

# Caesarean section – etymology and early history



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The expression caesarean section (CS) is most probably creative etymology and not derived from the CS allegedly performed on the mother of Julius Caesar. Mythology and legends emphasise the importance of being 'superhuman' if delivered by CS, and therefore avoid mentioning normal vaginal delivery. Many religions describe procedures to be followed after death as a result of CS.

The first reliable account of a CS was in 1610 in Germany. The first successful CSs, i.e. proven survival of mother and child, were described in The Netherlands (1792), South Africa (1826), UK (1834), USA (1835) and Germany (1841). Maternal mortality decreased rapidly in the last quarter of the 19th century owing to new techniques, such as closing the uterine wound, drainage, asepsis, anti-sepsis, and elective CS.

## Etymology

Stories of the birth of an infant through an opening in the mother's abdomen have been told and recorded in many cultures. The second king of Rome, Numa Pompilius (715 - 673 BC), proclaimed in his *Lex Regia* (Royal Law), 'It is forbidden to bury a pregnant woman before her foetus has been cut out of the womb ...'. This may be considered the first description of a caesarean section (CS), even though it was performed *post mortem*.<sup>1</sup>

The expression CS has always been associated with Julius Caesar (100 - 44 BC), the assassinated Roman leader. During the subsequent period of the Roman Empire, the *Lex Regia* became the *Lex Caesarea*, so it might be that the term CS was derived from this law, but certainly not from Julius Caesar. He was the first child of Aurelia, who delivered 7 children, and who died in 54 BC. Because of the presumed 100 per cent maternal mortality as a result of CS in those days, it is highly improbable that Julius Caesar was born via the abdominal route (Fig. 1).<sup>2</sup>

The family of the Julii in Rome were given the honorific addition Caesar after the defeat of Hannibal by generals Scipio Africanus and Mamilius in Carthage in 202 BC during the 2nd Punic War. Roman coins of this epoch depict an elephant on one side, with the Consul of Rome, Sextus Julius Caesar, on the other (the Punic word *caesar* means elephant). This name of honour was perpetuated in the family.

The historian Pliny the Elder (AD 23 - 79) described that the above-mentioned generals were born via an abdominal operation and were called *caesones*, i.e. a *caeso utero*,



Fig. 1. Woodcut of the purported birth of Julius Caesar by CS<sup>2</sup> in 1506 (permission to reproduce acquired in 1993<sup>9</sup>).

probably to signify the importance of not having been born via the normal vaginal way.<sup>3</sup> It may be possible that CS is a pleonasm – comprising both *secare* and *caedere* (to cut). This explanation, however, is also unlikely to be true, because the past tense of *caedere* is *caesus*; hence the correct combination should be *sectio caesa*.

From Pliny<sup>3</sup> to Rousset<sup>4</sup> in 1581, a strong correlation between etymology and genealogy occurs. Some 'facts' are explained by the word itself – the so-called creative etymology. The most well-known example is the announcement of *on lit on dort* (one can sleep on a bed) on signboards at inns in 17th-century France. If *on lit on dort* were pronounced rapidly, it was understood to be *au lion d'or*. Thereafter, many inns in Europe were named 'In the golden lion'. The book *Etymologies* by Isodore of Sevilla (AD 570 - 636) made the unequivocal connection between Julius Caesar and CS: '... he was called Caesar because he was cut from his dead mother's womb, had abundant hair (*caesarius*) and blue eyes (*caesius*)'. It was by way of this text that the idea of Caesar's birth by CS was perpetuated.<sup>5</sup>

In 1212, a source stated: 'Caius Julius Caesar was so long in his mother's belly that one had to cut open the belly so that he could come out; and one found that he had a lot of hair. Therefore one gave him the name Caesar, for this word can mean hair or cutting.'<sup>6</sup>

In 1581, Rousset coined the terms *enfantement caesarien*.<sup>4</sup> After his treatise, the vernacular literature adopted the terminology caesarean section (English), *opération césarienne* (French), *Kaiserschnitt* (German), *sectio caesarea* (Latin), *keizersnede* (Dutch), *taglio caesarea* (Italian), *kejsersnit* (Danish), and *keisersnee* (Afrikaans).

