Dental Medicine and Dental Health in Ancient Egypt

Thesis submitted for the fulfillment of MA Degree in Egyptology

By

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Abstract

This thesis discusses the different aspects of dentistry in ancient Egypt. The first chapter is an introduction including the aim of the work, literature review of the several studies - which mainly were based either on Egyptological studies or anthropological studies and seldom juxtaposing them. The first chapter offers a general review of ancient Egyptian medicine as the context in which the profession of dentistry has been developing.

The second chapter is about dentists of whom we have six persons attributed to this profession, and dental remedies whose ingredients proved to have healing properties being antiseptic, antibacterial, having a soothing effect, reducing painful swellings, analgesic, and some were suitable for temporary teeth filling. The chapter discusses also dental prosthesis of which we have samples made of natural teeth fixed to the jaw by gold or silver wires, and studying also surgical intervention and medical instruments.

The third chapter studies the dental diseases as they are indicated in several anthropological and paleopathological researches. The dental diseases were studied classifying them into five categories: infectious diseases, degenerative diseases, developmental diseases, and genetic diseases. The third chapter also discusses Changes in the patterns of prevalence of these diseases during the different periods of ancient Egyptian history have been also studied together with the role of climate variation between Upper and Lower Egypt on the prevalence of these diseases.

The fourth chapter represents the application of teeth study in archaeology and Egyptology as estimation of age at death for a burial, ancient diet, migrations, and genetic stability.

The thesis comprises appendices providing a map of Egypt, chronological table of ancient Egypt, glossary, figures, and indices.
Key Words

- Ancient Egyptian medicine
- History of medicine
- Ancient Egyptian dentistry
- Biological Anthropology
- Mummies
- Teeth fillings
- Dental prosthesis
- Dental instruments
- Egyptian medical papyri
- Diet in Ancient Egypt
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List of Abbreviations

EDJ: Egyptian Dental Journal

AMTL: Ante-mortem tooth loss

ASAE: Annales du Service des Antiquités de l’Égypte

EMC: Egyptian Museum in Cairo

GMA: Grapow, Herman, “Grundriss Der Medizin Der Alten Ägypter”, Berlin, ١٩٥٨-١٩٦١.


HR: Human remains

IFAO: Institut Français D’Archeologie Oriental

JEA: Journal of Egyptian Archaeology

P. Bln: Papyrus Berlin

P. Eb: Papyrus Ebers

P. H: Papyrus Hearst

P. Kah: Papyrus Kahun

P. Sm: Papyrus Edwin Smith

SAK: Studien zur Altägyptischen Kultur

ZÄS: Zeitschrift für Ägyptische Sprache und Altertumskunde
Chapter I:

Introduction
Aim of the work

This thesis tries to study comprehensively the different aspects of dentistry and dental health, of a field of ancient Egyptian medicine and health which is known to have existed separately from the practice of general medicine. In an attempt to cover as much territory as possible, two categories of materials are juxtaposed: the original documents and sources on ancient Egyptian medicine and an analysis of the actual status of dental diseases revealed in the mummies and human remains. Most previous studies dealt mainly with one or the other of these categories – but not both simultaneously because they require a background in two different fields of knowledge, namely Dentistry and Egyptology.

On the one hand, dentists and anthropologists have had access to human remains, though they lacked the training and knowledge of the other materials and sources of Egyptian medicine to interpret properly their samples. On the other hand, the relevant Egyptian texts have remained in the domain of Egyptologists, whose knowledge of dentistry at best is minimal. What is needed is a study of dentistry that has a basis in both contemporary dental health as well as a historical understanding of ancient Egypt.

The main question that this thesis tries to elucidate is the extent to which ancient Egyptian dental medicine was successful in healing the diseases of the teeth. In other words, was dentistry a true profession in Ancient Egypt or not? The answer can be reached by bringing together these two categories of source materials. The first chapter sheds light on different aspects of ancient Egyptian medicine and the concept of specialization, in addition to presenting the aim of work and literature review.

The second chapter of this work discusses the relevant texts or remedies that were recorded on medical papyri. These original sources have, of course, been translated from the ancient Egyptian language, although this translation is reconsidered here. The thesis also comments on the earlier translations to Arabic, English, French and German, paying a special attention to dental terminology in these translated texts. The content of these texts is discussed regarding their efficiency in curing dental diseases by evaluating the effect and the nature of the ingredients mentioned in the remedies. This requires a review of the proposed concepts of etiology, diagnosis and prognosis in these texts.

