Skin disease in antiquity

Keith Liddell

ABSTRACT – Dermatological conditions and treatment in antiquity can be assessed by studying ancient skin, artefacts illustrating medical disorders and literature from the classified period as well as Egyptian papyri, cuneiform tablets and the Bible. It is often more useful and informative to study naturally preserved skin rather than artificially mummified skin. Great care must be taken in making retrospective diagnosis. Skin manifestations of internal diseases are, and have always been, of the greatest clinical importance. Study of the past may give an insight into the epidemiological aspects of diseases such as TB, leprosy and syphilis which have spread across the world with serious social consequences.

KEY WORDS: ancient skin, collyrium stamps, medical papyri, mummies, votive offerings

Skin diseases and their management in antiquity can be studied using three types of source: (a) ancient human remains especially skin; (b) artefacts showing medical conditions, specifically skin problems illustrated in human figures on sculpture, pottery or coins, or artefacts related to the treatment of skin disorders, eg surgical instruments, votive offerings and collyrium stamps; (c) ancient literature, especially Egyptian papyri, cuneiform tablets, classical texts and the Bible.

Hippocrates declared that:

> *'The physician must know what his predecessors have known, if he does not wish to deceive both himself and others'.*[1]

In 1945, Winston Churchill addressed the Royal College of Physicians of London and reinforced this opinion:

> *'The longer you can look back, the further you can look forward.'*

How far can we look back with regard to skin disease?

Ancient skin

The skin does not usually preserve for as long or as well as bone. However, a 2-metre long, three-dimensional, fossilised ichthyosaurus (Fig 1), 180 million years old, shows well-preserved fossilised skin over the thorax and fossilised keratin over the flippers. It died of a broken neck, the head is turned 180 degrees, reminding us that trauma then, as now, was one of the greatest dangers to living creatures.

Egypt

Fossilised skin is rare but mummified skin is relatively common and can be remarkably well preserved, with retention of histological features more likely in cases of natural rather than artificial mummification.[2] The chemical mummification process and the resins applied often damaged the skin, particularly the epidermis; furthermore, crude removal of bandaging by thieves looking for treasure often tore away the skin. However, bodies that were naturally desiccated in the hot desert sands of Egypt, 7,000 years ago, show excellent preservation of the skin, hair and nails.

Although great care should be taken in making retrospective diagnoses on mummified skin, some have proven correct, such as a squamous papilloma on an Egyptian mummy which was confirmed on histology.[3]

The most dramatic dermatological finding in mummified skin was on the mummy of the Pharaoh Ramses V (1157 BC). This showed a pustular eruption mainly on the face, lower abdomen and thighs, attributed by some to smallpox, but the diagnosis has never been confirmed microbiologically.[4] My professional experience of cowpox leads me to suggest this as the differential diagnosis. The Ancient Egyptians had kept cows for thousands of years and one of their oldest established, revered goddesses was Hathor, usually portrayed with cow-like ears and eyes. Ramses V succumbed to his condition, as he was already ill, probably with bilharzia.

Sometimes the skin of the mummy is not well preserved but pathological changes in other tissues, eg bones, permits the inference of dermatological manifestations. The famous mummy of the priest Nesparehan (1000 BC) had kyphoscoliosis as well as a psoas abscess attributable to TB,[5] and we may infer that he or others similarly affected exhibited skin manifestations such as scrofula, lupus vulgaris, tubercular sinus or papular tuberculide.

