HISTORY

Headache in magical and medical papyri of Ancient Egypt

A. Karenberg[1] & C. Leitz[2]

[1]*Institute for the History of Medicine and Medical Ethics and* [2]*Department of Egyptology, University of Cologne, Cologne, Germany*

Cephalalgia

Karenberg A & Leitz C. Headache in magical and medical papyri of Ancient Egypt. Cephalalgia 2001; 21: 911–916. London. ISSN 0333-1024

Despite the intensity with which many scholars have studied the evolution of Egyptian medicine, interdisciplinary studies on the history of headache are scarcely extant. Following a short discussion of historiographical issues, the main objective of this paper is to present a comprehensive and detailed overview on this subject. Scattered references to headache are extracted from so-called magical papyri and from medical texts of the New Kingdom. Although little is known about the quality of headache and about accompanying symptoms, four predominant localizations are distinguished. Due to the lack of precise descriptions it is impossible to establish the retrospective diagnosis of migraine. Explanations of the origin of cephalalgia and of the corresponding therapeutic actions differ according to the nature of the source. In magical papyri, headaches are attributed to the action of demons and supernatural forces, whereas medical papyri emphasize the role of head trauma and of 'pain matter' occurring in the body. Treatment could be magical, pharmacological or surgical. Examples of incantations and prescriptions are analysed in detail. □ *Headache, Egypt, neurology, history, nervous system disorders, ancient*

Axel Karenberg, Institute for the History of Medicine and Medical Ethics, Joseph-Stelzmann-Strasse 9, D-50931 Cologne, Germany. Tel. +49 221 478 5266, fax +49 221 478 6794, e-mail ajg02@rrz.uni-koeln.de *Received 19 January 2001, accepted 2 August 2001*

Introduction

In a 22nd dynasty fable, the various parts of the human body contest their superiority before a divine tribunal. The belly rejects the assertion of the head as dominant among its 'siblings'; the head, however, justifies its leading role as follows: 'I am the basic foundation of the entire house ... My eye looks into the distance; my nose breathes and inhales air; my mouth has the gift of speech and is capable of responding ... I would like to be called "the ruler", because I am the one who gives life' (1).

This prominent role of the head can be found very early on in many religious texts and is indeed the beginning of the '*a capite ad calcem system*', the head-to-toe arrangement of organs and diseases. It must be pointed out, however, that this superior role refers to the head and not to the brain. There is no evidence that the ancient Egyptians had any idea of the importance of the human brain. In medical texts, thought, emotion and control of the body are usually attributed to the heart, and during mummification the brain was removed and discarded from the head as disposable and non-essential (2–6).

Historiographical issues

The differing notions of head and brain in ancient Egypt can be used to highlight different strategies applied by historians of medicine. Two metaphors dominate the study of the history of diseases. One pictures a historical disease as an 'embryonic form' of a present-day diagnosis (7–10). The other sees it as a 'strange object' completely unknown to us. These metaphors lead to different historiographical approaches and issues. The 'embryo approach' largely ignores the cultural context, but admittedly has strong integrating power and permits diachronic studies. The 'strange object approach' emphasizes the construction of medical phenomena in a given cultural environment. Although the explanatory power of this latter strategy is undoubtedly higher, its

insistence on the historical incomparability of different civilizations is less attractive for historians of disease.

Sources

It has been estimated that less than 0.01% of the Egyptian medical papyri have come down to us. The textual basis is consequently a very small one (Table 1). Scattered references to headache, however, can be found in four well-known medical papyri: the Papyrus Ebers, the Papyrus Hearst, which can be described as a small version of Papyrus Ebers, the Papyrus Berlin and, with some restrictions, the Papyrus Edwin Smith; they were all written at the beginning of the New Kingdom around 1550 BC but reflect, at least in part, much older knowledge.