The second chapter also outlines the various forms of direct medical intervention (i.e. the actual practice of dentists), their instruments, surgery and dental prosthesis

as well. The names and titles of the known dentists from ancient Egypt are presented. In addition, there is an attempt to discuss the extent of the development of the medical services and professions, medical education, the organization of medical service, and the methods of payment for such services.

The second chapter also concludes with a presentation on the relationship between medicine and both religion and magic. There is a discussion of teeth in literary, magical, and mythological texts and rituals, and teeth and relevant words in what is called ‘anatomical lists’ included in non-medical texts.

The third chapter discusses dental pathology and malformation as studied in the many kinds of archaeological research - from different sites and dated to different periods - that have dealt with human remains, (mummies, skulls, jaws and teeth). The records concerning the different diseases and malformation, like dental caries, dental wear or attrition, loss of teeth before death, abscesses and cysts in the bone, periodontitis, hypoplasia, crowding of teeth in the jaw, malocclusion, healed lower jaw fracture, failure of deciduous teeth to develop and impaction of wisdom tooth, are analyzed and discussed.

The possible change in the patterns of the occurrence of these diseases, along the different periods of ancient Egyptian history, is studied. The role of geographical positions of different sites and the climate variation between Upper and Lower Egypt, in the prevailing of certain patterns, will be studied as well. This chapter pays attention to food and food production as nutrition is an important factor for the development of dental pathology and malformation.

Because dental remains are the hardest tissue in the human body, they are often the only human remains to survive a burial that took place thousands of years ago. When studied in a proper scientific manner, these dental remains can lead to a wealth of information. To experienced archaeologists these remains can – to some extent – reveal clues about the life of particular individuals, their nutrition, habits and environment. From these clues, scholars can make some general statements about the life and society of ancient Egypt. Therefore, the fourth chapter focuses on the anatomy and development of teeth as an essential feature in the study of human remains. An examination of the anatomical features and dimensions of teeth can help us glean information about genetic stability, migration, mingling and affinities. In addition, the microscopic study of teeth surfaces and their tissues can help identify the age and gender of the specimen under study, and the stress during childhood. Finally, isotopic analysis can detect trace elements which can yield information about food content.

The thesis concludes with an epilogue that suggests possible further points and issues for research.
**Literature Review:**

Several works by F. Filce Leek have attempted to combine the original sources of ancient Egyptian medicine with the studies of human remains samples, some of which were conducted by Leek himself. Leek wrote many key articles including: “The Survey of Crania Recovered from Cheops' Western Necropolis”, “Reisner's Collection of Human Remains from the Mastaba Tombs at Giza”, “Dental Health and Disease in Ancient Egypt with special reference to the Manchester Mummies”, “Cheops’ Courtiers: Their skeletal remains, Teeth and bread in Ancient Egypt”, “Technique for the Oral Examination of a Mummy” and “Observations on the Dental pathology seen in Ancient Egyptian”.

In one of his articles, Leek states that there is complete lack of direct evidence from human specimens concerning any practice of dentistry prior to Late Periods and all theories concerning it are based on textual evidence. He also states that philological evidence alone cannot establish the existence of a true dental profession in ancient Egypt. Furthermore, he has come to the conclusion that the existence of prosthetic dentistry in ancient Egypt is an illusion.

In The Atlas of Royal Mummies, Kent R. Weeks has tried to put together all the different kinds of materials that deal in one way or another with ancient Egyptian dentistry. He concludes that “the examples... all suggest that the Egyptians frequently did intervene [i.e. dental intervention], although such intervention was largely restricted to pharmaceutical preparations. It does seem likely that surgical intervention, and to an even greater extent the use of prosthetic devices, was rare.”

Thierry Bardinet in his work Bardinet, Thierry, “Dents et Mâchoires dans les Représentations Religieuses et la Pratique Médicale de L'Égypte Ancienne,” provides an important study of ancient Egyptian texts relevant to dental medicine and teeth. In this study he discusses dental terminology in different kinds of texts, medical dental texts and remedies, as well as the names of dentists and their titles.

Since the beginning of the 20th century, many paleopathologists have made a major contribution to our knowledge of dental health and disease in ancient Egypt. The works of Armelagos, Strouhal (1984, 2005), Batawi, Elliot Smith, Ruffer, Nielsen and others give a consistent picture of the condition of the teeth in ancient Egypt.

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