The mummy of the priestess of Amon (800 BC) does not look a fair, fat, fertile, flatulent, female of forty, yet we may speculate that she suffered from

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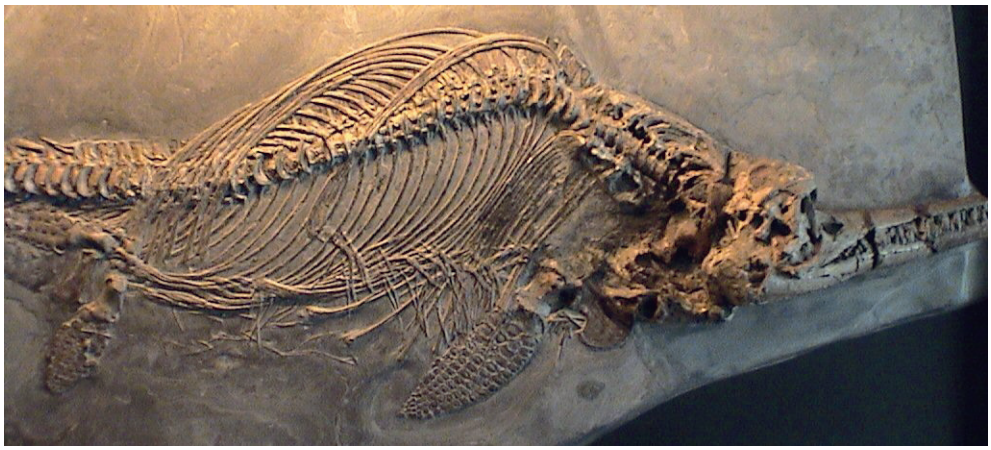

Fig 1. Ichthyosaurus 2 metres long and 180 million years old. Fossilized skin over thorax and flippers (Author's collection © Keith Liddell).

episodes of jaundice and possibly pruritus, as under her liver is a gall bladder stuffed with gall stones.[6]

China

Personal assessment of mummies, dating back 3,700 years, naturally preserved in the Taklamakan Desert in north west China, surprisingly showed that some had European facial characteristics. Dermatological conditions observed in these mummies range from verruca to male pattern alopecia and from nits to solar keratoses.

Europe

Europe lacks the hot sand for mummification, but the bog bodies of Northern Europe who had been sacrificed 2,000 years ago provide tanned skin for assessment.

The oldest preserved European body (5,200 years old), found frozen on the Italian-Austrian border, shows about 60 unusual tattoos consisting of small cuts rather than pricks. This may have been an attempt at analgesia, possibly by severing very superficial nerves, or a primitive process akin to acupuncture.[7] Horizontal grooves in the fingernails indicate poor general health in the months prior to death.

Peru

Many bodies have been naturally mummified in the Atacama Desert in Peru but the most poignant bodies are those of Inca children (*capacocha*), who had been sacrificed up mountains and preserved in the permafrost. The only sacrificed Inca child's body outside Peru was found on a mountain outside Santiago, Chile. This boy was almost perfectly preserved, with magnificently braided hair; a wart was found on his hand and the diagnosis was confirmed histologically.

Artefacts

Examination of ancient artefacts, carvings, pottery and paintings can give indirect evidence of skin conditions.

Egypt

Many ancient Egyptian artefacts raise questions about dermatological health.

Circumcision, as graphically illustrated in the tomb of Ankh-ma-hor (2345 BC) at Saqqara, denoted religious cleanliness, and was therefore common amongst priests and nobles. In addition, balanitis, due to infection in the uncircumcised and cases of lichen sclerosis et atrophicus, may have led to the need for circumcision for medical reasons.

Priests and nobles shaved the body and scalp with copper razors for purity and to reduce lice. A shaved head was considered to have a cooling effect and elaborate wigs were worn on special occasions.[8]

Few copper medical instruments exist from Pharaonic Egypt, and the illustration of medical instruments carved on the wall at the Temple of Kom Ombo dates from the Roman occupation. Many ointment spoons, some dating back 4,000 years, have been found and were used to apply medicated preparations to diseased areas of the body. They were made from ivory, gold, silver or special woods and show images of gods and medicinal plants. The concoctions being applied were thought to be medically appropriate but the display of the deity on the spoon handle introduced elements of religion and magic into the treatment.

Greece

Possibly the oldest Greek artefact depicting skin detail is a Cycladic female figure 2300–2600 BC (British Museum), featuring horizontal lines across the abdomen depicting skin folds or even striae after pregnancy.

