POST-MORTEM CESAREAN SECTION AND EMBRYOTOMY: MYTH, MEDICINE, AND GENDER IN GRECO-ROMAN CULTURE

POSTMORTALNI CARSKI REZ I EMBRIOTOMIJA – MIT, MEDICINSKA ZNANOST I ROD U ANTIČKOJ KULTURI

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Summary

This article focuses on cesarean section carried out after the mother’s death to rescue the living infant and on embryotomy, a medical procedure to save the mother described as early as the Hippocratic writings (5th to 4th century B.C.) and practiced until the times of Paul of Aegina (7th century A.D.). The available sources do not mention cesarean section on a living mother to save the infant. On the other side, writings on embryotomy state clearly that Greek and Roman physicians strove hard to save women’s lives. Written in ancient, male-centered societies, these texts convey an unequivocal positive attitude towards women, despite current misogynist assessments by philosophers and physicians who considered women inferior, based on their organic and biological features.

Key words: medicine history, postmortem cesarean section, embryotomy, obstetrics, gender studies

Postmortem cesarean delivery is portrayed as a funeral rite in Greek and Roman myths and literature, but there is no such reference in the medical texts of the Hippocratic Corpus (470-360) B.C.) or other sources. However,

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according to Mircea Eliade, myths should no longer be regarded as fable or invention:

> For the past fifty years, at least, Western scholars have approached the study of the myth from a viewpoint markedly different from, let us say, that of the nineteenth century. Unlike their predecessors, who treated the usual meaning of the word, that is as “fable”, “invention”, “fiction”, they have accepted it as it was understood in the archaic societies, when, on the contrary, “myth” means a “true story” and, beyond that, a story that is a most precious possession, given it is sacred, exemplary, significant. [1]

Since mythological constructions seem to be based in reality, the myths of Dionysus and Asclepius may bring some insights into the beginnings of this procedure. Dionysus was the son of Zeus and Semele, a mortal woman. In the ancient records, Dionysus was born of normal (vaginal) delivery, as Hesiod reported in the 8th century B.C.:

> Semele, Cadmus's daughter, lay with Zeus
>  And bore to him a brilliant son, a god,
>  Glad Dionysus, mortal though she was,
>  And now they both have joined the ranks of gods.

(Tragedy, 940-944) [2]

Another text from the archaic period (7th/6th century B.C.) relates Dionysus’ birth in a similar way:

> For some say it was on Drakanon; Ikaros swept by the wind,
>  Say others; others, Naxos, brilliant, unsown neonate;
>  Some that it was by Alpheios, the river whose eddies swirl deep,
>  That pregnant Semele bore your bird to Zeus whom thunder delights;

(Homeric Hymn 1 “To Dionysus”) [3]

Later, as the mythographer Hyginus (ca. 64 B.C. - 17 A.D.) related, the jealous goddess Hera, wife to Zeus, punished Semele with grief and death. Dionysus was rescued from the fire by the god Mercury (Fabulae, 179). [4]

Asclepius was also celebrated in an early Homeric Hymn. Labor or delivery problems are not mentioned:

> With Asclepius, plague-healing son of Apollo, my song begins.
>  King Phlegyas’ neonate, bright Coronis gave birth on the Dotion plain
>  To this great joy for humans who charms ill pangs away.
>  And so farewell to you, lord; I pray to you in song.

(Homeric Hymn 16 “To Asclepius”) [5]
Asclepius was the son of Apollo, the god of medicine, and Coronis, King Phlegyas’ daughter, a mortal woman. In later versions, Coronis fell in love with Ischys, son of Elatus, who consented to the union because he did not know that she had already lain with Apollo and that she was pregnant with Asclepius. When Apollo learned that she had slept with a stranger, he killed her in anger, but he rescued the neonate when her body was already in the burning pyre. A poetic narrative of this episode by Pindar (ca. 522-443) is one of the first reports of a post-mortem cesarean section in ancient Greece:

Thus he spoke, and with his first stride came and snatched the neonate from the corpse, while the burning flames parted for him. (Pindar, Pythian Ode Three, 43-44) [6]

