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## Cranio-maxillofacial surgery in Corpus Hippocraticum

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**SUMMARY.** Introduction: Knowledge of the medical thoughts and practice through the ages constitutes a particular qualification for every practicing physician and surgeon, in order to become a participant of Medicine's continuity and a conscientious practitioner. Cranio-Maxillofacial Surgery constitutes a significant part of the surgical writings of Corpus Hippocraticum. Material and method: The original texts of the Hippocratic Collection written in ancient Greek, as they were published along with a translation into modern Greek in G. Pournaropoulos 'Hippocrates' Works', (edited by A. Martinos), Athens 1968, were studied for any account referring to Oral and Maxillofacial Surgery. Results: The medical views and opinions of Hippocrates regarding Cranio-Maxillofacial Surgery and Pathology in particular, as well as Dental Medicine in general, are disseminated in the various books of Corpus Hippocraticum, and although they are almost 3000 years old, they are still in line with current thinking to a great extent. The scope of Hippocratic perspicacity and experience regarding Oral and Cranio-Maxillofacial Surgery includes dentoalveolar surgery, orofacial infections, maxillofacial trauma, dentofacial abnormalities and orthognathic surgery, as well as cranio-maxillofacial injuries. Conclusion: Corpus Hippocraticum in spite of time remains a unique and unrivalled work, where one can realize the power of observation, sagacity and the clinical judgement of Hippocrates regarding every aspect of Medicine, and in particular Cranio-Maxillofacial Surgery. © 2006 European Association for Cranio-Maxillofacial Surgery

**Keywords:** Corpus Hippocraticum; Cranio-Maxillofacial Surgery; Hippocrates

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### INTRODUCTION

Corpus Hippocraticum is the highest expression of ancient Greek medicine and typifies the beginnings of the scientific spirit in the healing arts (Mylonas, 2003). The Hippocratic Collection (Fig. 1) consists of about 70–72 medical works, where many observations and remarks regarding Cranio-Maxillofacial Surgery and Pathology are disseminated (Mylonas, 2003). In these works, it is revealed that Hippocratic Medicine constitutes a science based on constant research to discover the unknown, on the basis of good study and knowledge (Martis, 2000). Corpus Hippocraticum is free of superstitions and theocratic influences to a certain extent exceeding any other people's medicine of that time (Pournaropoulos, 1989). For the first time in human history, Hippocrates declares that 'God is not the cause of diseases but something human, and supplications and expiations are therefore of no value against the diseases' (Pournaropoulos, 1989). In the present study the medical views and opinions of Hippocrates regarding Oral and Cranio-Maxillofacial Surgery, as well as Oral Medicine and Pathology, are

presented in such a way that one easily admires the wisdom and sharp-sightedness of the Old Man of Kos, who systematized the previously scattered knowledge of Medicine, and after adding his own very important observations, laid the foundations of Medical Science in its present form (Pournaropoulos, 1989). Hippocrates (Fig. 2) was the first to teach a rational Medicine based on accumulated knowledge, separating Greek Medicine from the magic-religious priest medicine of the ancient times, recognizing at the same time godliness as the guiding principle of every practicing Asclepiad (Hoffmann-Axthelm, 1981).

### MATERIAL AND METHOD

Corpus Hippocraticum was examined in detail in this study, for clinical descriptions, epidemiological doctrines, descriptions of surgical conditions and instrumentation referring to Oral and Cranio-Maxillofacial Surgery. The original texts of the Hippocratic Collection written in ancient Greek, as they were published along with a translation into modern Greek in Pournaropoulos 'Hippocrates' Works' (1968) were studied, the particular publication being the main bibliographic source for this retrospective essay on medical history.

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**Fig. 1** – (Left) Front page of the first edition of the Greek text of Corpus Hippocraticum by Fr. Asulanus, Venice, 1526. (Right) Front page of the second edition of the Greek text of Corpus Hippocraticum by Janus Cornarius, Basel, 1538.

## RESULTS

Aphorisms and points referring to Oral and Cranio-Maxillofacial Surgery and Pathology were found in the following works of Corpus Hippocraticum: ‘Epidemics, book IV’ §19, ‘Flesh’ §12–13, ‘Epidemics, book V’ §15, ‘Dentition’ §19, ‘Aphorisms III’ §25, ‘Epidemics, book VI’ §2, ‘Physician’ §9, ‘Affections’ §4, ‘Prognostic, book II’ §11, ‘Diseases, book II’ §31–32, ‘Epidemics, book VII’ §113, ‘Joints’ §30–34 and ‘Wounds in the head’. The scope of Hippocratic perspicacity and experience regarding Oral and Maxillofacial Surgery includes dentoalveolar surgery, orofacial infections, dentofacial abnormalities and orthognathic surgery, as well as cranio-maxillofacial injuries.