Yet the bulk of material on headache, namely incantations, conjurations and spells, is to be found in so-called magical texts of the New Kingdom; these are the Papyri Leiden, Deir el-Medineh and Beatty. This paper presents the small amount of data from these texts on the symptoms, tentative explanations for, and therapeutic measures employed against headaches. The border between magic and medicine is a modern invention; such distinctions did not exist for ancient healers. Thus these medical texts include not only what we term rational descriptions and prescriptions, but also magical elements. In the words of the anonymous author of the Papyrus Ebers: 'Magic is effective with medication, and medication is effective with magic'.

Clinical features

Was cephalalgia a common ailment in ancient Egypt? We do not know. However, among the approximately 900 prescriptions collected in the Papyrus Ebers, 13 or 1.5% deal with headache, whereas 100 or 12% refer to diseases of the eyes. From this ratio of distribution it might be concluded that headaches were common and well-known, but not the most common medical condition of the time.

What do the papyri tell us about localization of pain? Headaches were clearly distinguished from painful conditions of various other parts of the body, as well from other disorders affecting the head such as skin diseases or ophthalmological disturbances. Although there was no such thing as a medical or anatomical terminology in the language of the ancient Egyptians, various words and expressions of their everyday vocabulary permitted a convenient distinction of different parts of the head (Fig. 1). The top and back of the head were thus clearly differentiated from temple, cheek-bone and nape. More general terms refer to the head and the skull as a whole, or to the shell of the skull or the 'box of the head' (11). By means of this vocabulary, Egyptian physicians distinguished four parts of the head affected by headaches: (a) the head or skull in general (p Ebers 251–259); (b) half of the head, i.e. one side of the head (p Ebers 250; p Beatty V; p Leiden I; p Deir-el-Medineh); (c) the temple, namely in connection with eye diseases (p Ebers 260); and (d) the nape (p Smith 3 et al.).

Unfortunately, little detail is provided regarding the quality of the pain or accompanying symptoms. Nor do we have any remarks on whether the various cephalalgic conditions were of an acute, episodic or chronic nature. At only one point (p Ebers 259) is a certain heating of the head mentioned, and twice the expression for headache is combined with the sign of the 'spitting mouth', perhaps indicating that the disorder was complicated by vomitus (p Beatty V Rs. 6, 5–6; Oracular Amuletic

Table 1 References to headache in Egyptian papyri

Name of papyrus	Date	References to headache	Selected editions and translations
'Medical' papyri			
p Edwin Smith	1550 BC	p Sm 3 et al.	Breasted 1930; Ebbell 1939; Grundriß 1958; Westendorf 1966, 1999; Bardinet 1995
p Ebers	1550 BC	p Eb 248–260	Wreszinski 1913; Ebbell 1937; Grundriß 1958; Ghalioungui 1987; Bardinet 1995; Westendorf 1999
p Hearst	1550 BC	p H 76–77 = p Eb 248–249	Wreszinski 1912; Grundriß 1958; Bardinet 1958
p Berlin	1250 BC	p Bln 27	Wreszinski 1909; Grundriß 1958; Bardinet 1958
'Magical' papyri			
p Ramesseum III	1800 BC	p Ram III A 19	Barns 1956; Grundriß 1958; Bardinet 1995
p Leiden I	1250 BC	p Leiden I 348, 1–7	Borghouts 1970
p Deir el-Medineh I	1250 BC	No. 1 Rs. 8–9	Cerny/Posener 1978
p Beatty V	1200 BC	p Beatty V Rs. 4, 1–9; Rs. 4, 10–6, 4; Rs. 6, 5–6	Gardiner 1935; Grundriß 1958; Bardinet 1995

