

Historical article

Ear, Nose and Throat in Ancient Egypt

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Part III

Neck

I Infections

The Ebers Papyrus contains a section on inflamed glands in the neck, thus case 857 refers to a carbuncle, case 858 a suppurating lymph node, case 860 refers to softened tuberculosis glands, case 861³⁸ tuberculous adenitis and case 862 a fistula following suppurating gland (104 and 105, Ebbell, 1937). In these cases the method of examination included palpation of the swellings. It is of interest how fluctuation is described in a cystic swelling on a limb (Ebers, 107, 867): 'If thou examinest a cystoid swelling in any limb of a man, and thou findest that it goes and comes under thy fingers and it is divided (lit. it is as separated things) by thy hand when it is fixed, then thou shalt say concerning it: it is a cystoid swelling; it is a disease which I will treat',³⁹ (107, Ebbell, 1937). The description of a sinus is interesting (Ebers, 105, 861): 'if thou examinest a suppurating enlarged gland on the neck of a man which, after becoming big, has given off the overlying (skin) and produced suppurating granulations and has lasted for years or months and from which comes out a secretion like the sperm of a big male synodontis—fish' (105, Ebbell, 1937). It is possible that this description is for a tuberculous adenitis with a sinus formation. It is no wonder that tuberculous glands in the neck are described as tuberculosis is known to be present in Ancient Egypt. Several artistic representations from Ancient Egypt shows hunchback deformity.

II Sebaceous cysts

Though described in a limb, yet it is interesting to quote in part (Ebers, 107, 869): 'If thou examinest a matter-swelling in any limb of a man, and thou findest that its top projects and that it is joined and hemispherical, then thou shalt say, concerning it, 'it is' a swelling of matter that runs

³⁸ This case is described by Basuni (1979) as a goitre.

³⁹ Ghalioungui (1973) considered this case a 'ganglionic mass'. A differential diagnosis by Kamal (1964) is hygroma.

in his body; it is a disease which I will treat by an operation. There is something in it like viscous humour, and afterwards something like wax comes out. It, (namely the swelling) forms a pouch, if anything remains in its pouch, it will return' (107, Ebbell, 1937). However, Ebbell described this case as atheroma. Ghalioungui (1973) described it as a sebaceous cyst and another case (Ebers, 107, 870) as sebaceous cyst of the scalp. It is of interest that in a following case (Ebers, 107, 871) the same advice of not leaving any part of the cyst wall behind is also emphasized.

III Other swellings

Aneurysms, A–V aneurysms, haematomas are described but in limbs (108, and 109, Ebbell, 1937) and a possible neuro-fibromatosis (107, Ebbell).

IV Injuries

Injuries to the cervical vertebrae is presented in the Edwin Smith Papyrus: Case 29 is a 'perforation', case 30 is a sprain, case 32, is a displacement, and case 33 is an impacted fracture. An interesting observation in examination is stiffness of the neck and that the patient is unable to 'look at his shoulders or his breast'. In case 30, the word sprain is described by the ancient surgeon thus: 'As for a sprain he is speaking of a rending (brake) of two members, (although) it (= each) is (still) in its place'. In case 31, paraplegia is reported following cervical injury.

V Neck pain

The Ebers Papyrus (51, 295) describes 'rheumatism' of the cervical area: 'Another: if thou examinest a man on whose nape there is rheumatism, and he is suffering in the two members (i.e. the muscles) of his nape and suffering in his head, the vertebra of his nape is stiff, his nape is heavy, and it is not possible to him to look at his belly, as it is painful to him, then thou shalt say: (it is) one who suf-

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FIG. 18

Elongated styloid process, 6th Dynasty, Giza (by courtesy of the late Dr Frank Leek).

fers from rheumatism in his nape. Thou shalt let him rub himself and anoint himself, so that he is well immediately' (51, Ebbell, 1937). This case can also be of headaches, helped by 'self-massage' as in yoga!

Other remedies for catarrh in head and 'rheumatism' in nape are described (52, Ebbell, 1937).

Examining mummies revealed a number with cervical osteophytosis (Strouhal and Vyhnanek, 1979). Some of these osteophytes are so large that it was possible that have led to dysphagia (Forriers syndrome) as in the case of King Merenptah (Harris and Wentz, 1980).

VI *Elongated styloid process*

There are two cases with long styloid processes from the 6th Dynasty (Leek, 1986). Figures 18 and 19 illustrate one of them. It is possible that the patient suffered from the styloid syndrome, as this styloid process is unusually long.⁴⁰

VII *Torticollis*

Torticollis is mentioned in Ebers papyrus (34, 183–185⁴¹) with treatment prescribed.