Although there are other variants of Asclepius’ legend, this version was widely accepted and Asclepius’ birth by cesarean delivery became a striking element of his myth. [7] Another god, Adonis, was reported as having been delivered by cesarean section by the mythographer Apolodoro (c. 180-119 B.C.) (III, 184-187). [8] Ovid, the Roman poet (43 B.C.-17 A.D.), recreated the myth of Adonis being cut out of the myrrh tree into which Smyrna, his mother, had been transformed. Smyrna was punished for the incestuous relationship she had with her father Cyniras, compelled by the goddess Aphrodite (Metamorphoses, X, 503-513). [9]

Postmortal cesarean section has also been portrayed in other religious myths. In India, it was practiced to save infant’s life, but it is possible that Hindu funeral rites were also intended to purify a woman’s corpse before incineration because she had carried an impure neonate. [10] Cesarean delivery had other religious implications as well. It has been portrayed as a “clean delivery”, so as to avoid the passage through the dark birth canal, associated with an expression attributed to Saint Augustine (345-430 A.D.): “inter
faeces et urinas nascimur” (“We are born between faeces and urine”). In India, Buddha, Prince Siddhartha Gautama (563-486 BC), was born pure and clean from the right flank of his mother Maya. This scene is depicted by a relief from the 2nd to 5th century A.D. kept in the Berlin Museum für Völkerkunde [11]. Maya died eight days later. The mother’s death after delivery was considered a good omen for someone who had a great destiny ahead. According to the religious texts, Maya died because one who delivers a Buddha has no other mission in life. [12]

In Rome, cesarean delivery was only exceptionally performed by a physician; more than anything else, it was a kind of mythical gesture [13]. An early law, Lex Regia attributed to Numa Pompilius (753–673 BC) says this:

Negat lex regia mulierem quae praegnans mortua sit, humari, antequam partus ei exciditur: qui contra fecerit spem animantis cum gravida peremisse videtur. (The lex regia forbids the burial of a pregnant woman before the young has been excised: who does otherwise, clearly causes the promise of life to perish with the mother.)

According to Jeffrey Boss, the earliest record of the application of this law was from about 500 B.C. (coinciding with Pindar’s Pythian Ode Three). Postmortem cesarean section was also practiced by the Jews in the Roman period. Boss studied Jewish religious sources and found records that cesarean section was performed on living women who had survived. [14]

When the Roman Empire emerged, the Lex Regia turned to Lex Caesarea. This law has been preserved in the Justinian’s Code (529 A.D.) as “Mortuo Inferendo”. [15]

Postmortem cesarean delivery was a mysterious and ambiguous operation, involving the dead mother’s mutilation and the salvation of the living
neonate. Virgil (70-19 B.C.) conveyed a strange and tragic feeling surrounding Lichas, a warrior from the *Aeneid*. Lichas was not born like the others; he had been cut out from his dead wretched mother and therefore sacred to Phoebus. Saved by the steel, he would be threatened by the steel until his death. [16]  

Next, Lichas fell, who, not like others born,  
*Was from his wretched mother ripp’d and torn;*  
*Sacred, O Phœbus, from his birth to thee;*  
*For his beginning life from biting steel was free.*  

(Virgil *Aeneid* 10. 315-317) [17]  

In Rome, death was treated with contempt and respect, but it also caused strange fascination. Violent and premature death was imbued with special powers. [18] For Pliny the Elder (23-79 A.D.) a woman’s death when giving birth was regarded as a good omen:  

*It is a better omen when the mother dies in giving birth to the child; instances are the birth of the elder Scipio Africanus and of the first of the Caesars, who got that name from the surgical operation performed on his mother; and the origin of the family name Caeso is also the same. Also Manilius who entered Carthage with his army was born in the same manner.* (Pliny *N. H.* 7.9.) [19]  

Apparently, it was Pliny who created the Roman legend that caesarean section was named after Julius Caesar’s delivery. Children born by postmortal operation were called “Caesones”. There are no documents from Julius Caesar’s time referring to his birth by abdominal incision. Gaius Julius Caesar (100-44 B.C.) was born in Rome on the July 13. Not much is known about his birth or childhood, but when Caesar was stabbed at the Forum, he was 55 years old, and Aurelia, his mother, was still alive. [20]  