Early Greek medicine concentrated on the God Asklepios, and Asklepieia were set up to administer treatment regimes based on incubation and votive offerings. In the former, the patient was put into a trance by music, wine and autosuggestion and dreamt that Asklepios was healing the diseased area whilst a holy snake slithered across it. Votive offerings, of pottery or metal, depicting the organ that required healing were donated by the patient to the Asklepieion, and give an insight into the diversity of medical problems. Votive offerings from Ancient Corinth are amongst the most specific, many depicting the breast; diseases

may have included breast abscesses, eczema of the breast, Paget's disease of the nipple, and intertrigo. Others from the same site show the adult penis afflicted by phimosis, possibly following chronic balanitis, perhaps in some cases associated with diabetes or lichen sclerosis et atrophicus. Varicose veins are shown in votive offerings and the gravitational syndrome with eczema and ulcers must have been common.

One of the most striking 'dermatological' votive offerings exhibits a nodule on the dorsum of the left hand, which could have represented a squamous cell carcinoma associated with sunlight damage. The differential diagnosis includes an abscess which may have ruptured spontaneously or been incised. Dermatologists, however, must suspect a keratoacanthoma, which develops rapidly and dramatically and sometimes spontaneously resolves after a few months.

The custom of votive offerings can still be seen today in Greek Orthodox churches where small medallions with the imprint of a limb, eye, ear or heart are pinned at the margins of the altar.

Another major force in Greek medicine emerged in the fifth century BC: Hippocrates of Cos. He believed in observation and prognostication but not divination and is remembered for the Oath. Although the worship of Asklepios and the importance of the Asklepieion persisted throughout the Roman Empire, followers of Hippocrates were keen to demonstrate that Hippocrates was going to be the eventual successor to Asklepios.

Roman Empire

It is widely acknowledged that the Romans worshipped their ablutions, and supply of water and disposal of waste were vital; their magnificent aqueducts and well-crafted sewers are testament to this. The centre of social and business life was the public baths, to chat and relax, but the actual bathing would have been good for rheumatic conditions and for some skin disorders, and to reduce skin parasites. There was no soap and the bather sweated in a hot room; oils were applied and the grime was scraped off with a strigil, which had a curved metal blade. The oil applied would act as an emollient and helped to treat dry skin and mild pruritic disorders. Scabies and infections spread by body lice would have been reduced by such cleanliness, but fungal and viral infections could flourish.

Ancient Romans were obsessed with depilation and most had a bronze cosmetic set hanging from their belt consisting of a pair of tweezers for depilation, an ear scoop to remove ear wax, and nail cleansers. Pulling hairs could lead to furunculosis, and poking of ears with the scoop could aggravate seborrhoeic dermatitis and exacerbate otitis externa. Regular probing of nails could cause nail dystrophy and spread fungal diseases.

Roman doctors tended to specialise, particularly regarding eyes and, as today, treatment was more medical than surgical. Blepheritis and other eye infections were widespread. A small Roman pottery figure (British Museum) shows a slave rubbing his eyes to relieve irritation, possibly due to conjunctivitis or eczema of the eyelids.

Eye specialists had personalised formulae for salves to treat conditions of the eyes and eyelids.[9] The ointment was often in a soft, solid form and was stamped by the physician with his name, the indications for use and ingredients it contained, using a collyrium stamp, usually made of stone, with letters (abbreviations) cut in reverse on the edges. The Romano-British collyrium stamp illustrated (Fig 2) is probably unique in that it is made from jet, bearing the name of the physician, HON FLAV.

A statue of the Emperor, Septimus Severus, shows a lesion on the centre of the right lower eyelid, compatible with a basal cell carcinoma, with a raised, rolled margin and a depressed centre. Although he died in York (211 AD), he had been exposed to strong sunlight as he was born in north Africa (145 AD).