The Birmingham Mummy is the first known case of torticollis in history (Pahor and Cole).⁴²

⁴⁰ For a general reference on elongated styloid process: Lengele and Dhem, 1988.

⁴¹ However, Lefebvre (1956) translated the anatomical location as the chest.

⁴² A paper in preparation.

Endocrine glands

I *Thyroid gland*

The thyroid gland was known to the Ancient Egyptians according to Ebbell, but other authorities deny this (Riad, 1965). A wall engraving of Cleopatra in Dandera temple shows her with goitre, (Fig. 20) but this is more a reflection of the art style at the time.

From excavations in Giza statues of both a father (Fefi—Fig. 21) and son (Tesen—Fig. 22) show signs of Grave's disease (Ghalioungui and El-Dawakhyly, 1965). Also a further statue, but for an anonymous, excavated from the same tomb, shows signs of Grave's disease, exophthalmos, lid retraction and pre-tibial myxoedema. The three statues are now in the Egyptian Museum, Cairo.

II *Pituitary Gland*

Aldred and Sandison (1962) have discussed in detail the case of the Pharaoh Akhenaten and concluded that he presented an acromegaloid facies (Fig. 23) and a eunuchoid obesity. It is of note that earlier presentations of Akhenaten showed normal appearances (Fig. 24). It is suggested that Akhenaten might have had a pituitary adenoma which led first to acromegaly but later on to pressure hypofunction of the pituitary gland. Ghalioungui (1963) suggested that Akhenaten's breast fullness may be due to liver disease caused by bilharziasis, a common disease in Egypt then and nowadays. Elliot Smith and others considered Akhenaten had suffered from Fröhlich's syndrome (Bryan, 1930; Harris and Weeks, 1973).



FIG. 19

Elongated styloid process, close up (by courtesy of the late Dr Frank Leek).

III *Rickets*

A. Ruffer described two cases of rickets.

Face

I *Anatomy*

As to the blood supply of the face, we read: 'There are four vessels of the nostrils, two secrete humour and two secrete blood. There are four vessels in the interior of his temples which then give blood (to) the eyes (99, Ebbell, 1937)'. Later on more vessels are described: 'There are two vessels in him to his forehead. There are two vessels in him to his eye. There are two vessels in him to his nose. All together they go to his heart' (103, Ebbell, 1937).

II *Erysipelas*

Was described in the belly and remedies for it mentioned (23 and 24, Ebbell, 1937).

III *Herpes Zoster*

Two remedies are described for shingles (52 Ebbell, 1937).

IV *Leprosy*

Leprosy was described on the body but not face (108, Ebbell, 1937).

V *Injuries*

The following four cases are the injuries to the sinuses described in Edwin Smith Papyrus (Table VI):

a) Case 9: is an injury to the frontal bone but no construc-

tive treatment was proposed except using a bandage, brought from the embalmers. The case reads at its start 'Instruction concerning a wound in his forehead, smashing the shell of his skull'. It is possible to assume that they meant the outer table of the frontal sinus, thus the first ever possible description of injury to the frontal sinus, (Breasted, 1930). Such an injury is seen in the forehead of King Seqenenre (*v.i.*) his case obviously was hopeless as the injuries were multiple and severe (Harris and Weeks, 1973).

- b) Case 15: is of a perforating injury to maxilla and zygoma. The definition of perforation by the ancient scribe was 'like a puncture of a pottery jar' which suggest that the sinus may have been opened, thus the first ever description of the maxillary sinus.
- c) Case 16: is a 'split' in the cheek. This injury can arise from an axe or a sword.
- d) Case 17: is a compound comminuted fracture of maxilla and zygoma: 'If thou examinest a man having a smash in his cheek, thou shouldst place thy hand on his cheek at the point of that smash. Should it crepitate under thy fingers, while he discharges blood from his nostril, and, from his ear on the side of him having that injury; (and) at the same time he discharges blood from his mouth while it is painful when he opens his mouth because of it, (and) he is speechless. An ailment not to be treated'. An unknown mineral was recommended to be placed on the wound, *ymtw* or *imtw*, possibly a disinfectant (Breasted, 1930).

The next (case 10, Edwin Smith Papyrus) is of soft tissue injury penetrating to bone:



FIG. 20
Queen Cleopatra showing apparent goitre.