According to Hossam E. Fadel [21], the origin of the term caesarian section is still unclear. Another theory is that the word is derived from the Latin verb “caedere”, which means “to cut”. Pieter W. J. van Dongen believes that the expression is a creative etymology and that it is not related to Julius Caesar. Mythology and legends emphasize the superhuman trait of being born by cesarean section delivery. It is possible that the term Cesarean section was derived from the Lex Caesarea, but not from the legend about Julius Caesar’s birth. [22] The surname Caesar was attached to the Julius family, beginning with Sextus Julius Caesar the praetor, who lived in about 200 B.C., although the reason for it remains unknown. One possibility is that a
member of the family was born with a lock of hair called “caesaries” or that they had blue or bluish-grey eyes “oculi caesii”. Augustus, the adopted son of Julius Caesar, became emperor at the age of 27. He was the first Emperor of Rome, and all the succeeding emperors kept the name of Caesar. [23]

The connection between Julius Caesar and cesarean section has been maintained in a medieval manuscript Li Fet des Romains (The Deeds of the Romans), a chronicle of the life and accomplishments of Julius Caesar, written in Old French around 1213-14 [24]. It is a compilation mainly of the works of Caesar himself, Lucan, Suetonius, and Sallust. This work was very popular until the late Middle Ages. It had more than fifty copies, many of them illuminated. Several illustrate Julius Caesar’s birth by cesarean section. An anonymous Portuguese translation of the French manuscript from the 15th century gives an account of Caesar’s birth by cesarean delivery:

Quando veo o tempo que Gaios Julio Cesar ouve de nascer, sua madre arrebentou por hũa ilharga e ele saiu por ali. E quando naceo tragia os cabelos mui compridos, e porem lhe poseram nome Cesar, por que esta palavra «Cesar» quer dizer cabeladura ou cortadura.

(When the time came for Gaius Julius Caesar to be born, his mother burst by a flank and he went out from it. When he was born, his hair was very long, so he was called Cesar, which means hair or a haircut.) [24]

In the late Middle Ages, a German manuscript Württembergische Hebammenordnung [436] (c. 1480) describes the operation that would be performed by a midwife if the mother was dead or dying and if she had expressed the will that her neonate should be cut off her womb. [25] Lurie S. Glezerman provided a full translation of the technique described in this manuscript. [26]

In the Renaissance, postmortem cesarean section became a medical procedure. In his 1581 book L’hystéromotokie ou enfantement césarien, François Rousset (c.1503-1603) called the operation “cesarean birth” to honor the alleged birth of Caesar [27]. Jacques Guillemeau (1550–1613) in his book on midwifery called the operation “La section Caesarienne”. [28]

In 1545, Charles Estienne (1504-1564) provided the first illustration demonstrating the procedure for a postmortem cesarean section to deliver a living neonate. [29] Physicians attempted to save the lives of both the mother and the child. They realized that the shorter the interval between maternal death and the removal of the fetus, the better the chance for infant’s survival. [30]
The mortality rate for these neonates was extremely high. Some doctors, among whom Portuguese Rodrigo de Castro (1546-1627), realized that the chances of the fetus’s survival plunged after maternal death and explained the reasons:

*Physicians should be warned of a very important matter. After the mother's death, the neonate can not survive in the womb, unless it is removed from the uterus when the soul migrates from the maternal body or shortly before, while the mother is in agony and the vital spirits are still present. The reason is that when the mother's life and her movements cease, the neonate's life and its heartbeats also cease, which depends on the neonate's distension and contraction of two umbilical arteries. When this movement ceases in the maternal body it also ceases in the neonate, because it does not carry the spirit through its mouth before cutting the navel. While the neonate is in the uterus it cannot breathe through its mouth, wrapped in membranes, closed within the uterus walls and surrounded by so many membranes and fluids; therefore we must believe that all those who were greeted by the name of Caesar, such as Scipio, Caesar, Manlio, Sanctio and others who survived were removed when the mother's heart was still beating or the mother was still alive.*

