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The history of cesarean delivery

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Cesarean delivery is the most common surgical procedures worldwide [1]. It has been part of human culture since ancient times, and there are tales in both Western and non-Western cultures of this technique. Numerous references to cesarean section appear in ancient Hindu, Grecian, and Roman. However, the early history of cesarean sec-

tion remains shrouded in myth and is of dubious accuracy [2].

Even the origin of “cesarean” has apparently been distorted over time. According to several authors [3], it derived from the birth of Julius Caesar. However, historians are certain that Julius Caesar was not delivered by cesarean because, it was not at-

tempted on living women until the early 17th century, and the mother, Aurelia, was alive at the time of Britain invasion [4].

Many medical and magical texts concerning child-birth and labor and delivery are known from ancient Egypt. Most of them are spells, incantations, or prescriptions for the woman in labor in order to accelerate the delivery or protect the unborn child and the woman. To the best of our knowledge, there are no description of cesarean delivery, but there are several birth-scenes with parturients sitting on a throne supported by midwives.

During the Roman Emperor, the cesarean delivery was usually performed to save a baby from a dying mother. It was law under Caesar, and therefore cesarean. Another possible origin include the verb "*caedere*", meaning to cut.

During the decades, the indication for cesarean have changed [5-8]. Ancient Jewish literature, early, suggests that the surgical delivery of a baby was possible without killing the mother. The first recorded case of a mother surviving the cesarean delivery was in the 1580s in Switzerland where Jacob Nufer is said to have performed the cesarean delivery on his wife. In the 1794 in the United States, Elizabeth Bennet was the first woman who survived to a cesarean birth, performed by her husband, a physician. In the 1820 James Miranda Stuart Barry performed a cesarean delivery masquerading as a man, and serving as doctor for the British Empire in Africa. It was the first cesarean birth performed by a woman, and the first one performed in Africa. Anyway, other techniques were performed at that time in Africa. Ugands at the end of 1800's, used a banana wine to sanitize the skin. They performed midline skin incision, and performed, for the first, uterine massage to reduce the hemorrhage [9, 10].

In the 1817 a triple tragedy occurred and changed obstetrics. Princess Charlotte's death after giving birth to a still-born son on November 5th, 1817. After 50 hours, Princess Charlotte delivered a still-born 9-pound son. His head had been in a sideways position and was too large for her pelvis. After the delivery Charlotte seemed to do well at first, and she was even given some port wine to drink after two days without food (she mentioned later that the alcohol made her tipsy), but after several hours she became restless, had difficulty breathing, and her pulse became rapid and feeble. She died for hemorrhage and infection. Three months after this event, Sir Richard Croft, the obstetrician,

committed suicide [11]. Charlotte's death changed history and led to the conception, birth and reign of Queen Victoria.

Cesarean delivery changed with the changing to general surgery and anesthesia.

In the 1846 at Massachusetts General Hospital diethyl was first used, and then spread to Europe. In England Queen Victoria, had chloroform administered for the births of two of her children.

Despite improvement in technique and anesthesia, mortality rates remained high due to infections [12], until the introduction of germ theory and then antibiotics. Firstly, Semmelweiss had the great intuition that influenced the development of the "Germ Theory of Disease" for the puerperal sepsis pathogenesis and in 1847 he introduced a chlorine solution handwashing before patients were examined on the labor ward. At the time of Semmelweiss, two maternity clinics were at the Vienna General Hospital. The First Clinic had an average maternal mortality rate of about 10% due to puerperal fever. The Second Clinic's rate was considerably lower, about 3%. The only major difference was the individuals who worked in the First Clinic, including professors and medical students, who performed postmortem examinations. Semmelweiss had the intuition that medical students carried dangerous "cadaverous particles" on their hands from the autopsy room to the First Clinic. The germ theory of disease had not yet been accepted in Vienna, and Semmelweis concluded some unknown "cadaverous material" caused childbed fever.

Once anesthesia, antisepsis, and asepsis were firmly established, obstetricians were able to concentrate on improving the techniques employed in cesarean section, including cesarean closure, and hysterectomy for hemorrhage by Eduardo Porro. Eduardo Porro of Milan performed the first planned cesarean hysterectomy in which both the infant and the mother survived. He documented his operation in a paper published in 1876. Porro advocated hysterectomy combined with cesarean section to control post-partum hemorrhage and to prevent infection [14].

As this brief history suggests, the indications for cesarean section have varied tremendously through our documented history. They have been shaped by religious, cultural, economic, professional, and technological developments – all of which have impinged on medical practice. But if the clinical standard of the surgical procedures of

cesarean section and anesthesiological techniques improved over time the increasing use of cesarean section, especially in some areas of the world, generated a dramatic increase in the occurrence of the Placenta Accreta Spectrum (PAS), a iatrogenic disease with severe maternal morbidity [15] and in some cases also maternal mortality [16]. Another associated risk is also the uterine rupture, associated with very high rate of maternal morbidity and mortality [17, 18].

A sort of historical nemesis a surgical technique adopted to save mother and fetus determined itself instead severe damages for the mothers but for the fetuses too, often prematurely born. So, the evident abuse of cesarean section, firstly introduced to improve the birth process in situations of obstructed labour, became nowadays an example of the erroneous medical interventionism. Several inappropriate indications like maternal choice or arbitrary decisions of the gynecologists determined a profound change in the natural biology of human parturition once based upon the respect of the physiologic evolution of the birth process.

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