- e) Starts 'Instructions concerning a wound in the top of his eyebrow'. Top may mean end so this may be either inner or outer end of eye brow. The case continues: 'If thou examinest a man having a wound in the top of his eyebrow, penetrating to the bone, thou shouldst palpate his wound, (and) draw together for his gash with stitching'.⁴³ Then it proceeds: 'If thou findest that the stitching of his wound is loose, thou shouldst draw (it) together for him with two strips (of plaster).' Thus the surgeon here applies stitches primarily but linen strips (*v.i.*) to hold the edges together as a secondary procedure.

The following two cases of Edwin Smith Papyrus are soft tissue injuries:

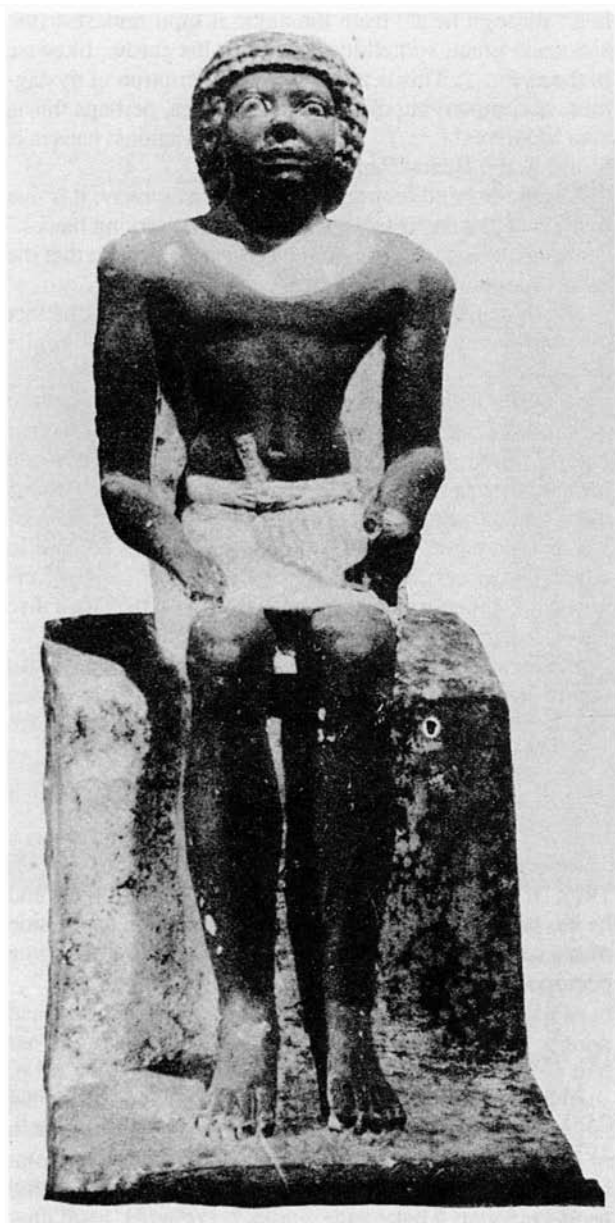
- f) Case 26: a wound in the upper lip, it reads: 'If thou examinest a man having a wound in his lip, piercing through to the inside of his mouth, thou shouldst examine his wound as far as the column of his nose. Thou shouldst draw together that wound with stitching'.
- g) Case 27: A gaping wound in chin. The surgeon used two linen plaster strips (*wy*) applied to the wound to draw its edges together, the same plaster strips were used in other four cases in the Edwin Smith Papyrus. In case 10 is an explanation of this strip: 'the two *wy*-strips of linen, it means two bands of linen, which one applies upon two lips of the gaping wound in order to cause that one (lip) joins to the other'.

⁴³ Stitching a wound is described in Edwin Smith Papyrus in the following cases: 3, 10, 14, 23, 26, 28 and 48.

- h) Some mummies and a great number of skulls show evidence of trauma, either healed or were the cause of death. The mummy of Seqenenre Tao (c. 1580 BC), a



FIG. 21
Fefi (Old Kingdom) showing exophthalmos and Grave's disease.



Tesen, Fefi's son, showing exophthalmos.

ruler at the end of the XVIIth Dynasty, shows the most extensive facial injuries (Fig. 25). Some of the King's wounds show evidence of healing suggesting injuries sometime before his death.⁴⁴ He died in battle fighting to the end on his knees: The bravest fighter of them all (El-Mahdy, 1991).

VI Skin

There are remedies to darken scar tissue following a burn (69, Ebbell, 1937), others for wrinkles on face (87, Ebbell, 1937), for dandruff (86, Ebbell, 1937), alopecia areata (107, Ebbell, 1937) and warts (204, Hearst Papyrus).

⁴⁴ There are two theories as to his death, either he was assassinated or he died in battle, the latter is the most accepted. His son, Ahmes I, was founder of the XVIIIth Dynasty.