*(Castro, R., *De universa mulierum medicina.*) [31]*

There are records of embryotomy in Indian medicine. According to an ancient Indian concept, described in the *Satapatha Brahmana*, when the embryo was fully formed, it came out of the uterus by itself. If the mother died, the fetus was pulled out and, if the fetus was already dead in the womb, it was carefully removed through the vagina [32]. Embryotomy was known to the Jews of the Roman time. The “Mishna”, body of Jewish religious law dating back to 140 B.C. refers to this practice:

*R. Simeon says, “The child was mashed before it [the afterbirth] came out” (“Mishna” 3:4 E)*

*[If] it emerged in pieces or feet foremost – once the greater part of it has one forth, lo, it is as if it were fully born.” (3:5F) [33]*

Greek physicians of the Hippocrates School (4th century B.C.) practiced embryotomy even earlier. The book *De natura pueri* (*Nature of the Child*) brings the earliest description of a normal delivery. The fetus started the birth process, stretching and widening the uterus, moving its head first, and acquiring the strength to rupture the membranes. [34] When labor was
difficult, a physician was called. When the fetus was still alive and could not be driven out, it would be a very dangerous condition. The woman would be tied to the bed and shaken vigorously by assistants to bring the fetus to the proper (cephalic) position in order to pull it out. A dead fetus was easily recognized when a hand appeared first. The mother would also receive Cretan dittany (Origanum dictamnus) or castor oil boiled in the wine of Chios to help her expel the fetus. When a transverse position or fetal death was diagnosed, embryotomy was carried out. This procedure was described in De exsectione foetus [35]. The first step of the so called “embryoulkía” (embryotomy) was to cover the woman’s head with a white linen cloth, so that she would not be frightened and could not see what was being done to her. Then the doctor would try to bring out the fetus, grasping its protruding hand, cutting its clavicle and then bringing it to the cephalic position and pulling it out. [35]

Aurelius Cornelius Celsus, a Roman encyclopedist of the 1st century, makes a mention to drugs to help expel the fetus:

> If the foetus is dead, to render its expulsion more easy, pomegranate rind should be rubbed up in water and so used. (Celsus, V, 21) [36].

He also advises how to treat a woman whose neonate has died shortly before delivery, explaining the treatment of what he considered to be a very risky condition. One of the problems he identifies is the closing of the uterus orifice. When the fetus lies in an oblique position and the doctor can not bring it to the cephalic or pelvic position, its head should be cut off and drawn out with a hook. When the rest of the body does not come out easily, it should be dismembered before being drawn out. Celsus describes traction maneuvers and the use of hooks to perforate the head to make it collapse. Embryotomes (πίδστρον) were scissor-like instruments used to smash the fetus’s head. Knives were used to cut the members. (De Medicina VII, 29) [37].

Celsus was the first to describe fetus’s decapitation. According to Buchheim, the surgical operation that he described is not very different from the embryotomies practiced in his time (about 1937), save for the use of modern surgical instruments [38].

This technique would fully be established in the late 2nd century by Soranus of Ephesus, who had full knowledge of all that his predecessor knew. He referred to Herophilus, Diocles the Carysteian, and Demetrius the Herophilian as those who most had studied and practiced gynecology and obstetrics [39]. Soranus clearly described the causes of difficult labor related to maternal and fetal problems and fetal death, and described the methods
to diagnose and treat them. One of the problems he referred to is the swollen body of a dead fetus. Later editions of his books provide drawings of the fetus in the uterus. Soranus sought to apply the podalic version in transverse fetal positions. Cephalic and pelvic presentations posed little problem, unless the fetus was too big, hydrocephalic, or delivery involved twins. He described in detail how to deal with all the obstacles that could appear when the fetus did not respond to manual traction and more forceful methods of extraction by hooks and embryotomy were called for:

*For even if one looses the infant, it is still necessary to take care of the mother.*

(Soranus, IV, 3 On the Extraction by Hooks and Embriotomy) [40]

This statement of Soranus shows how ancient Greek and Roman doctors valued women’s life and how they strove to keep them alive. The improved Soranuś technique rendered obsolete all kinds of shaking, prescribed in the Hippocratic text:

*All such shaking must be rejected, for a shock to the uterus leads to ruptures and sympathetic reactions. One should use previous instructions and should advise the parturient that she is in no danger and should take courage.*

(Soranus IV, 7) [41].