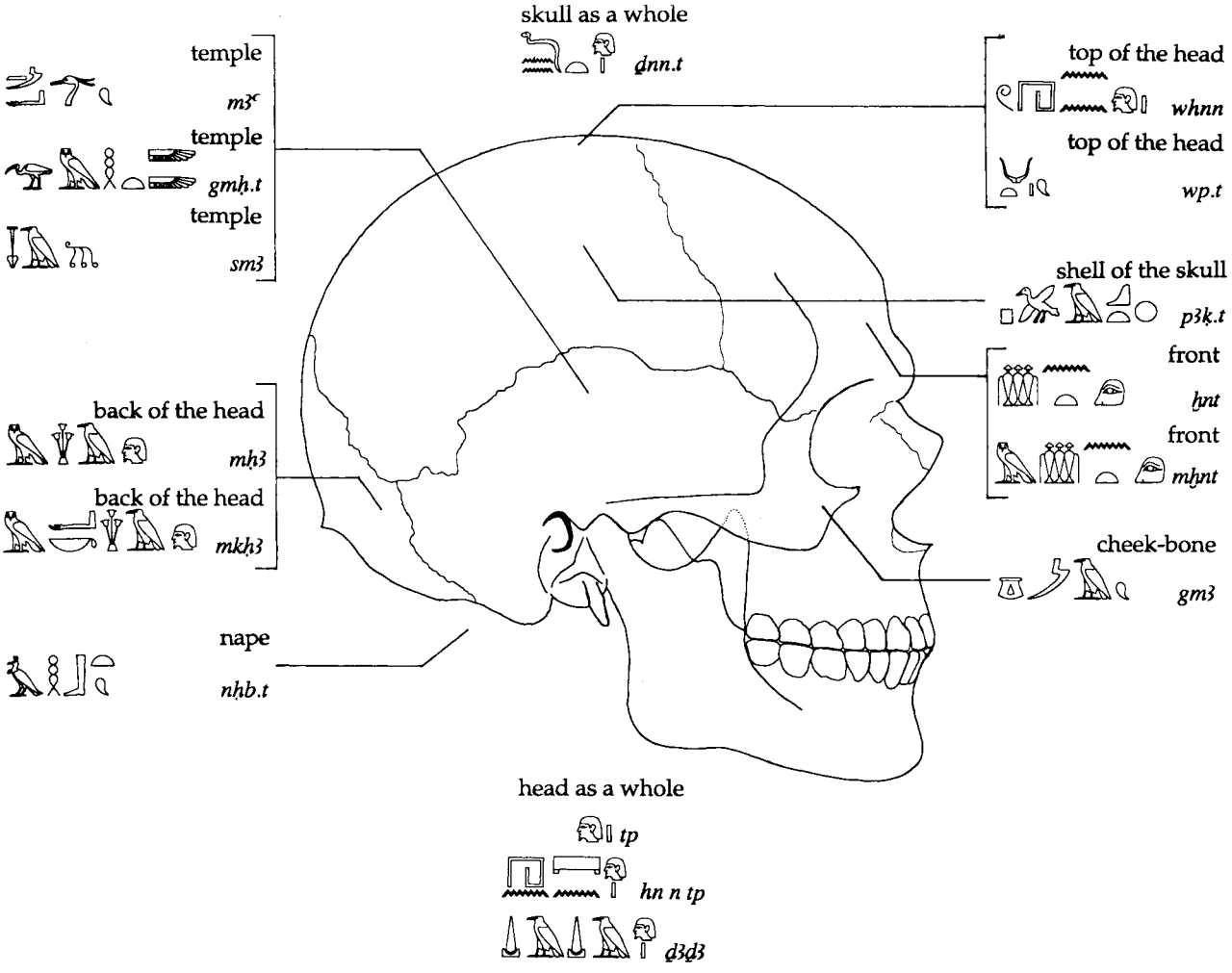

Figure 1 Lateral aspect of the human skull, with Egyptian words for different parts of the head (modified after Nunn 1995 p. 50; drawing by Daniela Mendel).