Neurology

I Anatomy

The brain, its coverings and the cerebro-spinal fluid were known and named. The convoluted surface of the brain was compared to corrugations which form on molten copper and its pulsations were likened to those of a child's fontanelle (Edwin Smith Papyrus, case 6). On the vasculature of the head: 'There are four vessels dispersing to the head which effuse in the back of the head'. Could these be the two internal carotids and the vertebrals (99, Ebbell, 1937)? On the veins: 'There are two vessels in him to his nape. If he is ill in his nape and his eyes are dim-sighted, then thou shalt say concerning it, it is due to the fact that the vessels of his nape have received the disease . . . all together they go to his heart' (103, Ebbell, 1937).

The ancient surgeon noted the relationship between the brain and movements in the body, that the effects of a head injury on the extremities differ depending on which side of the head had received the injury, though he was misled by contre-coup regarding the side of the lower limb affected. He also recognized that the spinal cord is another centre of nervous control. The surgeon also noticed that injury to the temple region would lead to loss of speech (case 19, Edwin Smith Papyrus).

The surgeon furtherly noticed the effect of head injury on the eye and gait: 'If thou examinest a man having a smash on his skull, which his eye is askew because of it, on the side of him having that injury which is in his skull; (and) he walks shuffling with his sole on the side of him



FIG. 23

Akhenaten showing acromegaly, 18th Dynasty.

TABLE VI
INJURY TO SINUSES—EDWIN SMITH PAPYRUS

Case number	Sinus affected	Description of injury	Analogy/examination
Case 9	Frontal sinus	Smash	Of 'shell'* of his skull.
Case 15	Maxillary sinus	Perforation	Puncture of a 'pottery jar'
Case 16	Maxillary sinus	Split	Determinative**: axe splitting wood
Case 17	Maxillary sinus (and zygoma)	Smash	Crepitations felt under finger

*As a shell of turtle.

**In a pyramid text (Breasted, 1930). For determinative *v.s.*

having that injury which is in his skull' (case 8, Edwin Smith Papyrus). Squint, possibly due to VI nerve palsy, is thus described. However, the ancient physician did not name the nerves, and no connection between the brain, cord or nerves was known, the last fact was known first to Herophilus of Alexandria in the Third Century BC.

The first mention of sutures of the skull ever in history was in Edwin Smith Papyrus (case 7).

II Physiology

The ancient writer (100–101, Ebbell, 1937) attempted to explain symptoms: 'As to faintness: it is due to the fact that the heart does not speak on that the vessels of the heart are dumb, there being no perception of them under thy fingers (i.e. thou dost not feel them): it arises through the air which fills them'.

'As to the feeling of sickness: it is due to debility of the

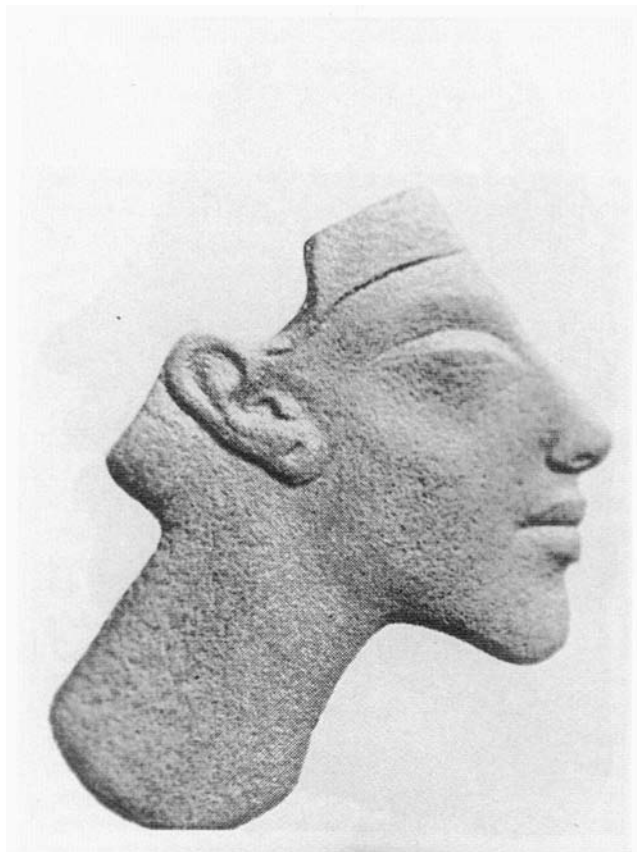


FIG. 24

Akhenaten, normal appearance, 18th Dynasty.

heart through heat⁴⁵ from the anus; if thou findest it (the sickness) great, something rotates in his cardia, likewise in the eye' . . . This is the first ever description of nystagmus, accompanying dizziness and nausea, perhaps this is also Ménière's! (*v.s.*) . . . A prescription against nausea is found in the Hearst Papyrus (61).

