowns and apply porcelain veneers on them to match the natural colour of the patient's teeth.

Pierre Fauchard was the first doctor in France to receive the title of surgeon-dentist, and soon the huge demand for dental services led him to the idea of creating a dental workshop. He recruited workers from among the middle-class jewelers and gave the necessary medical knowledge, after which they passed the exam and mastered the secrets of prosthetics. This was the beginning of special education for dental technicians[19].

Thanks to the work of Pierre Fauchard and other doctors, the first dental schools began to open in Europe and the rapid development of all sections of dental science began.

A big step forward was the use of a hand bur for the preparation of carious cavities. The surgeon Cornelius Solingen was the first to perform this manipulation back in 1684. Later, improved tools appeared that somewhat facilitated the work of dentists, but were still far from perfect. Silver amalgam began to be widely used for filling teeth. In 1840, surgical forceps were developed and plaster was first used as an impression material, and in the 1880s, the doctor Dubois de Cheman created artificial teeth from porcelain[10].

Two inventions of the 19th century, the dental drill and the dental chair, were truly revolutionary for the practice of dentistry. British dentist George Harrington in 1864 invented the first drill with a motor that was wound by a key, like a clock. It could run for two minutes, but was very noisy and inconvenient to use.

In 1871, American dentist James Beall Morrison designed the first foot-operated drill, which immediately became very popular among dentists[11].

The foot drive of this drill freed the doctor's hands for manipulations, but this was not the main thing. Morrison's device reached a rotation speed of 2000 rpm, which was 20 times faster than the best hand drills of the time could develop. This made it possible to dissect the hard tissues of the tooth much more efficiently, and reduce the pain and discomfort of patients. Thus, the quality of dental care has risen to a new level.

Soon another American dentist, George F. Green, invented an electric drill, but it was not met with great enthusiasm by dentists because it depended on batteries that were unreliable at that time and was too bulky[12].

Around the same time, the American company S.S. White has released the first dental chair with a hydraulic seat height adjustment mechanism. The chair was made

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of iron and covered with leather. This allowed it to be treated with antiseptic agents. Many important scientific discoveries that occurred at the end of the 19th century greatly influenced the approach to treatment. There was a merger of dentistry with maxillofacial surgery, and this branch of medicine received the familiar name «stomatology».

On the territory of modern Uzbekistan, as well as in other regions, medicine and its component - dentistry arose at the earliest stage in the development of human society.

In the history of medicine, it has long been believed that the first healing techniques were developed by primitive people about a hundred thousand years ago. Indeed, diseases of the teeth and oral mucosa, most often requiring urgent intervention, have been known since ancient times. So, during the excavations of paleontologists and archaeologists of ancient human sites in Samarkand, Fergana, Khorezm and Surkhandarya regions, on skeletons with preserved teeth, along with degenerative-dystrophic lesions of the osteoarticular apparatus, dental caries and osteomyelitis of the jaws, most likely of odontogenic etiology, were found. olveolar processes of varying degrees. The frequency of these diseases was very low, in the future there was a tendency for their growth[13].

The greatest flourishing of dentistry falls on the period of development of feudalism - the era of domination of the Arabs (VIII-XII centuries). The merit of the Arab doctors lay in the fact that they diligently translated into Arabic the writings of famous Greek and Roman authors and thus preserved for later peace. achievements of Greco-Roman medicine. On the basis of empirical experience, attempts were made to explain the causes of diseases and recommend measures for their cure. Thus, it was noted that dental caries was due to bad juices, excess or insufficient nutrition, oral mucus, or the action of a toothwort. As a remedy for toothache, general treatment was used: bloodletting, diet, laxatives; locally - drugs, onions, honey, rose oil, astringents, rinses, arsenic, various moxibustions. As a means of stopping the development of caries, it was recommended to put camphor in the hollow, as well as a slowly hardening mass of mastic and alum. As a prophylactic, it was recommended to rub the teeth once a month with hops, alum, and honey. Drying and preserving properties were attributed to the latter[14].