Decrees L5 Rs. 49). This vague and virtually unprecedented description of what we term signs and symptoms makes it difficult to continue to support the hypothesis first put forward by Goodwin in 1873 (12) that the ancient Egyptians actually described migraines (13). According to modern terminology, headache is a symptom, whereas migraine is a disease that requires a variety of criteria for its diagnosis. Apart from the mention of one-sided headache, no such criterion can be found in the papyri. Today, we diagnose disease A, if symptoms B, C and D are present. In the same situation, the Egyptians spoke only of ailment B, ailment C and ailment D, without constructing the disease entity A. We should therefore be careful not to project our nosological system backwards in time, thus inappropriately attributing modern perspectives to an ancient civilisation that had a completely different attitude towards illness.

Magical explanations: An example from Papyrus Leiden

The core of the Egyptian concept of disease is the various spells collected in the magical papyri (14). One of the incantations from the Papyrus Leiden will be presented briefly. This incantation may at first sound obscure and incomprehensible, but is easily comprehensible after a short introduction to the mythological background, structure and purpose of this section.

> *Another conjuration of the head (Papyrus Leiden I 348, Spell 7)*
> 'My head! My head!' said Horus. 'The side of my head!' said Thoth. 'Ache of my forehead' said Horus. 'Upper part of my forehead!' said Thoth. 'Let your head recover up to your temples!' 'Stop it, Apopis! The back of your head is destined for the *tmmt*-loop of Ra! ... O Nefertem! The back of your

> head will be the front of your head! ... O *In-c.f.*! The trunk of your body will be cut off ... My neck however, remains firm, when the divine tribunal is put into place.'
> *This spell is to be recited over the tmmt-loop of a snake which is placed in the hand. The head should be rubbed with it.*
> (Translation modified after Borghouts 1970; 15)

After the title indicating the target of the conjuration the text begins with the antiphonal laments of the deities Horus and Thoth about their headaches. The magician evokes two of the most prominent figures of Egyptian mythology; falcon-headed Horus, the son of Isis and Osiris, and ibis-headed Thoth, the divine patron of all magicians and *savants*. The mechanics of magic are evident; the divine level must be brought in accordance with the human level, as only the influence of the divine sphere on the patient's affairs can guarantee success. What is helpful to a sick god and an ailing divine healer cannot be harmful to a human being. For this reason, the patient is identified with Horus and Thoth. This passage also includes a four-step climax which is used to localize the ailment more accurately: the head–one side of the head–the forehead–the upper part of the forehead.

In the following sentence, the sun-deity Ra addresses the patient and calls upon him to recover. In a third, longer section, the patient himself now turns to the demons who have caused his ailment and threatens: first, to catch the back part of Apopis' head with the *tmmt*-loop of Ra; secondly, to carry out a 180-degree rotation of Nefertem's head, this is the meaning of the phrase: 'The back of your head will be the front of your head'; thirdly, to cut off the body of the demon *In-cf.*, leaving a useless head behind. Finally, the patient emphasizes his physical integrity: 'My neck remains firm'.

The spell concludes with a practical instruction: The patient's head ought to be rubbed with the *tmmt*-loop of a snake—a substitute for the weapon of Ra, which has already proved its effectiveness. As a result of this magical rite, the patient's head is not only cured, but henceforth protected from noxious demonic power (16).

In this case, the mythological background is the hazard of the judgement after death, the above mentioned 'divine tribunal'. One of its main risks consisted in losing one's head during the procedure by the act of a punishing demon. Apopis, Nefertem and *In-c.f.* were members of this tribunal, and therefore the patient threatens to do harm to their heads and insists that his neck will be firm 'when the divine tribunal is put into place'.

Various other spells in magical papyri present a somewhat different mythological background and recommend different actions (17). Sometimes, the suffering Horus is advised to invoke the help of his mother Isis, who is asked to exchange her own head with his or to prepare a protecting amulet. In another incantation, the sufferer's head is identified with Ra's and cosmic disturbance is threatened unless the patient is left in peace. The basic structure of all these magical texts is similar to the example just demonstrated.