'As to his mind (consciousness?) passes away: it is due to the fact that the vessels of the heart are carrying faeces.'

'As to drying up of the mind: it is due to the fact that the blood coagulates? in the heart.'

'As to debility through senile decay: it is due to the fact that purulency is on his heart', a description of senile dementia.

In case 48 (Edwin Smith Papyrus), we read 'If thou examinest a man having a sprain in a vertebra of his spinal column, thou shouldst say to him: Extend now thy two legs (and) contract them both again. When he extends them both he contracts them both immediately because of the pain he causes in the vertebra of his spinal column in which he suffers'. This description is reminiscent of Kernig's sign! It is possible that this case was a displaced disc with Lasèque's sign of sciatica.

Deafness, or more likely aphasia, is described with severe temporal bone injuries (cases 20 and 22, Edwin Smith Papyrus). Other causes of speechlessness are mentioned.

III Referred pain

Referred pain is also described in Ebers Papyrus (37, 191): 'If thou examinest a man for illness in his cardia and he has pain in his arm, his breast (mamma) and in one side of his cardia' (37, Ebbell, 1937). This is a case of angina pectoria with referred pain.

IV Headaches

Mentioned in Ebers Papyrus (247, 249, 252, 257 and 258) and remedies recommended (47 and 48, Ebbell, 1937).

V Migraine

The name is originally derived from Ancient Egypt. In the Lyden Papyrus is a reference to 'malady of half the head' which when translated to Greek was: Hemi-Krania from which the description migraine is derived. Also it has the same meaning in Arabic—sodah nesf al-raas.

Migraine is mentioned in Ebers papyrus (47, 250): 'Another for pains in one side of the head: skull of silurus—fish, is boiled with oil, and the head is rubbed therewith for four days' (47, Ebbell, 1937).

VI Herpes Zoster

Mentioned in Ebers (52, 303 and 304) without localization to any part of the body (52, Ebbell, 1937).

VII Tetanus

The first ever description of tetanus is generally attributed to Hippocrates, however, it is described in Edwin Smith Papyrus, case 7. The case is a gaping wound in the

⁴⁵ Means: inflammation.