Another notable example of an artefact depicting a dermatological condition is the magnificent funeral painting on wooden boards from Roman Egypt, discovered by the famous Flinders Petrie, showing a young man with dark hair and a beard who had an erythematous eruption on the face and upper trunk, probably a capillary naevus rather than eczema.

Parthian Empire

Undoubtedly the finest coins exhibiting skin lesions are those of the Parthian Empire, never truly conquered by the Romans. Several of their kings ensured that their familial birthmark (naevus or possibly trichoepithelioma)[10] on the forehead was highlighted on the coinage as it tended to legitimise their rule.

A coin of the Parthian King Mithridates II (123–88 BC) depicts a lesion on the lateral aspect of the left lower eyelid, suggestive of a basal cell carcinoma (Fig 3).

Moche

The most outstanding artefacts illustrating medical and skin conditions are the pottery figures produced by the Moche culture thriving in northern Peru from the second to the eighth century AD. The gruesome destructive changes of South American mucocutaneous Leishmaniasis appear the most dramatic.

Fig 2. Romano-British JET collyrium stamp. Abbreviated name of doctor in reversed out lettering – HON FLAV (Author's collection © Keith Liddell).

Literature

Mesopotamia

Ancient literature is a rich source of medical information and a fragmented, cuneiform tablet, 1900 BC from Ur, Babylon (British Museum), the personal archive of a practising doctor, refers to skin problems and gives practical treatment advice, but there is no magical or religious content.

An example of the practical approach to dermatological surgery in Mesopotamia is presented on the Stele of Hammurabi 1750 BC (Louvre Museum, Paris).[11] The inscriptions list laws, some referring to how much doctors can charge and penalties to be paid for mistakes. There are no mystical connotations.

Egypt

The Egyptian Ebers medical Papyrus (1550 BC) contains many references to skin disorders and relates to conditions and treatments dating back to 3000 BC. It prescribes for skin ulceration the crushing of galena, ox fat, chips of malachite and honey, to be applied as a poultice [12]. The ancient doctor apparently urges, 'Please do not give up doing it'. Anyone who has conducted a leg ulcer clinic will understand this plea.

Ancient Egyptians were plagued by pruritus ani and physicians often specialised in this area; Pharaoh's procto-dermatologist had the title 'Shepherd of the Royal Anus'.[13] A mixture of onion meal, tail of a mouse (plant) mixed with honey and water was to be strained and taken for four days to 'cool the anus' (Ebers Papyrus).[14]

Many prescriptions contained honey, which was important to most ancient civilisations, partly because of its sweetness and its property to mask unpleasant tastes. It was also considered to have medicinal properties of its own as well as being used as a contraceptive. It is not surprising, therefore, that Pharaoh's beekeeper occupied a high position at court and warranted an impressive tomb.

Fig 3. Coin of Parthian King Mithridates II (123-88 BC), showing lesion on left lower eyelid (Author's collection © Keith Liddell).

A pottery shard (Toronto Museum) 1250 BC from Western Thebes may well carry the oldest description of industrial dermatitis (hieratic script), describing the hands of copper metal workers. Their skin is likened to the skin of a crocodile and the stink from the skin is worse than the smell from old fish eggs (presumably due to secondary infection of weeping eczema).

There is no categorical description of leprosy in the Egyptian papyri and there is no evidence of leprosy in human remains from Pharaonic Egypt. The earliest bones showing changes of leprosy date to the Ptolemaic period, and one of the earliest mummified bodies exhibiting leprosy was that of an early Coptic.[15] In classical literature, leprosy was referred to as elephantiasis (elephas).[16] The Bible, particularly the Old Testament, contains many references to skin conditions, which were often labelled as leprosy due to a mistranslation of the Hebrew term *tsara'at* (*zara ath*), which implies uncleanliness.[17] Even Moses and his sister Miriam were suspected of having leprosy in that they had pale, flaky skin lesions, but it is more likely that this was either a fungal infection or even psoriasis.