## Mythology and legends

In Greek mythology, the description of abdominal births emphasises the superhuman origin of the gods. By means

of this procedure, the human way to be born (*inter faeces et urinam*) was avoided. One story describes how Zeus, who had seduced Semele, delivered their son Dionysus by CS, who was born prematurely. Zeus implanted him in his loin until he could be removed at term.<sup>7</sup>

Asklepios, the god of medicine, was delivered by CS by his father Apollo. When Apollo learned that his beloved nymph Coronis had been unfaithful, he had her killed by Artemis. In compassion, he removed their son from her body on the funeral pyre (Fig. 2).<sup>7</sup>

The myth of invulnerability has been worded beautifully by Shakespeare in *Macbeth*: '... for none of woman born shall harm Macbeth'. So Macbeth thought he was invincible. However, in the last scene, Macduff tells that he was born by CS ('Macduff was from his mother's womb untimely ripp'd'). He then kills Macbeth.<sup>8</sup>

## Religions

In most religions, abdominal delivery is well known. Buddha was born via the right flank of his mother Maya around 560 BC. However, she died on the 5th day after the operation. Brahman was born via the umbilicus of his mother.<sup>1,2</sup>

CS was also known to the Jews because the *Mishna* (body of Jewish religious law) of 140 BC stated that '... in the case of twins, neither the first child which shall be brought into the world by a cut in the abdomen, nor the second, can receive the rights of primogeniture, either as regards the office of priest or succession to property'.<sup>1,2</sup>



Fig. 2. Woodcut of the birth of Asklepios by his father Apollo in 1549<sup>7</sup> (permission to reproduce acquired in 1993<sup>9</sup>).

Christians in the Middle Ages drew attention to CS in 1245 in the Synods of Lyon, in 1280 in Cologne, and in 1310 in Trier; it was proclaimed that a priest was obliged to perform a CS – or at least to be present – immediately after the death of a pregnant woman in order to baptise the infant.<sup>1,2</sup>

A series of woodcuts began to appear in southern Germany in the second half of the 15th century. They showed the Antichrist's birth by CS. The birth via CS symbolises the complete destruction of both mother and child. The woodcut<sup>7</sup> in Fig. 3 depicts CS by lifting the Antichrist through the incised abdomen. From the woman's mouth emerges another devil as a token of the soul leaving the body, while an angel tries to enter through a window.

## Early history

The first successful CS was allegedly performed in 1500 by a Swiss sow gelder, Jacob Nufer, on his wife. According to legend, she survived, bearing more children and dying at the age of 77.<sup>1,2,7</sup>

In 1581, François Rousset from Montpellier, France, described 14 'successful' operations, although he had not performed or witnessed any of them.<sup>4</sup>

The first fully authenticated and documented case of a CS performed on a living woman took place in Wittenberg, Germany, on 21 April 1610. Ursula Opitz had an accident

during pregnancy, resulting in a huge abdominal hernia through which the uterus protruded. When labour started, it was clear that a spontaneous delivery was impossible. After consultations with three physicians of the medical faculty, midwives and priests, a CS was performed by the surgeon Jeremias Trautmann. The baptismal register of the Wittenberg church states that '*dises Kindt ist aus Mutter Leib geschnitten uns als baldt dohaim getaufft*'. The patient died suddenly from infection 25 days after the procedure but the child Martin lived for 9 years.<sup>7,9</sup>

The French obstetric surgeon François Mauriceau disagreed with performing a CS on living women because 24 cases of CS were carried out in the first half of the 17th century in Paris without a single maternal survivor.<sup>10</sup>

## First successful caesarean sections

A successful CS has been defined as the survival of both mother and child for at least 1 month.<sup>11</sup>

**The Netherlands.** Ynzonides<sup>12</sup> described 95 CS cases from 1637 to 1874. The first successful CS was performed in 1792 on a woman with a severely contracted pelvis.

**South Africa.** The first and first successful CS was performed on 25 July 1826 by the army surgeon Dr James Barry in Cape Town. The newborn boy was named after his doctor, namely James Barry Munnik, and lived for 78



Fig. 3. Woodcut 15th century – birth of the Antichrist via CS<sup>7</sup> (permission to reproduce acquired in 1993<sup>9</sup>).

years.<sup>11</sup> Interestingly, Dr James Barry (1789 - 1865) was actually Margaret Ann Bulkley, who changed her name at 20 years of age to be admitted to study medicine in Edinburgh. Barry graduated in 1812 with the thesis 'Merocele' and, after several hospital posts in London, joined the army in 1813. Promotion to assistant surgeon in 1816 brought him to the Cape of Good Hope. After her death, it was discovered that she had successfully concealed her sex for 56 years.<sup>13</sup>

