



The heritage of the children of Asclepius in modern medicine

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Received: 22 May 2023 / Accepted: 14 July 2023 / Published online: 24 July 2023
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Asclepius (Asklepios, Aesculapius) is considered the god of health and healing in mythology (Fig. 1). He is the son of the god Apollo (god of healing, truth, and prophecy) and the mortal princess Coronis. Asclepius marries Epione and they have children (six girls, three boys) [1] (Fig. 2) (<https://wellcomecollection.org/works/ekhkh79b>). The secrets of medicine were passed on to his children by Asclepius. All children of Asclepius carry his healing power [2]. While Apollo, one of the Olympian gods, was seen as the source of healing, his son Asclepius took over this mission. Over time, the cult formed around it and the mythical stories about it were deified [3].

The steps of health in modern medicine can be listed as follows. Preventive medicine before the disease occurs, understanding the etiology when the disease occurs, treatment, which can be medical or surgical, and the recovery period of the disease (convalescence) [4]. Recently, concepts

such as health promotion, healthy and long life (elderly health), natural nutrition have been included in the modern literature [5]. Interestingly, we see that these steps and concepts, which we think belong to modern medicine, are almost exactly represented and met by the children and family of Asclepius in mythology.

Hygieia is the goddess of health, cleanliness, sanitation and hygiene. Her name is the source for the word "hygiene" [3].

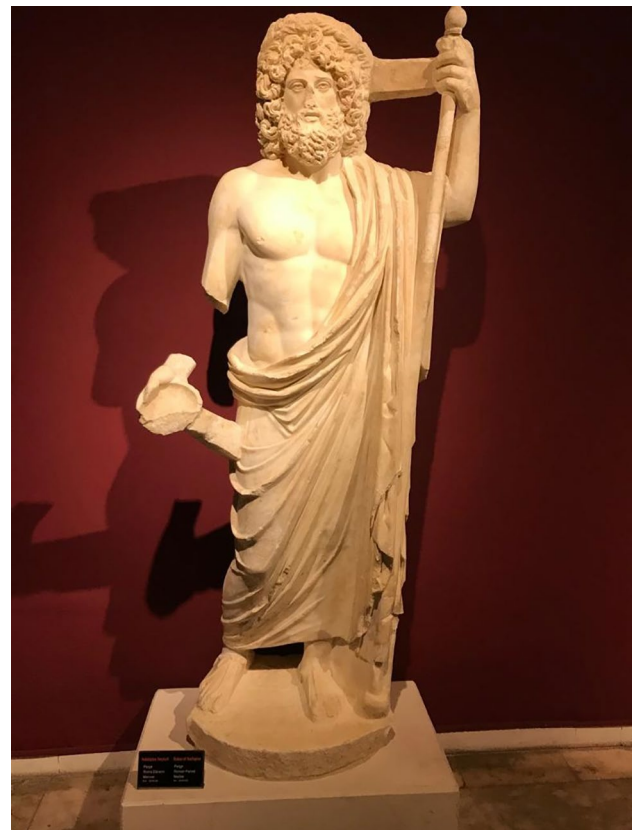


Fig. 1 Asclepius, AD second century, found at Perge, Turkey, Antalya Museum, Turkey. Reproduced from the photograph by Ilgaz Akdoğan with the permission of Antalya Museum of Ministry of Culture and Tourism of Republic of Turkey