In addition to the dubious effectiveness of the means used to treat toothache, it should be noted that the procedure itself was quite painful for the patient (fasting, laxatives, cauterization with a red-hot iron, etc.), and these methods were preserved

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until the beginning of the 19th century, in which, apparently, it is necessary to look for the cause of patients' fear of the dentist[15].

Among the scientists of that time, the greatest contribution to the development of scientific and practical dentistry was made by the works of Abu-Bakr-ar-Razi, Abulkazim, and finally the «prince of doctors» - Avicenna, the author of the «Canon» of medical science, which details the etiopathogenesis, clinic, diagnosis, treatment and prevention of major dental diseases and which was used in educational institutions of the East, West and Asia[16].

Another period of the greatest flourishing of medicine and dentistry was the Timurid era. In the era of the brilliant poet and statesman A. Navoi, "Shifoia" was opened - clinics, where dental care was also provided. Like all Muslim peoples, the ethnic group of Uzbeks paid a lot of attention to body hygiene, including the oral cavity. Teeth brushing and rinsing were carried out several times a day according to the established ritual with the help of a misvak scented stick[17].

However, despite a number of original developments, proposals and very significant discoveries, the dentistry of that time did not receive proper development due to the lack of knowledge in anatomy and physiology[18].

In Uzbekistan, the history of the development of dentistry as a separate science began in 1954, when the dental faculty of the Tashkent Medical Institute was opened. The Institute was established by the Decree of the President «On the formation of the Tashkent State Dental Institute» dated July 22, 2014, on the basis of the Faculty of Dentistry of the Tashkent Medical Academy. Now the Institute has five faculties - the Faculty of Dentistry, the Faculty of Pediatric Dentistry, the Faculty of Medicine and Education, the Faculty of Medicine and the Faculty of Advanced Studies. Faculties of dentistry are also available in other medical universities of the republic. Since 2009, the Faculty of Dentistry has been opened at the Samarkand State Medical Institute[19].

Looking back and returning to the past stages of development of dental care in Uzbekistan, we can note a steady movement forward. Each stage of the development of specialized care had its own characteristics and difficulties. Overcoming them, dental care to the population of the republic grew stronger, grew, and developed. The rapid development of technology since the beginning of the 20th century has led to the emergence of new methods and materials that have begun to be used in dentistry. Summing up, we note that the historical experience of the development of dental care should not be forgotten in the context of reforming the health care of the republic[20].



CONCLUSION

The development of precision casting and milling technologies has made it possible to create comfortable and durable clasp prostheses. Ceramic restorations are widely used, allowing you to accurately repeat the natural shape and color. A real revolution in prosthetics was the method of implantation, especially important in the case of complete absence of teeth. Scientific and technological progress today has given us such opportunities that even 100 years ago would have seemed like a miracle, and it does not stop for a minute. Looking at the emerging new technologies, such as 3D printing, one can only guess what dentistry will become already in the near future. Electric drills began to be actively introduced into practice, and in 1905 novocaine was first used for anaesthesia. Straight and angled handpieces for drills were invented, which made the work of doctors easier.

Rubber, porcelain, aluminium and, later, plastic - all of which were used by dentists in search of the best result. Various types of plastics, including photopolymers, are widely used in dentistry today, for example, for the manufacture of removable dentures or as a filling material.

In the middle of the 20th century, pneumatic turbine drills became available, and today they are being replaced by laser ones. Modern powerful anaesthetics make it possible to carry out any manipulation with virtually no pain. The use of X-ray machines for examining the oral cavity has dramatically improved the accuracy of diagnosis and the quality of dental treatment. Amazing results are achieved today by orthodontics, in which NASA developments are applied.

