

DENTISTRY IN HISTORICAL PERSPECTIVE

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ABSTRACT

Teeth are very important part of the overall health of an individual. However, modern dentistry of pulsating toothbrushes and high power anesthetics for even the simplest dental surgeries is a relatively new idea. What did they do before now? Well, the infamous Code of Hammurabi from Sumer mentioned twice in its expanse that tooth extraction is used as a form of punishment by the lawbreakers. With this fact in mind, it is easy to see that the history of dental care much like the history of general medicine has been part of some of the scariest and strangest ups and downs until it reached its legitimacy in the present.

KEYWORDS: Ancient; Dentistry; Historical; Dental; Perspective

INTRODUCTION

Toothache was treated in ancient world with simple methods differ according to the civilization. The first development of dental care began in the Egyptian Empire (Pharos) around 3000 BC. Whereas the rules of Hamurabi brought "an eye for an eye and a tooth for a tooth" law in Mesopotamia. Later on, the Chinese invented the first tooth brush. The roots of dentistry extend back many millennia across the globe. Evidence from the Indus Valley Civilization in Pakistan reveals dentistry being practiced as early as 7,000 BC, with practitioners using bow drills to cure tooth ailments. By contrast, a Sumerian text from 5,000 BC cites teeth worms as the source of dental decay.^[1]

ANCIENT DENTISTRY

The first and most enduring explanation for what causes tooth decay was the tooth worm, first noted by the Sumerians around 5000 BC. The hypothesis was that tooth decay was the result of a tooth worm boring into and decimating the teeth. The idea of the tooth worm has been found in the writings of the ancient Greek philosophers and poets, as well as those of the ancient Indian,

Japanese, Egyptian, and Chinese cultures. It endured as late as the 1300s, when French surgeon Guy de Chauillac promoted it as the cause of tooth decay. Examination of the remains of some ancient Egyptians and Greco-Romans reveals early attempts at dental prosthetics and surgery. Ancient Greek scholars Hippocrates and Aristotle wrote about dentistry, including the eruption pattern of teeth, treating decayed teeth and gum disease, extracting teeth with forceps, and using wires to stabilize loose teeth and fractured jaws. Some say the first use of dental appliances or bridges comes from the Etruscans from as early as 700 BC (Fig. 1).^[2]

THE ANCIENT DENTIST

The Egyptian, Hesi-Re was the earliest dentist whose name is known. He practiced in 3000 BC and was called "Chief of the Toothers." (Fig. 2). Egyptian pharaohs were known to have suffered from periodontal disease. Radiographs of mummies confirm this fact.^[2,3]

DENTAL EXTRACTIONS

Historically, dental extractions have been used to treat a variety of illnesses. During the Middle Ages and throughout the 19th century, dentistry was not a profession in itself, and often dental procedures were performed by barbers or general physicians. Barbers usually limited their practice to extracting teeth which alleviated pain and associated chronic tooth infection. Before the 18th century, this often involved tying a string around the tooth; a drum might be played in the background to distract the patient, getting louder as the moment of extraction grew nearer. To advertise their services as 'tooth-pullers', many barber-surgeons hung rows of rotten teeth outside their shops.^[2] In the 18th century BC, the Babylonian Code of Hammurabi makes two references to dental extraction as a form of punishment. Early tooth replacement took place in Phoenicia, now Lebanon, as missing teeth were replaced with animal teeth and bound in place using cord. Between 500 and 300 BC, both Hippocrates and Aristotle wrote about dentistry, including the eruption patterns of teeth, treating



Fig. 1: Wires to stabilize loose teeth and fractured jaws

teeth decay and gum disease, extracting teeth using forceps, and using wires to stabilize loose teeth and fractured jaws. However, the Etruscans, in what is now Northern and Central Italy, were the first to truly perform restorative dentistry, with everything from dental bridges to partial dentures of gold appearing in Etruscan tombs, dating to 500 BC. The Romans later captured the Etruscans and adopted elements of their culture. Thus, dentistry became a Roman practice as well. Around 100 BC, Roman writer Cornelius Celsus wrote extensively about oral hygiene, stabilising loose teeth, and treating various dental ailments.

In the Eastern world, there is evidence in China of the use of silver amalgam as fillings as early as 200 BC. Oral medicine was also commonplace in early Japan and India. Dental surgery, however, was not practiced in many Islamic countries, because of the Quran proscription against mutilations of the body. As a result, preventative dentistry became particularly important in these areas. Writings of Arabic physicians such as Avicenna and Abū al-Qāsim, demonstrate the importance of the cleaning of teeth.^[4]

MIDDLE AGES

During the early middle ages in Europe, monks were primarily responsible for practicing dentistry, being the most educated citizens of the time. In 1163, however, a church council declared that monks could no longer practice dentistry, as it involved the shedding of blood. This left barbers responsible for dentistry, as they had previously aided the monks in their dental practices and were familiar with sharp knives and razors. In 1210, a Guild of Barbers was established in France, eventually differentiating surgeons, who were trained to perform complex surgical operations, from barber-surgeons, who performed more routine services, including cleaning and tooth extraction. In the 14th century,