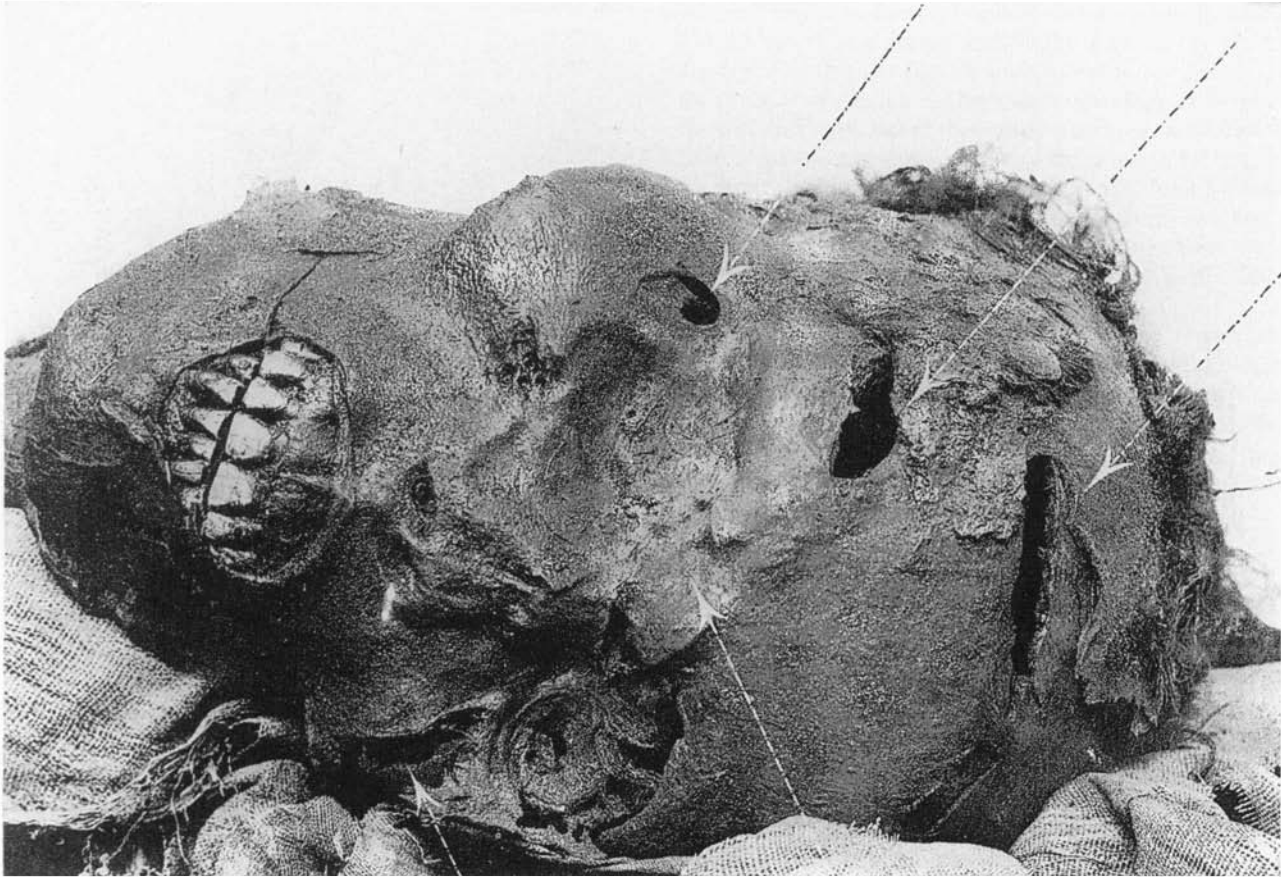


FIG. 25
King Seqenenre Tao, end of 17th Dynasty.

head. The patient has rigours and lockjaw. Saliva sticks to the lips and the patient had neck stiffness (unable to look to his shoulder, nor to this breast). We also find that that patient is fed whilst having lockjaw: 'Thou shouldst have made for him a wooden brace padded with linen and put into his mouth'. The wooden brace was possibly used to hold his mouth open to allow feeding, thus, being padded with linen. However, Grapow suggested it may have been

hollow and the patient sucked through it: whichever way it was used, it was the first ever mention of parenteral feeding in history. 'Suction tubes' were known as can be seen in a tablet (Fig. 26) from El-Amarna, showing a Syrian, Terura,⁴⁶ drinking wine from a jar through a copper tube (Rowling, 1986). In this case discussed above, reference to the temporalis muscle is present, described as a cord of



FIG. 26

Tablet of Terura, with wife and attendant helping the master to a beverage from a jar by means of a syphon, El-Amarna.



FIG. 27

Akhenaten and Nefertiti (18th Dynasty) with daughters showing apparent hydrocephalus.

⁴⁶ Terura was an Asiatic mercenary, a spearman. It is possible that the syphon was made of reed (Aldred, 1987).