### ‘Epidemics, book IV’ §19

In this book, as we read notes on ulcerous stomatitis, even noma, occurring in two children, we find that Ancient Greeks and particularly Hippocratic physicians used a numbering system of teeth, analogous in general to a contemporary one.

### ‘Flesh’ §12–13

Here we find the first reference to third molars as ‘wisdom teeth’. Also there is a description of odontogenesis, where it is discussed as to why teeth are the last to form in comparison to other ‘bones’ [hard tissues], as it was always mentioned in ancient literature.

### ‘Epidemics, book V’ §15

Reference to trismus as an early sign and symptom of tetanus, is made in this Hippocratic work.

### ‘Dentition’ §19

This book contains 32 aphorisms, sufficient to show Hippocrates’s sharp perspicacity, clinical judgement and experience, particularly when he mentions a correlation of coughing and the size of the uvula: ‘Babies that are attacked by a cough while being suckled usually have an enlarged uvula’.

### ‘Aphorisms III’ §25

In this Hippocratic work, it was first mentioned that eruption of teeth brings on problems for children: ‘When children approach the stage of the appearance of the teeth, they feel itching to the gums, fever, they have spasms, diarrhoea, especially at the appearance of the canines, and to the obese children as well as to the constipated ones’.

### ‘Epidemics, book VI’ §2

In this book we find the first description of dentofacial deformities, orthodontics, and orthognathic surgery. There is a paragraph which constitutes the most ancient written orthodontic commentary, and it is worthy of attention mainly for this. It admirably correlates the anomalous array of the teeth with the structure of the skull and the shape of



**Fig. 2** – ‘Hippocrates’ – Statue found on the island of Kos, near the Odeion. Second half of the 2nd Century B.C. Kos Archaeological Museum, Greece.

the palate, typical for those individuals breathing through the mouth. The Great Koan Master writes: ‘Those with narrow and long face, some have powerful neck, powerful body and strong bones while others suffer from headaches and running ears (ear discharge). These have deep (hollow) palates and their teeth grow irregularly’. This is an astonishing picture of children who breathe through the mouth because of adenoid outgrowths and other impediments.

#### ‘Physician’ §9

Dentoalveolar surgery and particularly extraction of periodontally diseased teeth seems to be familiar to Hippocratic physicians. The procedure is considered superfluous as ‘... the instruments for tooth extraction and the pincer pliers can be handled by an associate. Their use seems very simple’ (Fig. 3).

#### ‘Affections’ §4

In this book of the Hippocratic Collection, various information regarding diseases of the ears, the pharynx, the epiglottis, the gums and the teeth, is found. Reading the aforementioned notes, one admires the surgical prudence of the Hippocratic physicians as well as their diagnostic sagacity, leading to accuracy of their medical practice and not to its mere application without prior justification. Regarding the pathology of dental and oral diseases in particular, the periodontal and endodontic opinions of the Hippocratic physicians are reflected in the following notes:

‘When it comes to toothache, if the tooth is decayed and mobile, extract it. But, if it is not decayed and mobile and still aches, it must be dried out by means of cauterizing. Chewing materials are also useful. Pain results where mucus accumulates under the (tooth) root. The mucus disrupts and decays the teeth in part, as does food, when they are naturally weak, hollow and poorly fastened in the gingiva’.

#### ‘Prognostic, book II’ §11

A unique example of clinical perspicacity referring to Oral and Maxillofacial Pathology, is presented in this work, which could be found in any modern textbook of Stomatology: ‘Persons who have chronic ulceration on the tongue’s margin should be examined for a sharp tooth’.

#### ‘Diseases, book II’ §31–32

The management of orofacial infections and abscesses with warm applications and mouth rinses, so that they could be brought up to the surface either intraorally or extraorally, was a well-known therapeutic practice for the Hippocratic physicians. The case of an abscess of the floor of the mouth (sublingual), as well as a case of a palatal abscess, are described in the aforementioned citation.

