

# Ancient Greek view of perinatal risk issues: from myth to reality

Ariadne Malamitsi-Puchner, Despina D. Briana

National and Kapodistrian University of Athens, Athens, Greece

*“You are my son,  
But this man was begotten of mortal seed  
By his hero father,  
Who drew after me to your mother.”  
Pindar, Odes, Nemean X, 81-84*

## Keywords

Ancient Greece, perinatal risk issues, cesarean section, prematurity, small for gestational age babies, twin pregnancy.

## Corresponding author

Ariadne Malamitsi-Puchner, National and Kapodistrian University of Athens, Athens, Greece, e-mail: amalpu@med.uoa.gr.

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Perinatology is a new medical discipline, originating in the 1960s, and aiming to prevent, diagnose and treat problems to the mother, fetus and neonate, prior, during and after delivery [1]. As above issues, applying to perinatology, are diachronically present, it is of interest to explore how they were previously viewed and coped with, particularly in ancient times.

Ancient Greece is considered the cradle of Western medicine [2]. Thus, the reasonable question arises, what did Ancient Greeks think about unusual conditions, encountered around delivery, like premature birth, small for gestational age babies, twin pregnancy, as well as inability to give birth vaginally, and thus to apply what we nowadays call an emergency cesarean section (CS).

Reality and myth mingle when trying to extract from ancient sources relevant information. Famous Ancient Greek physicians, as Hippocrates, Galen and Soranus, scientifically describe pregnancy, its complications, and related treatment [3], but also philosophers, as the “super-scientist” Aristotle and Plato, historians and poets refer to them.

The mode of delivery in Ancient Greece was vaginal and CS most probably was not practiced, as it is not mentioned in the works of Hippocrates (5<sup>th</sup> century BC), Galen and Soranus (1<sup>st</sup>-2<sup>nd</sup> century AC) [4]. However, a well known rhetorician and sophist, Gorgias, born 483 BC in the region of Syracuse, the Greek colony in Sicily, is considered to be the only child in the Ancient Greek world who survived following a postmortem CS [5, 6].

In contrast, the extremely unusual entry to the world by CS was a sign and symbol for the extraordinary nature of the specific individual, as well as his deeds. In this respect, CS as mode of delivery was reserved for Gods and heroes, ensuring their supernatural powers. Thus, the God of wine and theatre Dionysus was pulled out of his mother’s abdomen by his father, the King of all Gods Zeus, when his mother Semele was killed in a plot organized by the legal wife of Zeus, the Goddess Hera. The same applied to the God of Medicine Asclepius, who was delivered from Coronis’ – his mother’s – womb, by his father, the God of music, Apollo. A third myth refers to the birth of Adonis, the God, hero and model of male beauty and desire, who was born from the trunk of his transformed to a tree, mother Myrrha. His birth was characterized as a caesarean delivery by Apollodorus, a 2<sup>nd</sup> century BC mythographer [7].

Nevertheless, the repeated description of the extraction of a child from his mother’s womb,

even if this referred to immortals, could reflect an existing, albeit unusual, medical practice [4].

God Dionysus was not only delivered by an emergency CS, but he was also an eight month premature and small for gestational age baby. Therefore, according to one legend, his father Zeus sewed him into his own thigh, from where he was born in due course [8, 9]. According to another legend the delicate baby, needing “special care”, was transported by the winged God Hermes to mount Nysa and given to the care of the Hyades nymphs, who placed him in a cave, having the properties and function of an incubator; Dionysus remained there until he gained catch-up growth [10, 11]. The other mythical seven months premature was king Eurestheus [12], known for ordering Heracles to perform the famous 12 labors.

Ancient Greek historical data refer to premature babies, named “Elitomina” (missing months) and characterized according to gestational age: as six months, or less than 27 weeks, with minimal probability for survival; as seven months, with sufficient survival probability; and as eight months, for whom survival was considered extremely rare [13, 14], a conviction, which lasted up to modern times [15]. The current causes for preterm birth, as well as the ones for intrauterine growth restriction, are with astonishing accuracy stated by Hippocrates, inventor of the term eclampsia, Aristotle, Plutarch and others [16, 17]. Also the lower limit of viability was set 2,500 years ago between 26 to 28 weeks [18]!

Multiple pregnancy in Ancient Greece caused ambivalent reactions and feelings, as twins were viewed either as sacred or as monstrosities [19]. Ancient Greeks believed that the co-habitation of two individuals in the uterus was responsible either for their deep bonds, as in the case of the mythical brothers Polydeuces (Pollux) and Castor, or for murderous relations, as applying to the also mythical twin sisters Helen and Clytemnestra. [20, 21]. Fraternal twins – often of different gender (e.g. the Gods Apollo and Artemis) – as well as identical twins are encountered in several myths. Heteropaternal superfecundation [22], the fertilization of two or more ova from the same cycle by sperm from separate acts of sexual intercourse in quick succession, described and explained by Aristotle [19, 23] was the basis for the belief of the mortal or immortal state of each of a pair of twins in several myths. The nowadays known genetic cause for twinning finds its expression in the repetition of twin births in

the same mythical Ancient Greek families from generation to generation [24].

Perinatal risk issues over time preoccupied mankind. But in Ancient Greece, besides the amazing scientific insight into many of them, cesarean section, prematurity, small for gestational age babies and twin pregnancy have assumed the charm of fantasy and were incorporated in fascinating myths applying to Gods and heroes.

### Declaration of interest

The Authors declare that there is no conflict of interest.

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