

# A tragic case of complicated labour in early Byzantium (404 A.D.)

J. Lascaratos<sup>a,\*</sup>, D. Lazaris<sup>b</sup>, G. Kreatsas<sup>c</sup>

<sup>a</sup>Department of the History of Medicine, Medical School, National Athens University, Athens, Greece

<sup>b</sup>First Clinic of Obstetrics and Gynecology, Medical School, National Athens University, Athens, Greece

<sup>c</sup>Second Clinic of Obstetrics and Gynecology, Medical School, National Athens University, Athens, Greece

Received 22 March 2002; received in revised form 26 April 2002; accepted 26 April 2002

## Abstract

**Objectives:** Presentation and comment on the problematic delivery of the Byzantine empress Eudoxia's stillborn child. **Study design:** The original Greek language Byzantine histories, chronicles and hagiographical sources were investigated. Comparisons were then made of the knowledge of obstetrics among contemporary and ancient physicians. **Results:** The case of Eudoxia's delivery is described in various literary sources with details regarding the fatal clinical picture of the parturient after the embryo's death. The study of early and contemporary medical texts proves that in similar cases conservative treatment was preferred but embryotomy was followed in the event of failure. **Conclusions:** Eudoxia's labour represents a characteristic paradigm of the difficulties involved in the confrontation of complicated deliveries in mediaeval times, often resulting in the death of both the mother and embryo. The treatments follow the ancient Hippocratic, Hellenistic and Roman traditions and influence medieval European medicine, thus constituting significant roots of obstetrics.

© 2002 Elsevier Science Ireland Ltd. All rights reserved.

**Keywords:** Ancient obstetrics; Byzantine obstetrics and gynecology; Embryotomy; Empress Eudoxia's childbirth; History of medicine

## 1. Introduction

In the Byzantine state (324–1453 A.D.), the continuation of the Roman empire when Constantine the Great transferred the capital from Rome to Constantinople in the east, medicine was developed following the Hippocratic, Hellenistic and Roman traditions. The study of the works of celebrated physicians of that era reveals that many of them had especially been occupied with the specialties of gynecology and obstetrics. Among them were Oribasius (4th century), Aetius of Amida (who devotes the 16th book of his work 'Tetrabiblus' to diseases of women and to obstetrics, 6th century), Alexander of Tralles (6th century), Paul of Aegina (7th century), Leo the Iatrosophista (9th century), Nicolaus Myrepsus (13th century) and some midwives, such as Aspasia (4th century) and Metrodora (6th century) [1].

The above-mentioned Byzantine physicians and midwives refer in their writings to various diseases such as vaginitis, mastitis, inflammation and cancer of the uterine cervix, breast and external genital organs, prolapse and fleshy tumors of the uterus (perhaps fibromyoma), atresia

of the genitals, hemorrhages, amenorrhea, dysmenorrhea, menopause, sterilization, recurrent abortions, mole cysis (gestational trophoblastic disease), dystocia, topics of contraception and so on [2–7].

The Byzantine physicians also describe some surgical techniques in detail. Among them Oribasius [3] describes a technique for the removal of breast abscesses; Aetius [4] gives a detailed technique of hysterectomy in cases of prolapse of the uterus, following the ancient Greek physician Soranus of Ephesus (1st century A.D.), who specialised in gynecology and obstetrics.

The same physician [4], based on the lost work of the ancient Greek doctor Philumenus, and Paul of Aegina [5] give a meticulous description of embryotomy and of the confrontation of atresia of the external genital organs. Metrodora [6] also suggests a surgical restoration of the virgin hymen.

Among the cases referred to in Byzantine literature, there are several of difficult labour [8,9]. Of great significance is a case unknown in the broader medical bibliography, the difficult and finally fatal labour of Eudoxia (Fig. 1), wife of emperor Arcadius (395–408 A.D.). The treatment of her case constitutes a representative example of the confrontation of difficult childbirth in early Byzantium and later in Europe.

\* Corresponding author. Present address: 164b Hippocratous street, 11471 Athens, Greece. Tel.: +30-1-642-6486; fax: +30-1-779-6745.  
E-mail address: giannop@power.ece.ntua.gr (J. Lascaratos).



Fig. 1. The empress Eudoxia as presented on a copper coin during the reign of Arcadius, her husband (Numismatic Museum of Athens. With permission).

## 2. Material

Information about the childbirth of Eudoxia, her stillborn child and her own death, is given by the chronicler George Cedrenus [10] (11th century), who writes that “Eudoxia died just before the expected childbirth when the child died in her belly. During the labour pains, the newborn was not delivered but remained in the womb dead for 4 days. Due to that fact, it decomposed and the mother’s womb was affected and neither delivery of the embryo nor ceasing of the mother’s pains occurred. Someone placed on her belly a magic letter (epistle); immediately an abortion occurred and together with the embryo the soul of the unfortunate empress also departed.”

Another chronicler, John Zonaras [11] (11th century), writes that the embryo rotted in the uterus and the decay spread throughout the mother’s genital tract.