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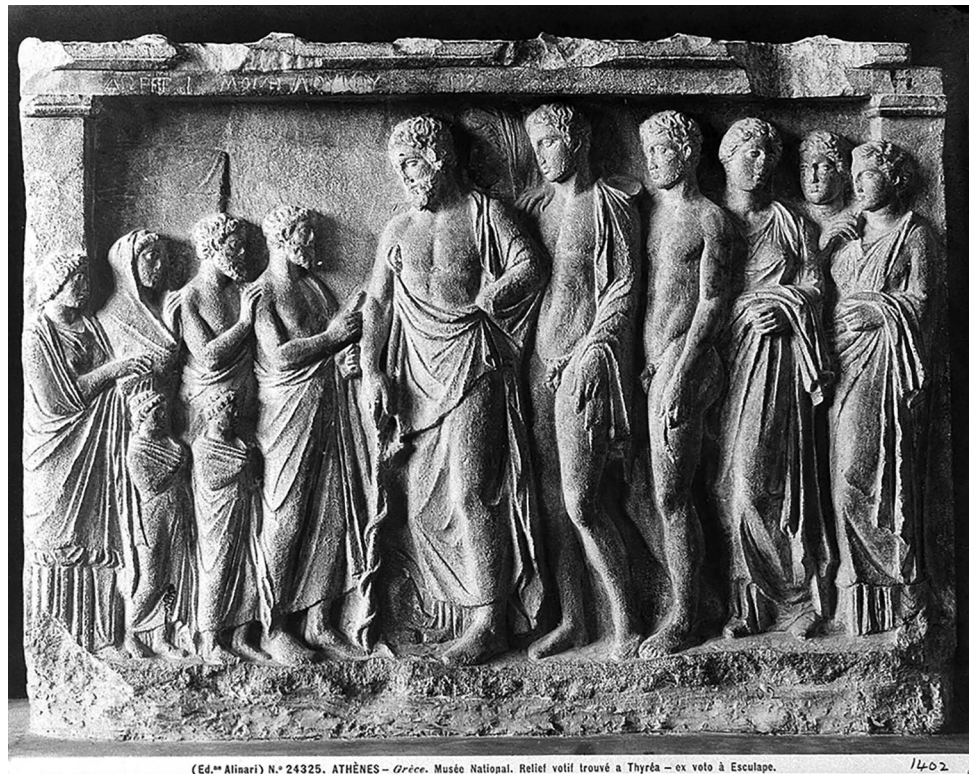
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Fig. 2 Asclepius and his children (Asclepius with his sons Podalirius and Machaon and his three daughters, with supplicants), Greek relief ca 470–450 BC, found at Thyrea, Greece, National Archaeological Museum of Athens, Greece (<https://iiif.wellcomecollection.org/image/L0003119EA/full/full/0/default.jpg>)



(Ed. Alinari) N.° 24325. ATHÈNES – Grèce. Musée National. Relief votif trouvé à Thyra – ex voto à Esculape.

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While her father Asclepius was healing the patients, his daughter Hygieia was providing protection from diseases and maintaining a healthy life (Fig. 3) (<https://wellcomecollection.org/works/cb2cnuuu>). Hygieia's mission emphasizes the importance of cleanliness and hygiene to prevent disease (today's equivalent of preventive medicine) [2].

Machaon, the eldest son of Asclepius and the most famous of his children, is the god of surgeons. "Machaon" means one who cures with warrior and surgical skills. Ancient texts mention that Asclepius taught his two sons the basic principles of medicine. In Homer's *Iliad*, it is written that Machaon and Podaleirius, as the two sons of Asclepius, participated in the Trojan War (ca. 1300 BC), Machaon was both a warrior and a surgeon, and Podaleirius was a physician (Hom.II.2.729-733). Machaon became synonymous with traumatology and surgery in ancient Greece. Among the medical practices that Machaon practiced were cauterization, stopping bleeding, herbal remedies, bandaging, wound care, and surgery [1].

Podalirius, the god who heals unseen evils, participated in the Trojan War with his older brother Machaon. In Homer's *Iliad*, Podalirius is mentioned as a "physician". In this sense, just as Machaon is the father of surgeons, Podalirius who was particularly skilled in diagnosis is also the father of internists [1]. Two interpretations can be made for the evil that does not appear to be the cause of the disease. One of them, which corresponds to the etiology of the disease, is microbes as the source of the disease, and the other is the

feeling of being psychologically ill. In both cases, invisible causes make people sick. That's why Podalirius diagnoses and cures diseases caused by these reasons.