References:

1. Abu Ali Ibn Sina. Donation letter. - Tashkent: 1980.
2. Istoriya stomatologii s drevneyshix vremen//<https://mystom.ru/articles/istoriya-stomatologii-s-drevneyshikh-vremen/>
3. Istoki i razvitie stomatologicheskoy pomo[^]i naseleniyu Uzbekistana do 1991 goda. Mavlyanova N.T. T.: 2009// <https://uz.denemetr.com/docs/768/index-344397-1.html>
4. Rizaev J.A. «Uzbekistan - strana s drevneyshey istoriey meditsinbi voob[^]e i stomatologii v chastnosti»// <https://www.dentoday.ru/articles/stomgazeta/172/02.php>
5. Majidov Sh.F. Development of Civil Culture, modernization of education (on the example of the Republic of Uzbekistan) SPB 2016.
6. Majidov Sh.F. K voprosu ob etnokulturnbix protsessax v sentralnoy Azii i Yevropeyskom Soyuze //Yevraziystvo: teoreticheskiy potentsial i prakticheskie prilozheniya. - 2014. - №. 7. - S. 238-243.



7. Majidov Sh.F. On The Issue Of Ethnopolitical Aspects Of National Security //Mejdunarodnbiy Jurnal Konsensus. - 2020. - T. 1. - №. 2. 38.
8. Majidov Sh. F. Milliy havfsizlikni etnosiyosiy jihatlari: yei tajribasi (2000-yillar boshi) //Vzglyad v proshloe. - 2020. - №. SI-1№ 2. 39.
9. Majidov Sh. F. Filosofiya meditsinbi i meditsinskiy vzglyad na filosofiyu //Science and Education. - 2021. - T. 2. - №. 5. - S. 826-832.
10. Mahmudova A.N. Legal socialization and legal culture of youth in modern civil society. Monograph pokonferencyjna Science, research, development # 16 Barcelona. P. 260-264
11. Maxmudova A.N. i dr. Meditsina Uzbekistana-dostijeniya i perspektivti razvitiya sferti //Dostijeniya nauki i obrazovaniya. - 2020. - №. 3 (57).
12. Nugmanovna M.A. Action strategy-the basis of a new stage of national development of Uzbekistan //Academicia: an International Multidisciplinary Research Journal. - 2021. - T. 11. - №. 1. - S. 774-785.
13. Usmonova L. Image philosophy of Central Asian miniature art //Theoretical & Applied Science. - 2020. - №. 3. - S. 222-226.
14. Rakhmatullaevna U. L. Aesthetic role of folk traditions in the development of miniature painting of the east //Archive of Conferences. - 2020. - T. 8. - №. 1. -S. 34-35.
15. Maxmudova A.N. IX-XII asrlarda movarounnahrda ilm-fan, madaniyat rivoji tarixidan //Yangi O'zbekistonda milliy taraqqiyot va innovasiyalar. - 2022. - S. 272-275.
16. Makhmudov S. K. Unconventional assessment methods to evaluate the potential of historical-cultural tourist sites //Gwalior management academy. JanMarch. 21 Vol 11 No.01 - S. 62.
17. Bakhromovna S.K. Directions of improving the regulatory legal base of tourism sphere development in Uzbekistan //Berlin Studies Transnational Journal of Science and Humanities. - 2022. - T. 2. - №. 1.1 Economical sciences.
18. Bahromovna S.K., Kamariddinovna K. A. Theoretical bases of tourism activity and socioeconomic factors of the concept of its priority development //Academicia: an international multidisciplinary research journal. - 2021. - T. 11. -№. 1. - S. 769-773.
19. Amirdinov D.A. Sobiq Sovet Ittifoqi davrida O'zbekiston shaharlari aholisining ko'chib keluvchilar hisobiga o'sishi (1975-1977 yillar misolida) //Vzglyad v proshloe. - 2022. - t. 5. - №. 1.
20. Abdumajidova K. Globalization and modernization as an important feature of the development of modern society //Theoretical & Applied Science. - 2021. - №. 4. - S. 75-78.