More information about the event, however, is provided by a series of ‘Lives’ of St. John Chrysostome, written by a number of unknown contemporary authors [12]. St. John was patriarch of Constantinople (398–404 A.D.) and in conflict with empress Eudoxia, who exiled him.

The authors of his ‘Lives’ attributed the death of Eudoxia and her child to this exiling, which had happened 3 months before, expressing the view of the populace.

All the manuscripts of the ‘Lives of St. John Chrysostome’ write that the first symptom that appeared in the mother was abundant hemorrhage and creation of a fistula in the external genital organs. There followed decomposition of the empress’ body and appearance of worms with unbearable malodour which could not be covered by all the known perfumes of the world. All the attempts of her physicians were fruitless. Some biographers maintain that the emperor, angry at the reactions of the mob, punished Eudoxia with whips and confined her to her room; depression and remorse provoked the origins of her fatal disease.

One of those Lives [13] writes that “the empress suffered great pains which the wisdom of the physicians could not alleviate or even provide consolation for. Her child died in her womb and obstructed her bowels in such a way as to produce disgust and choleric vomit accompanied by bitterness of the pharynx and cessation of the functions of the intestines to the extent that she could not defecate. After that, as happens to the dead, worms appeared on her body and there followed more intense vomit which she threw out violently, and diarrhoea, thus emptying her stomach. From her genitals, poured out great quantities of blood mixed with worms. At the same time a high fever gripped her whole body which did not seem anything other than a real pyre. No sleep came to her eyes, as is usual with victims of fever. The witnesses say that they saw her suddenly raised spasmodically from her bed and shouting “Why are you fighting me, John?” and because this condition worsened, as if she were going to hell, she called the Abbot Arsakios, requesting him to give her holy communion and his blessing. When she obtained that, the child was aborted dead. Her entourage was satisfied and ordered a litany to be celebrated but, while that was taking place, she vomited out her soul. So great was the malodour of that environment that all the herbs of India, all the perfumes and all the arts of those occupied with these scented substances could not achieve anything, and her body smelled as if she had died many days previously”.

## 3. Discussion

Although information about the difficult labour of empress Eudoxia is satisfactory, there are poor records relating to medical confrontation of her case. However, the descriptions of the chroniclers and especially of the contemporary hagiographers, written in the original Greek language, allow us some *ex post facto* hypotheses and conclusions.

It seems that the intrauterine death of the embryo, as well as the failure of its abortion, caused endometritis, parametritis, peritonitis, paralytic ileus, septicemia and death. The peritonitis and ileus were manifested by rocket-like explosive vomiting of faeces and diarrhoea. This vomiting and discharge of the infected uterine contents together with elements of the dead decomposed embryo and placenta, obviously caused the unbearable malodour which no deodorant could combat. Septicemia followed, manifested by persisting high fever, disturbances of the conscience, uneasy movements, anxiety and delirium (fantasy conversations with the ex-patriarch) [14].

At that time, as today, in such cases the main aim was frequently the removal of the embryo from the uterus, either by conservative or surgical means. We must consider it certain that around the empress were assembled all the best-qualified physicians of the state, who had usually studied at the famous medical school of Alexandria and were acquainted with the then-known latest methods.

Oribasius [15] (4th century) refers to a series of abortive potions, following the rich Hippocratic [16] and Galenic [17] tradition. The Byzantine doctor [15] confirms that the administration of the herb juniper and the root of the herb centaury aborts either the dead or the living embryo, as does a potion from paste of the herb calamintha mixed with myrrh and cedar. In case of failure, intrauterine injections of several substances by ‘metrenchytes’ [18] (special syringes) were often used. Oribasius [3] suggested infusions of decoctions of knotted marjoram and oil of lilies in cases of menopause and similar infusions were later applied by Aetius [4] to various diseases of the uterus and vagina. Metrodora [6] also used inunctions to the uterine cervix with oil of almonds to facilitate the delivery.

Perhaps injections of various substances were made into the empress’ uterine cavity in order to alleviate her discomfort from the contractions or to effect the quicker abortion of the embryo. Possibly, manipulations to the uterine cervix (i.e. rupture of membranes, use of several instruments to achieve its dilatation) resulted in abundant hemorrhage and infection which spread throughout the genital tract, due to lack of asepsia.

In Byzantine times, in cases when the above-described treatments failed, embryotomy was carried out. This technique is well-known from the books of the *Corpus Hippocraticum* [16] ‘About diseases of women. Book I’, ‘About epicyesis’ and ‘About cutting of the embryo in the womb’ where the physicians describe, in abundant amazing detail, various techniques of embryotomy. This operation is described later by Soranus (1st century A.D.) [19], Celsus [20] (1st century A.D.), Aetius [4] (6th century A.D.) and Paul of Aegina (7th century A.D.) [5]. The above illustrates the continuous application of this method by physicians from Hippocratic until Byzantine times.