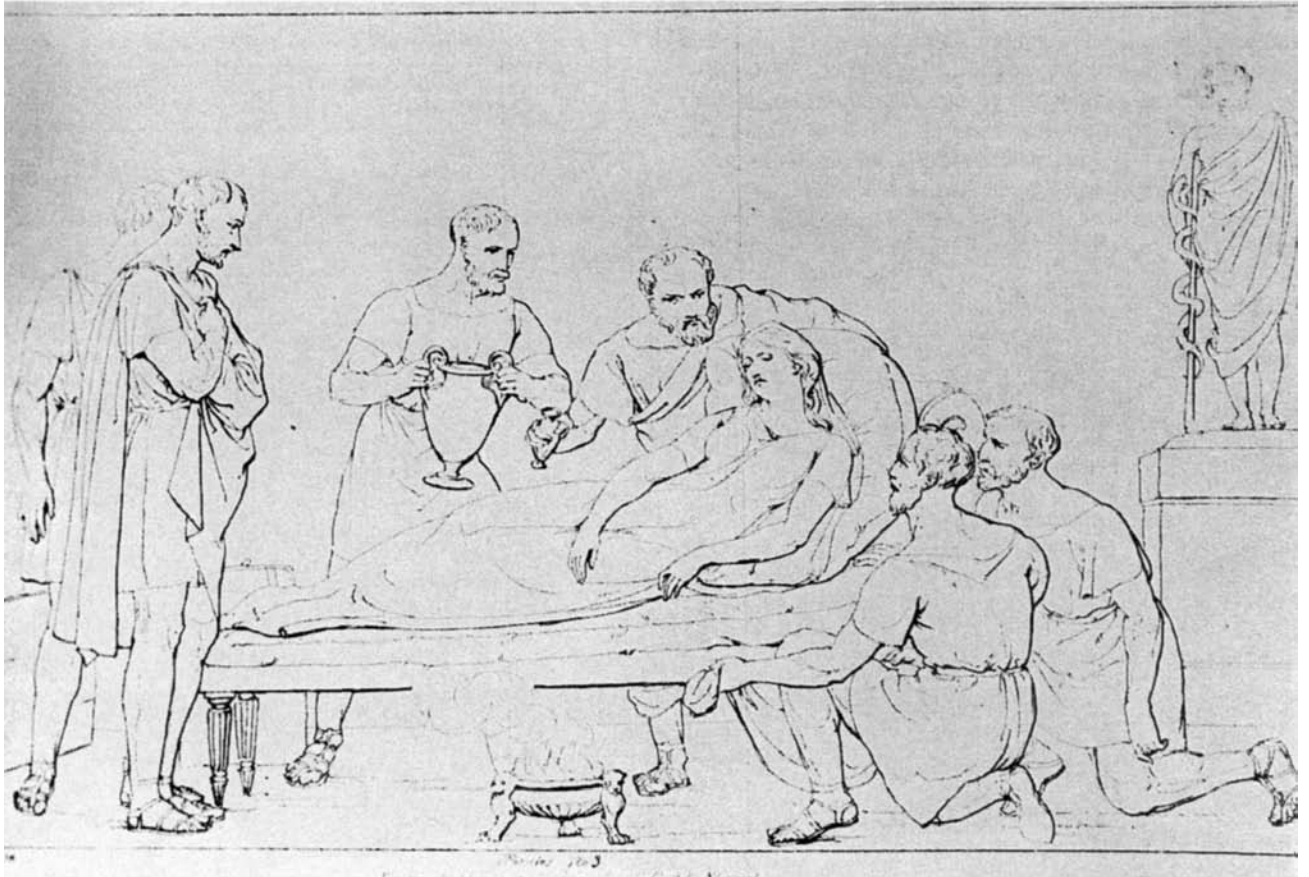


FIG. 28

Cerimon revives Thaisa—Pericles—Act III Scene II (from Forrester Collection, Birmingham Central Library).

his (the patients) mandible which is contracted 'it means stiffening on the part of the ligaments at the end of his ramus, which are fastened to his temporal bone'.

It is possible that a cyanotic colour was presented in this patient (Breasted, 1930). It is of interest how the facial appearance was described: 'As for: 'His mouth is bound, (and) both his eyebrows are drawn, while his face is as if he wept,' it means that he does not open his mouth that he may speak, both his eyebrows are distorted, one drawing upwards. The other drooping downwards,⁴⁷ like one who winks while his face weeps.' The case ends with a compassionate plea: 'Undertake him, do not desert him, in view of the exhaustion'.

VIII Facial palsy

In Berlin Papyrus (3, 76) a prescription for 'shrinkage side of face and twist of the mouth'. Distortion of the face has been described in other scripts: He had his mouth distorted when he addressed his followers (Breasted, 1930). A female mummy from the Persian Period (c. 525 BC) displayed a right facial palsy (Kamal, 1964).

IX Atheroma

Is described in Ebers Papyrus (107, Ebbell, 1937). Ruffer noticed atheroma in some mummies and Long described hypertensive arterio-sclerotic changes in a female mummy of XXIst Dynasty, also artheromatous

⁴⁷ This description could be of facial nerve palsy.

changes in mummies were described by Sandison (1967). Thus it is possible that hypertension would have been present in Ancient Egypt with consequences as headaches etc. Ramses II had atheromatous changes in his temporal arteries.

X Meningiomas

Rogers (1949) described two skulls, one from First Dynasty and another from Twentieth Dynasty, showing hyperostosis probably produced by meningiomas.

XI Trephine

It is arguable whether such an operation was practiced in Ancient Egypt (Ghalioungui, 1973). El-Batrawy (1935) has identified a skull from Nubia where such an operation seems a possibility with a 3 cm hole in the right frontal bone. A painting on a tomb in Beni Hassan shows a barber surgeon squatting in front of a man on whose head he is performing an operation, thought to be trephine (Kamal, 1967).

An early Dynastic skull with 'inflammatory' disease of the left mastoid shows a trephine hole on the same side (MacKenzie and Brothwell, 1967).

Some authorities (Ghalioungui, 1973) believe that the cases suspected as being trephine are in fact biparietal thinning (Lodge, 1967). The author has seen a case of biparietal thinning in his clinical practice in a young female patient aged 24.