Greece

In the earliest Greek literature references to medicine were often coincidental. Homer's Iliad tells of a Greek hero, Philoctetes, who on his way to fight at Troy was bitten by a snake. He developed such a painful, foul smelling wound that he had to be left behind on the island of Lemnos. In the play, *Philoctetes*, by Sophocles, it transpires that a chronic ulcer developed on the foot at the site of the wound and persisted ten years, suggesting osteomyelitis.[18] Amazingly, it was healed by the doctor Machaon (son of Asklepios).

Inscriptions at Asklepieia refer to various skin disorders but detailed descriptions are rarely found before the compilation of the Hippocratic Corpus. Diagnostic terms used are not always synonymous with today's diagnoses, eg when Hippocrates used the term psora, he probably referred to 'the itch' or scabies and not psoriasis. When the term 'lepra' is used in the Hippocratic literature, it is being used to describe a 'scaly' condition occurring frequently in spring, and easy to heal, ie not leprosy; it could be guttate psoriasis, eczema or pityriasis rosea.

Numerous succinct dermatological case histories are given in the Hippocratic literature, eg Epidemics 1, case 9:

> *Criton was walking in Thasos and developed foot pain starting in the hallux. He took to his bed with fever, rigors and nausea. He became delirious at night. The next day the foot and ankle were red and swollen, and small dark blisters appeared. The fever and confusion increased and he died*[19]

presumably of bullous cellulitis and septicaemia. In Aphorisms (6.8), Hippocrates declared, 'In patients with dropsy, ulcers are not easily healed'.[20] Few would dispute that statement even today. Hippocrates described patients, with diarrhoea associated

Fig 4. Latrines, Housesteads Roman Fort, Hadrian's Wall, Northumberland (Author's collection © Keith Liddell).

with worm infestations, who can develop swollen joints and a rash resembling whipping marks (wheals).[21] Hippocrates had urged doctors 'Never to trouble a sick patient with discussion of fees ... during the actual illness!' Hippocrates believed that physicians should do to the body the opposite of that which the disease was causing.[22] He was the originator of the principle of applying drying agents to moist areas, and applying emollients to dry areas, ie choosing to use either a cream or ointment.

Roman Empire

Galen (2nd century AD), a renowned Roman physician, extolled the doctrine of Hippocrates and wrote extensively on skin swellings.

An earlier Roman physician, Soranus, wrote a treatise on the skin of the newborn and he strongly advocated that midwives had very short, clean fingernails

The subject of pruritus ani attracted the attention of numerous Roman medical writers and the re-use of sponges in public latrines may have contributed to this disorder with the potential for spread of infections such as ringworm, thrush, ano-genital warts and threadworm. The sponges were rinsed in the running water in the gutter in front of the toilet before being returned to the communal bowl in the centre of the toilet suite (Fig 4). Cornelius Celsus (25 BC–50 AD) recommended treatment for pruritus ani by applying hot hard-boiled pigeon eggs.[23] In the fifth and sixth chapters of *De Medicina* he concentrated on skin diseases, describing amongst many others favus (fungus), varus (acne), porrigo (dandruff), thymia (common warts).

The Roman poet Ovid (died in exile 18 AD) surprisingly wrote *De Medicamine Faciei* 'to instruct ladies in the art of cultivating a clear complexion and preserving it'. He gave detailed advice regarding emollients, moisturisers, cleansers and bases. From the text it would appear that he had taken advice from the most experienced pharmacists of his day.[24]

Conclusions

Professor Michael Adler has repeatedly stated that one of the tragedies surrounding HIV/AIDS 'has been our inability to learn from the past'.[25] There are still doubts surrounding the origins of many serious diseases, which have swept across the world with devastating social and economic consequences, including TB, leprosy and syphilis. (There is no evidence of sexually transmitted syphilis in the ancient world.[26]) Study of the past may shed light on epidemiological aspects of such diseases and give valuable pointers for future management.

Before the introduction of invasive investigations and treatment, the skin was a major mirror of internal health and every would-be physician had to be dermatologically aware. Nothing really changes!

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