Origin of headache

In the medical Papyrus Ebers, there is only one very short and tentative explanation of headache. 'Another remedy for the aching head and for expelling the pain-matter' is the heading of prescription number 254. Initially, the origin of all kinds of aches and pains was often attributed to peculiar pain-matter demons. Later in Egyptian history this explanation was subjected to a certain rationalization; when the digestion of the food was incomplete, the result was the occurrence of pain-matter that was distributed in the organism through the vessels and finally caused various painful ailments. Without doubt, this is the beginning of a humoral theory of cephalalgia, a theory that became the dominant explanation for the next three millenia; however, in Egyptian medical texts, there is no indication of any attempt to systematize these ideas.

In the Smith papyrus, headaches and various other neurological symptoms are described as after-effects of head trauma (18, 19). However, one should be careful to call this a purely empirical approach. There are also conjurations in the Smith papyrus, and therefore it is no mere speculation to assume that the fall preceding the injury was also attributed to supernatural forces by the Egyptian physician.

Forms of treatment

Along with the origins of headache, main features of therapeutics already have been mentioned, namely the magical approach and the surgical method in cases of head trauma. An intermediate position is taken by the prescriptions listed in the Papyrus Ebers. Some of these remedies (p Ebers 247–260) may have been discovered by empirical trial-and-error tests; most of them, however, again reflect a magical determination. The famous paragraph Ebers 250, f.e., includes a twofold magical significance (20):

> Another remedy for pains in one side of the head. Skull of catfish; were heated until they turned to ashes and boiled with oil; the head is rubbed therewith for four days.

The application of the remnants of an animal's skull to the head of a headache patient follows the magical

principle 'similia similibus' (like will be cured by like), a strategy that can be found in endless variations throughout the history of headache treatments. Furthermore, the catfish is the symbol of a demon belonging to the sphere of the night. This demon once caused Horus headaches of such a severity as to force him to live in the dark. By killing and burning the catfish the physician may have intended to annihilate the demon's power and to restore the patient's health; he can recover the same way Horus once did.

The drugs listed in Papyrus Ebers are taken from the animal, vegetable and mineral kingdoms and do not differ greatly from later Greek or Roman prescriptions (Table 2). It would be easy to demonstrate their magical connotations, for instance that of the donkey, of other fishes, of incense and myrrh. Without exception, all the composita mentioned in Papyrus Ebers must be applied directly to the patient's head (21). Thus very early on in the history of therapeutics the afflicted body part was the focus of treatment. It was only later, in the Greek period, that this mode of action was changed. Quite exceptional for an early medical text is also a remark about the effectiveness of treatment (p Ebers 251): a root-extract of the castor oil plant was said to have 'an excellent effect! Innumerable times tested!'.

Table 2 Remedies listed in Papyrus Ebers 247–260 for the treatment of headache

Animal drugs
Catfish skull
Perch bones
Synodontis-fish skull
Lates-fish bones
Stag's horn
Ass's grease
Cattle fat (2×)
Goose fat
Vegetable drugs
Roots of the castor oil plant
Honey (3×)
Frankincense (8×)
Wax, gum
Reed (2×)
Coriander seed (2×)
Fruit of carob tree (2×)
Cumin (2×)
Myrrh
Fruits of juniper (2×)
Lotus
Dill seed
Mineral drugs
Natron (2×)
Malachite
Clay
Stibium (lead glance?)
Yellow ochre

Conclusions

Various forms of cephalalgia, including one-sided headache, are mentioned in ancient Egyptian papyri. More precise descriptions, however, are missing and therefore it is not possible to establish the retrospective diagnosis of migraine. This does not mean that there was no migraine in ancient Egypt; the few preserved texts simply do not justify this assumption. To avoid further misunderstandings, historians should more precisely distinguish between the history of the name of a disease and the history of the concepts associated with this disease.