XII Hydrocephalus

Such cases were present in Ancient Egypt (El-Batrawy,

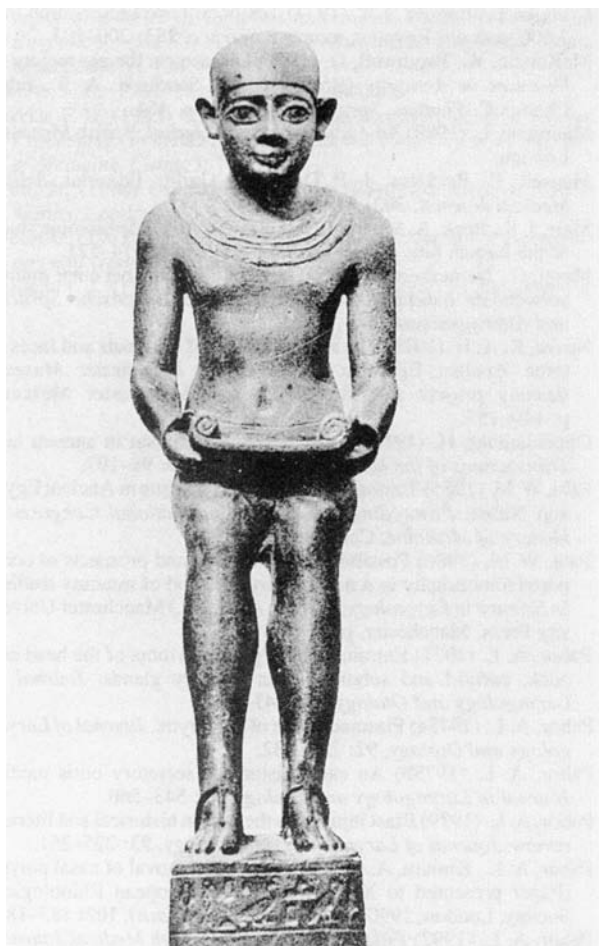


FIG. 29

Imhotep, the father of medicine.

1935). A small statue of Pent-en-nessa in the Egyptian Museum, Cairo, illustrates the condition. The daughters of King Akhenaten and Queen Nefertiti apparently illustrates the condition (Fig. 27), but this is a reflection of the art at the time.

XIII Vomiting (self induced)

In *Literature of the Ancient Egyptians* by Erman translated by Blackman we read: 'He came to his house and found his wife lying down and made cruelly sick. . . . and there she lay and vomited.' Perhaps Bulimia!

XIV Ageing

In the aforementioned reference (Erman, 1927) we read: 'Old age hath come . . . The mouth is silent and speaketh not. The eyes are shrunken and the ears deaf . . . The bone, it suffereth in old age, and the nose is stopped up and breatheth not.' Also of note to read in exhortations to schoolboys: 'But thou art not one that is deaf, that cannot hear, and one speaketh unto him with the hand'.

Legal aspects

There was a strict legal system in Ancient Egypt as evidenced by the presence of legislative laws and of the different levels of courts. The most famous legislative law in

Ancient Egypt we know of in its complete origin is that of Hor-m-heb (Pahor Labib and Sophy Abu-Taleb, 1972). However, in that law there is nothing related to doctors or the practice of medicine. There were other legislative laws in Ancient Egypt, but of these only fragments are referred to in some inscriptions like that of the minister of justice, Rechmire, during the reign of Thutmose III, XVIII Dynasty. The only known laws related to medicine are those concerning the stealing of the mummies where there were many law suites against robbers during the Ramessides period (1330 to 1085 BC).

Diodorus the Sicilian described how the physicians were judged: 'If whilst following the rules laid down in the sacred book, they do not succeed in saving their patients, they are held free from all guilt, if on the other hand, they do anything contrary to those rules, they undergo capital punishment' (Oppenheimer, 1910). Only one example of such punishment is known.

Shakespeare

The high level of medicine in Ancient Egypt is illustrated by Shakespeare in one of his histories when Cerimon the physician says:

' . . . I have heard

Of an Egyptian had nine hours lien dead,
By good appliance was recovered.'

Pericles, Prince of Tyre (Act III, Scene II)

Cerimon, presumably using the 'good appliance' of the Ancient Egyptian physicians, proceeds to revive 'Thaisa' (Fig. 28).

Conclusion

From the foregoing, it is certain that the medical knowledge of the Ancient Egyptians is worthy, of Ebbell's (1937) remark 'Since, then, Egypt and not Greece must be considered the original home of the medical art, we ought not to set up the Greek Aesculapius as the patron genius of medicine, but rather the physician whom the Egyptians gave this dignity, viz Imhotep' (Fig. 29).

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