It is thus curious why the Byzantine physicians did not proceed to embryotomy in the case of empress Eudoxia. Perhaps the Court entourage rejected the idea and delayed a decision so long that her bad state had worsened her condition beyond the possibility of undertaking surgical intervention. In a contemporary instance of difficult labour, known from a hagiographical source [21], the physicians, summoned by the midwives after their unsuccessful endeavours with external manipulations for 7 days to achieve delivery, at first considered proceeding to embryotomy but soon changed their mind after a mature estimation of the clinical situation of the weak woman.

It is rational to make the hypothesis that a similar state of the patient might have led to the powerlessness of the physicians to undertake a difficult embryotomy in the case of the empress, as they were not sure of a successful result. A defensive position perhaps weighed against such a decision.

It is worth noting that even two centuries after Eudoxia’s stillbirth an eminent physician, Aetius [4], seems to be sceptical about this surgical procedure, preferring to give abortive substances, and only in extreme cases to proceed to embryotomy. He was a skilful surgeon with considerable

personal experience and, certainly, he would have had better knowledge of the frequent complications of such a procedure in that era.

In conclusion, the labour and fatal childbirth of empress Eudoxia, represents a characteristic example of the consequences of complications of a difficult pregnancy and delivery for both mother and child in the mediaeval era. It is equally an example of the difficulties which confront the physicians in such desperate cases.

The study of the contemporary texts indicates that the doctors in such cases preferred conservative treatments and, in the event of failure, resorted to surgical intervention (embryotomy), following the Hippocratic, Hellenistic and Roman traditions.

Knowledge of obstetrics in this epoch influenced mediaeval European medicine, exactly as in the case of other branches of medicine [22], constituting significant roots of the modern specialty. It is noteworthy that even half a century ago, in intrauterine deaths obstetrics procedure was similar, namely oxytocin was administered in order to achieve dilatation and, in cases of failure of delivery, an embryotomy was performed.

Perhaps this tragic case of empress Eudoxia is the first well-documented one in the literature.

## References

- [1] Hunger H. *Byzantine Literary*, vol. 3. Athens: National Bank Cultural Foundation, 1994. p. 107–53.
- [2] Kislinger E. Gynecology in everyday life in Byzantium. In: *Proceedings of the First International Byzantine Symposium. The everyday life in Byzantium*. Athens: National Foundation for Scientific Research, 1989. p. 135–52.
- [3] Raeder I. *Oribasii collectionum medicarum reliquiae*, vol. 4. Berlin: B. Teubner, 1933. p. 280–304.
- [4] Zervos S. *Aetii sermo sextidecimus et ultimus*. Leipzig: Mangkos, 1901. p. 17–33, 146–54.
- [5] Heiberg IL. *Paulus Aeginetae*, vol. 2. Berlin: B. Teubner, 1924. p. 113–18.
- [6] Congourdeau M-H. “Métrodôra” et son oeuvre. In: Patlagean B, editor. *Maladie et Société à Byzance*. Spoleto: Centro Italiano di Studi sull’ Alto Medioevo, 1993. p. 57–96.
- [7] Troianos S. Magic and Medicine in Byzantium. *Top Obstet Gynecol* 1995;9:309–27.
- [8] Lascaratos J. Diseases of the Byzantine emperors. Athens: J and J Hellas, 1995. p. 50–3.
- [9] Papademetriou ND. Diseases and accidents of the Byzantine imperial families. Athens: Melissa, 1996. p. 220–5.
- [10] Bekker I. *Georgii Cedreni historiarum compendium*, vol. 1. Bonn: Weber, 1831. p. 585–6.
- [11] Büttner-Wobst T. *Ioannis Zonarae epitomae historiarum*, vol. 3. Bonn: Weber, 1897. p. 96–7.
- [12] Halkin F. Douze récits byzantins sur saint Jean Chrysostome. Bruxelles: Société des Bollandistes, 1977. p. 38–528.
- [13] Ommeslaeghe van F. Une vie acéphale de saint Jean Chrysostome dans le *Batopedinus* 73. *An Boll* 1976;94:352–3.
- [14] Fink W. “Geburtshilfe” in Byzanz. *JÖB* 1986;36:24–37.
- [15] Raeder I. *Oribasii libri ad Eunapium*. Amsterdam: A. Hakkert, 1964. p. 486.
- [16] Pournaropoulos G, Emmanuel K. Hippocrates. The collected works, vol. 5. Athens: A. Martinos, 1974. p. 107–89, p. 334–73.

- [17] Kühn CG. Claudii Galeni opera omnia, vol. 20. Lipsiae: C. Cnobloch, 1833. p. 271–2.
- [18] Milne JS. Surgical instruments in Greek and Roman times. London: Clarendon Press, 1907. p. 105–7.
- [19] Temkin O. Soranus gynecology. Baltimore: The Johns Hopkins University Press, 1991. p. 189–96.
- [20] Spencer WG. Celsus on medicine, vol. 3. Cambridge: Harvard University Press, 1994. p. 455–61.
- [21] Grégoire H, Kugener M-A. Marc le Diacre vie de Porphyre, évêque de Gaza. Paris: Les Belles Lettres, 1930. p. 24–7.
- [22] Miller TS. The birth of the hospital in the Byzantine Empire. Baltimore: The Johns Hopkins University Press, 1997. p. 200–1.