In ancient Egypt, interpretative attempts and corresponding therapeutic actions towards headaches range from supernatural to natural, from magical to empirical. The dominant explanation—at least in the texts that have survived—is a magical one. This reminds us that most patients throughout the centuries, regardless of the actual mainstream opinion in medicine, relied on healers who had an intimate connection with supernatural forces. Saint Denis or Saint Dennis, the martyr who carried his head so elegantly under his arm, and his important role as a patron saint for all sufferers from headache, is the best example from Christian civilization.

To be successful, the ancient Egyptian headache therapist had to combine a threefold qualification: that of a priest with good relations to the divine sphere, that of a physician with his experience, and that of a magician attempting to make impossible things possible. Perhaps present-day neurologists are not so unfamiliar with this profile of qualifications. Hopefully, their treatment is at least as successful as that of the unknown second millenium BC Egyptian author who proudly praised his divine headache remedy prepared by Isis herself for Ra (p Ebers 247): 'If this remedy is made for the patient for all diseases in the head and for all bad and evil things, he will get well immediately'.

References

1 Westendorf W. Handbuch der altägyptischen Medizin. Leiden: Brill, 1999.
2 Grapow H, von Deines H, Westendorf W. Grundriss der Medizin der Alten Ägypter. Berlin: Akademie-Verlag, 1954.
3 Westendorf W. Erwachen der Heilkunst. Die Medizin im Alten Ägypten. Zürich: Artemis & Winkler, 1992.
4 Bardinet T. Les Papyrus Médicaux de l'Égypte Pharaonique. Paris: Fayard, 1995.

5 Nunn JF. Ancient Egyptian Medicine. London: British Museum Press, 1995.
6 Kolta KS, Schwarzmann-Schafhauser D. Die Heilkunde im Alten Ägypten. Stuttgart: Steiner, 2000.
7 Ebbell B. Die ägyptischen Krankheitsnamen. Z Ägyptische Sprache Altertumskunde 1927; 62:13–20.
8 Ritter G. Zur Entwicklungsgeschichte der Neurologie. Die altägyptischen Papyri. Nervenarzt 1968; 39:541–6.
9 Mazzone P, Banchero MA, Esposito S. Neurological sciences at their origin. Neurology and neurological surgery in the medicine of ancient Egypt. Pathologica 1987; 79:787–800.
10 van der Sande JJ. Neurological aspects of medicine in ancient Egypt. J Hist Neurosc 1987; 7:71–2.
11 Walker JH. Studies in Ancient Egyptian Anatomical Terminology. Warminster: Aris and Phililips, 1996.
12 Goodwin NC. Notes. Z Ägyptische Sprache 1873; 11:11–5.
13 Clifford Rose F. The history of migraine from Mesopotamian to Medieval times. Cephalalgia 1995; 15 (Suppl. 1):1–3.
14 Leitz C. Magical and Medical Papyri of the New Kingdom. London: British Museum Press, 2000.
15 Borghouts JF. The Magical Texts of Papyrus Leiden I 348. Leiden: Rijksmuseum van Oudheden te Leiden, 1970.
16 Leitz C. Spruch 7 des magischen Papyrus Leiden I 348 (rto III, 5–8). Göttinger Miszellen 1987; 100:47–55.
17 Isler HR. Historical background. In: Olesen J, Tfelt-Hansen P, Welch KMA, eds. The Headaches. New York: Raven Press, 1993:1–8.
18 Elsberg CA. The Edwin Smith surgical papyrus and the diagnosis and treatment of injuries to the skull and the spine 5000 years ago. Ann Med History NS 1931; 3:271–9.
19 Westendorf W. Papyrus Edwin Smith Ein Medizinisches Lehrbuch aus dem Alten Ägypten. Stuttgart: Huber, 1966.
20 Ebbell B. Papyrus Ebers. The Greatest Egyptian Medical Document. Copenhagen: Munksgaard, 1937.
21 Edmeads J. Treating the head in headache. Headache 1988; 28:496–7.