**UK.** The first CS was carried out in 1738, but the first successful one in 1834.<sup>1,11,14</sup>

**USA.** The first CS was recorded in 1827, and the first successful one was performed in 1835 in Philadelphia by Dr Nanerede.<sup>15,16</sup>

**Germany.** The first CS<sup>7</sup> in 1610 has been described above, but the patient died after 25 days. The first successful one was described in 1841.<sup>17</sup>

**Uganda.** In 1879, the English explorer Felkin witnessed a CS performed by natives in Uganda. According to his account, both mother and infant survived.<sup>18</sup>

## Maternal and perinatal mortality

Infection and bleeding were the principal causes of maternal death during those early days. The uterine incision was left open as it was thought to be superfluous or even dangerous to close it because of uterine retraction. Therefore, only the abdominal wall was closed and dressed

with different materials. Maternal and perinatal mortality was almost 100%.<sup>19</sup>

The turning point in the development of performing a CS was the monograph by Max Sänger in 1882 in Leipzig.<sup>20</sup> He closed the uterine incision with silver wires. However, the first closure of the uterine incision is attributed to Frank Polin<sup>21</sup> in 1852 in the USA – 17 operations were performed with closure of the uterine wound, reducing the maternal mortality to 50%. Sänger described these cases and developed his hypothesis of uterine closure from those early American experiences.

Other important developments in preventing maternal mortality were the successful introduction of anaesthesia with ether by Jackson and Morton in Boston (1846),<sup>22</sup> the technique of asepsis by Ignace Semmelweis in Vienna (1847),<sup>23</sup> and antisepsis by Lord Lister in Edinburgh (1867).<sup>24</sup>

Until 1880, maternal mortality varied from 18% (UK) to 100% (France), and perinatal mortality from 28% (UK) to 55% (USA).<sup>1</sup>

Eduardo Porro was unable to stop severe bleeding after a CS in 1876 and proceeded with a supracervical hysterectomy after placing a piano wire around the lower uterine segment. The stump was secured in the abdominal wall, thus preventing much-dreaded peritonitis. Using this procedure for all his successive patients, maternal mortality decreased to 15%.<sup>25</sup>



Fig. 4. Abdominal birth by a bull, Zaans Historisch Museum, The Netherlands, from an engraving dated 1647 (permission to reproduce acquired in 1993<sup>9</sup>).

Notwithstanding the closure of the uterine wound or performing a hysterectomy, the high incidence of peritonitis remained the major cause of maternal morbidity and mortality. Harris<sup>16</sup> tabulated 100 CSs in the USA. He stated that women with uterine rupture and even cattle-horn lacerations<sup>26</sup> showed a lower maternal mortality than the average figure of 56%; hence his prominent conclusion that delays are dangerous and generally fatal.<sup>16</sup>

A compilation of 9 historic cattle-horn lacerations<sup>26</sup> showed a maternal mortality of 44%. The first recorded cattle-horn 'CS' took place in 1647 in Zaandam, The Netherlands. Jacob Egge's wife was attacked by an enraged bull and was 'tossed a story high into the air and her belly torn open in the assault'. The infant escaped severe injury and lived for 9 months, but his mother survived for 4 hours only (Fig. 4).

After 1898, maternal mortality continued to decrease to about 10%, as extraperitoneal techniques were devised to prevent peritonitis.<sup>27</sup> The prophylactic and therapeutic use of antibiotics after World War II significantly improved the incidence of severe postoperative infections.<sup>28</sup>

The original incisions were made longitudinally; hence the high incidence of uterine rupture (8%) in the following pregnancy. The dictum of Cragin in 1916 – 'once a caesarean section, always a caesarean section' – was much later replaced by 'once a caesarean section, trial of labour after selection', because of transverse incisions with lesser chance of uterine rupture (0.5%) introduced after 1882.<sup>28</sup>

Complications of CS in modern times are steadily decreasing, leading to an increased world-wide tendency to perform CSs. However, morbidity and mortality are still more prevalent after CS than after vaginal delivery;<sup>29</sup> hence *primum nil nocere* (the only wish of parents and doctors is a healthy mother and infant).

The extensive history of CS after 1900 is beyond the scope of this article. Therefore, for good overviews of the last 100 years of CS, see references 1, 9, 14 and 28.

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