Aegle is the goddess of natural beauty and its name comes from the word "Aegle", meaning "Brightness" or "Glory". It is said that the origin of this name comes either from the beauty of the human body when it is healthy, or from the honor given to the medical profession. On the other hand, Iaso is the goddess of recovery from illness. Iaso was the Greek goddess of recuperation from illness. Aceso was the goddess of the healing process. She is also the goddess who heals wounds [1]. Panacea was the goddess that relieves all kinds of pain, is responsible for medicinal plants and natural treatment. Panacea means "panacea" [3].

Meditrina is the god of long and healthy life. The goddess of health and longevity [3]. It is also stated in the sources that Meditrina is responsible for drug treatment, that is, medical treatment [3]. Asclepius' wife, Epione, is also the goddess of alleviating pain and soothing pain [1, 3]. On the other hand, Telesphorus is the god of healing (convalescence), the god that gives energy and healing power. Telesphorus was a healing god, he was depicted as a tiny person wearing a big hood on his head. Telesphorus was the youngest son of Asclepius. It is thought to have emerged in the cult of Asclepius in Pergamon towards the end of the first century AD, where there was a temple dedicated to his name. This child god figure, which means "to heal, to stand up again" in the Greek language, was included in the Roman pantheon due



Fig. 3 Asclepius and his child Hygieia, found at the Forum of Palaestrina (ancient Praeneste) (Lazio, Italy), Vatican Museums, Pius-Clementine Museum, Rome, Italy (<https://iif.wellcomecollection.org/image/V0048424/full/full/0/default.jpg>)

to its prevalence in the Greco-Roman period. Telesphorus is shown as a child in a long dress next to the statue of Asclepius with a snake-entwined staff [6] (Fig. 4 and Cover).

The priority in health starts with prevention, cleanliness and hygiene (“Hygieia”), if the disease has occurred, it is necessary to investigate its etiology, to understand whether it is microbial/organic or psychological (“Podalirius”), to relieve the pain if there is pain (“Panacea”) after diagnosis with examination (“Podalirius”), it is necessary to soothe the patient (“Epione”), medical treatment (“Meditrina”, “Aceso”, “Iaso”) or surgical treatment (“Machaon”) is recommended if necessary, if there is a wound, it is healed (“Aceso”). During the convalescence period, it is necessary to help the patient to gather energy (“Telesphorus”) and to heal (“Aceso”, “Iaso”). If the patient is old, care should be taken to protect his health (“Meditrina”). While performing all these practices, the honor and dignity of the physician should be protected (“Aegle”). It is important to use natural treatment methods at all stages of treatment (“Panacea”), so that human health and natural beauty are preserved (“Aegle”). If all these steps and stages are applied in a correct algorithm, the patient will be healthy, that is, he will be healed (“Asclepius”).



Fig. 4 and Cover Asclepius and his child Telesphorus, found at Yelten, Antalya, Turkey, AD second century, Antalya Museum, Turkey (also used as cover picture). Reproduced from the photograph by Ilgaz Akdoğan with the permission of Antalya Museum of Ministry of Culture and Tourism of Republic of Turkey

The understanding of modern medicine has shown undeniable progress in the protection and development of health with developing technology and new medical approaches. In addition, excessive specialization, mechanistic view in health, and dependence on technology sometimes cause the biopsychosocial and holistic approach to the patient to be put in the back ground [7]. Centuries ago, the children of Asclepius actually told us the necessity of a holistic approach to the patient and the importance of holistic medicine. Asclepius and his children, without ignoring any of the steps of health, fully explained how the patient should be handled and how to heal with a holistic treatment approach as well as holistic diagnosis. Today, we think it is very important to keep in mind the reflections of mythology and history on modern medicine.

Authors' contributions Ilgaz Akdoğan led the project and the first draft of the manuscript was written by Ilgaz Akdoğan, Ali Çağlar Turgut, Hayriye Dilek Akdoğan, Yaşar Barış Turgut and Hanım Ahu Ural helped to draft the manuscript. All authors read and approved the final manuscript and they declare that they have no conflict of interests.

Availability of data and materials Not applicable: no datasets were generated during this study.

Declarations

Ethics approval and consent to participate Not applicable.

Consent for publication Not applicable.

Competing interests The authors declare that they have no conflict of interest.

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