#### ‘Epidemics, book VII’ §113

A very interesting case of an odontogenic osteomyelitis resulting in necrosis of the mandible, is described in this Hippocratic book: ‘In Kardia, the boy of Metrodoros had gangrene of the mandible after toothache; in addition, the gums were hyperplastic



Fig. 3 – Surgical instruments: elevators and probes. Lambrou Collection, National Archaeological Museum of Athens, Greece.

with a little suppuration. The grinders (molars) fell out and later the mandible’.

#### ‘Joints’ §30–34

Maxillofacial traumatology occupies a distinct and remarkable position in Hippocratic writings, and in the aforementioned book the anatomy of the temporo-mandibular joints, the attachment of the masticatory muscles, as well as the relationship of the mobile mandible to the fixed maxilla, are described in detail and with a unique clarity of expression. Also the description of the dislocation of the mandible, either as a unilateral or a bilateral dislocation of the mandibular condyles, as well as the repositioning/reduction of the dislocated mandible with the henceforth classical ‘Hippocratic manoeuvre’, are a great surgical monument of antiquity, being also an example of surgical expertise for all ages. It is actually written in §30–31: ‘... someone should hold the patient’s head while the operator grasping the jaw with his fingers inside and out near the chin’ (Fig. 4).

Fracture of the mandible is another important subject of maxillofacial traumatology in *Corpus Hippocraticum*, as it appears in ‘Joints’. In §32–34 there is a special account of the types of mandibular fractures to be found (partial or complete, with or without displacement or dislocation), for example, on boxers in the palaestra, as well as their management by manual reduction and bandaging: ‘... by making suitable lateral pressure with the fingers on the tongue side, and counter-pressure from without. If the teeth at the point of injury are displaced or loosened, fasten them to one another, when the bone is adjusted, not



Fig. 4 – Reduction of mandibular dislocation with the ‘Hippocratic manoeuvre’, from a Byzantine copy (11th Century A.D.) of the Nicetas Codex entitled ‘Comments of Apollonios of Citium on the ‘Joints Book’ of Hippocrates’– 9th Century A.D. (Codice Laurenziana LXXIV, 7 Section IX, Biblioteca Laurenziana, Firenze, Italia).

merely the two, but several, preferably with a gold wire, but failing that, with a linen thread, until consolidation takes place’ (Fig. 5).





**Fig. 5** – Immobilization of loosened teeth with a gold wire. Findings from a Grave in Eretria (town on the island of Evia), 4th Century B.C. National Archaeological Museum of Athens, No. 12764.

### ‘Wounds in the head’

This very important surgical writing of Corpus Hippocraticum includes references on cranio-maxillofacial injuries, as well as osteological observations referring to the cranium, its sutures, the two bone plates of the cranial bones and the diploe in-between, the parietal bones and their injuries, the temporal bones, the connection of the mandible to the cranium, and the organ of hearing and its injuries. Craniopuncture and craniotomy are also some of the subjects described in this marvellous surgical essay, which is undoubtedly considered as a masterpiece of that age. Hippocrates skillfully deals with the position that the surgeon should take for the patient suffering from a craniocerebral injury, while the descriptions of the injuries, the clinical symptoms by which they are manifest, the complications that might arise, as well as the treatment plans, are considered as absolutely excellent. This Hippocratic essay had such an influence on the formation of medical thought of that era, that many ancient Greek physicians, mention it, such as Galen, Epiclis, Euphorion, Lysimachos, Vakchios, Erotianos, as well as the Roman physician Celsus.

### DISCUSSION

The first written presumptions about Ancient Greek Medicine remain the Epic Poems of Homer, where a variety of lucid information is found about the advanced practice of Medicine and particularly of Surgery in Greece of the 10th century B.C., and even earlier (Mylonas, 2003). In the Homeric Poems, an emphasis is given to Surgery in particular, as it seems that this was the first branch of Medicine to be developed (Lecéne, 1923). Wounds in Homer are described in such a detail and so clearly, that some historians and researchers suggest that Homer himself descended from the guild of physicians called Asclepiadae, or that he was a military surgeon as well (Fröhlich, 1877; Kouzis, 1929).