All his procedures are kind and gentle to prevent damage. He strove to keep the mother and the neonate alive and minimize complications:

*One should do everything gently and without bruising, and should continually anoint the parts with oil, so that the parturient remains free from sympathetic trouble and the infant healthy; for we see many alive who have thus been born with difficulty.*

(Soranus, IV, 8) [42]
Difficult deliveries were almost certain to lead to maternal and fetus death. Therefore, the mother and the fetus were closely monitored for vital signs and uterine necrosis:

...For if it is alive, the parturient has labor pains and strains down, her abdomen is found warm and on inserting of the fingers the fetus itself is seen to be flushed. But if it is dead, the parturient does not have pains in this manner and her abdomen is cold; upon inserting the fingers the fetus appears to be neither warm nor gasping for breath; moreover, if a part has prolapsed it is found black and necrotic. We diagnose an affected uterus by the touch, using the signs which have been mentioned in connection with its diseases. If, however, something happens to the woman during parturition we recognize those who are in danger during neonate birth from the pulse and respiration, and those who are lost from disappearing pulse and the fact that they present signs of death.

(Soranus, IV, 6) [44]

Soranus described all the maneuvers to bring the fetus to an easier position and the cuts and incisions needed to drain fetal liquids (brain mass, intestinal contents, blood) to facilitate the removal of the fetus with the least harm for the woman.

Surgical instruments mentioned in his book - hooks, knives, embryotomes - that have been preserved up to the present time accurately illustrate the techniques used. Vaginal specula and other gynecological and obstetric instruments were found all over the Roman Empire. Embryotomes were very rare; one of these tools was found in Asia Minor (2nd century A.D.) [45]. They testify to the interest of physicians for the study and treatment of women's diseases. According to

Reconstruction of an ancient cranioclast, according to Meyer-Steineg (Künzl E., 73).
Rekonstrukcija antičkog kranioklasta, prema Meyer-Steinegu (Künzl E., 73.)
the medical historian Paul Diepgen, embryotomy was the greatest achievement of ancient obstetrics. [46].

Surgical instruments used in gynecological and obstetric surgery, pp. 1 and 2- curettes; pp. 3 and 4- uterine probes; p. 5 - bronze probe; p. 6- fragment of a cranioclast; p. 7- embryotomy hook; p. 8- embryotome; p. 9- small embryotome hook (Diepgen P., 262).

Kirurški instrumenti koji su se rabili u ginekologiji i opstetriciji, str. 1. i 2. – kirete; str. 3. i 4. – maternične sonde; str. 5. – brončana sonda; str. 6. – djelić kraniovlasta; str. 7. – kuka za embriotomiju; str. 8. embriotom; str. 9. – mala kuka za embriotomiju (Diepgen P., 262.)
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40. Soranus, 190.

41. Soranus, 184.

42. Soranus, 189.


44. Soranus, 184-5


46. Diepgen P., 272.

**Sažetak**

U ovom se članku govori o carskom rezu koji se izvodio kao pogrebni ritual s namjerom da se spasi živo novorođenče te o embriotomiji, medicinskom postupku opisanom još u Hipokratovim zapisima (iz V. do IV. st. pr. n. e.) koji se izvodio sve do vremena Pavla iz Egine (VII. st.) sa svrhom da se spasi majka. U dostupnim se izvorima ne spominje carski rez koji se izvodi na živim majkama da bi se spasilo dijete. S druge strane, zapisi o embriotomiji jasno daju do znanja da su se grčki i rimski liječnici borili za život majke. Ovi tekstovi, nastali u tadašnjim androcentričnim društvima prenose jedan nedvojbeno pozitivan stav prema ženama, koji izrazito oduđara od mizoginih ocjena antičkih filozofa i liječnika koji su žene smatrali manje vrijednima zbog njihovih organskih i bioloških obilježja.

**Ključne riječi:** povijest medicine, postmortalni carski rez, embriotomija, rodne studije