Fig. 2: The ancient dentist

Guy de Chauliac invented the dental pelican, which was used until the 18th century. It was later replaced by the dental key, and finally, the modern forceps of the 20th century. In 1530, the first book devoted entirely to dentistry, the Little Medicinal Book of Diseases and Infirmities of the Teeth, written by Artzney Buchlein, was published in Germany. Written by Charles Allen, the first English book devoted to dentistry, Operator for the Teeth, was published in 1685.^[4,5]

18TH CENTURY

During the 18th century, the "father of modern dentistry," Pierre Fauchard developed dentistry science as we know it today, publishing in 1723 *The Surgeon Dentist, a Treatise of Teeth*. The French book included basic oral anatomy and function, dental construction, and various operative and restorative techniques, and effectively separated dentistry from the wider category of surgery. Other surgeons in France and Germany quickly followed his lead, making their own contributions to the field. In 1771, English surgeon John Hunter published *The Natural History of Human Teeth*. Hunter, known as the "father of modern surgery" also introduced the transplantation of teeth from one person to another, a practice that became widely adopted, despite the fact that it was inevitably not successful. In the first documented case of dental forensics, American Paul Revere in 1776 identified the body of his friend, Dr. Joseph Warren, using the dental bridge that he had constructed for him.^[4,6]

19TH CENTURY

Technical developments continued throughout to the 19th century, particularly in the United States. 1839 marked the launch of the first dental journal, the *American Journal of Dental Science*, while the first dental school, the Baltimore College of Dental Surgery, was established in 1840. The first

national society of dentists, the American Society of Dental Surgeons, was also founded in 1840. In 1844, American Horace Wells discovered the anaesthetic properties of nitrous oxide, and began to use it during extractions in his private practice. In 1859, twenty-six dentists joined together to form the American Dental Association. Other 19th century American contributions include Sanford Barnum's rubber dam to isolate the tooth from the oral cavity, James Morrison's foot-treadle dental engine, and George Green's electric dental engine. On the European front, Italian Guiseppeangelo Fonzi introduced porcelain teeth as a substitute for using teeth from corpses. In 1856, English dentist Sir John Tormes led the formation of the first dental organisation in Europe, the Odontological Society. The Royal Dental Hospital of London was established in 1858, while the British Dental Association was formed in 1880. It remains the most important dental organization in the UK to this day. German physicist Wilhelm Roentgen discovered the x-ray in 1895, which quickly found dental applications.^[7-9]

WOMEN IN DENTISTRY

Women in pre-20th century seems to play an unknown role in dentistry. In an early copper engraving by Lucas Van Leyden, a traveling dentist can be seen along with a woman acting as his assistant. In 1852, Amalia Assur became the first female dentist in Sweden. She was given special permission from the Royal Board of Health to practice independently as a dentist, despite the fact that the profession was not legally opened to women in Sweden until 1861. Emeline Roberts Jones became the first woman to practice dentistry in the United States in 1855. She married the dentist Daniel Jones when she was a teenager, and became his assistant in 1855 and later on put up her own practice. Rosalie Fougelberg in 1866 became the first woman in Sweden to officially practice dentistry when profession was legally opened to females in 1861. Dental schools throughout the world did not accept female students. Women such as Lucy B. Hobbs-Taylor and Nellie E. Pooler broke those barriers. In 1866 Lucy Hobbs Taylor became the first woman to graduate from a dental college which was the Ohio Dental College.^[10]

DENTAL EDUCATION

Dr. John M. Harris started the world's first dental school in Bainbridge, Ohio, and influenced establishing dentistry as a health profession. It opened on 21 stFebruary 1828, and today is a dental museum. The first dental college, Baltimore College of Dental Surgery, opened in Baltimore, Maryland, USA in 1840. Chapin Harris and Horace Hayden founded the Baltimore College of Dental Surgery, the first school dedicated solely to dentistry. The college merged with the University of Maryland School of Dentistry in 1923, which still exists today.^[10]

20TH CENTURY

Advances occurred in all elements of the dental profession during the 20th century. In 1905, German chemist Alfred Einhorn developed the anaesthetic that would later be marketed as Novocain, while in 1907, William Taggart introduced a precision casting machine enabling dentists to make extremely accurate fillings. In 1908, American dental pathologist Greene Vardiman Black published his two-volume Operative Dentistry, standardising the instruments and restorative materials used by dentists, and becoming the essential clinical text for the next half century. During the 1930's, Frederick McKay, an American dentist, discovered the effects of fluoride in preventing tooth decay. Fluoride was then added to water supplies, which resulted in significantly decreased decay. Fluoride toothpaste, however, was not introduced until the 1950's. The nylon toothbrush first appeared on the market in 1938, and in 1949, Swiss chemist Oskar Hagger developed the first system of bonding acrylic resin to dentin. In 1958, the first fully-reclining dental chair was released. The first electric toothbrush, developed in Switzerland, was released during the 1960's. The first commercial home bleaching kit became available in 1989, and the era and development of aesthetic dentistry really took off during the 1990s. Techniques and technologies continue to be developed and refined to this day.^[3,4]

CONCLUSION

Since prehistoric times, when people have had issues with their teeth, there have been other people there to help. How we care for our teeth has changed over the past several thousand years, and today we call the professionals who care for our teeth dentists. The first dentists used chisels

and hammers to knock out decayed teeth, but today's dentist may use advanced technology such as Computer Aided Design to design dental restorations that look and feel like natural teeth.

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