The Great Hippocrates, knowing already the methods of Ancient Greek Medicine, was the first

who took the great leap of introducing and establishing scientific methodology in the Art of Medicine, thus liberating Medicine from superstitions and theocratic influences (Pournaropoulos, 1989). Hippocrates started removing magic trappings from the practice of Medicine, and instead introduced minute objective observation, i.e. inspection, thus joining rationality with Medicine, and also contributing in a unique way to the emergence of Medical Science along with the existing healing arts. Furthermore, Hippocrates (the Koan) established the conception of physical cause and effect in the pathogenesis of disease (Martis, 2000). Thus, by not restricting himself to simple empiricism but having combined it with logic, he was able to lay the foundations of science and experimental process in the understanding of living nature (Tsoukanelis, 1989).

Cranio-Maxillofacial Surgery constitutes a significant part of the surgical writings of Corpus Hippocraticum. Hippocrates was the first to study systematically the injuries of the mouth, the jaws and the face, and his contribution not only to Oral and Maxillofacial Surgery and Pathology, but to Dental Medicine in general, is tremendous. Dento-alveolar surgery, orofacial infections, maxillofacial trauma, dentofacial abnormalities and orthognathic surgery, as well as cranio-maxillofacial injuries, are approached in the various books of the Hippocratic Collection in such a way that one can realize the magnitude of the observation, perspicacity and clinical judgement of the Great Koan Master. Hippocrates was above all a great clinician, thus a true physician, and his surgical writings underline the importance of physical examination and diagnosis in every field of medical practice, particularly in Oral and Maxillofacial Surgery, especially in an age when, as it is obvious, no modern diagnostic aids were available (Mylonas, 2003).

Corpus Hippocraticum, despite the passage of time, remains a unique and unrivalled work, which could be accessed and analysed each time at various levels, depending on the philosophical construction and the gnosiological evolution of each era’s science (Mylonas, 2003). Hippocrates with his superb aphorism ‘Life is short, the art long, opportunity fleeting, experiment treacherous, judgement difficult’ ([Aphorisms I, §1] Pournaropoulos, 1968), was the first among physicians as well as philosophers, who established the philosophical dimension of medical practice and science, laying down the measure and the limits of every medical fulfillment. By incorporating medical ethics, in everyday practice, as they are highly expressed in the ‘Hippocratic Oath’, one realizes that ‘Medicine is the most distinguished of all the arts.’ ([Law, §1] Pournaropoulos, 1968).

Every practicing surgeon, and especially the Oral and Maxillofacial Surgeons, already know that ‘Those diseases that medicines do not cure are cured by the knife. Those that the knife does not cure are cured by fire. Those that fire does not cure must be considered incurable.’ ([Aphorisms VII, §87] Pournaropoulos, 1968). A part of the aforementioned

aphorism serves as a motto in the emblem of the Hellenic Association for Oral and Maxillofacial Surgery, reminding us of the tremendous contribution of Hippocrates the Koan to Oral and Cranio-Maxillofacial Surgery.

## CONCLUSION

Numerous accounts regarding Cranio-Maxillofacial Surgery are found in *Corpus Hippocraticum*, where the researcher will find himself before an unbelievable trove, regarding diseases and injuries of the mouth, the jaws and the face, and their surgical management. The observation, sagacity and clinical judgement of Hippocrates show the 'modus operandi' of how a surgeon should be and act: not as a mere operator but as a true scientist, that is a physician indeed!

## References

Fröhlich H: Barackey in Trojanischen Kriege. *Virchow's Arch Pathol Anatomie* 71: 509, 1877

- Hoffmann-Axthelm W: Greco-Roman medicine. In: Hoffmann-Axthelm W (ed.), *History of Dentistry*. Quintessence: Chicago, Illinois, 60, 1981 [Chapter 5]
- Kouzis AP: *History of Medicine* (Greek edition). Pirsos: Athens, 48, 1929.
- Lecène P: *L' evolution de la Chirurgie*. Paris, 1923
- Martis C: *Medicine from Hippocrates to DNA* (Greek edition), Livanis — 'New Frontiers': Athens, 43, 2000
- Mylonas AI: Contemporary medical views aged 3000 years (Greek edition). *Hellenic Arch Oral Maxillofac Surg* 4: 53–64, 2003
- Pournaropoulos GC: *Hippocrates' Works* (Greek edition), Vol. I–VI. A. Martinos: Athens, 1968
- Pournaropoulos GC: Hippocrates as a central figure of Greek Medicine of the Golden Age. In: Tsoukanelis AS (ed.), *Hippocrates and the Mouth*, 2nd ed. Athens, 6–8, 1989
- Tsoukanelis AS: *Hippocrates and the Mouth*, 2nd ed. Athens, 9, 1989

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