Closure versus Non-Closure of the Rectus Muscle at Cesarean Section

Thesis
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By
Walaa Ahmed Mohamed
M.B.B.Ch.; 2006
Faculty of Medicine
Ain Shams University
Resident of Obstetrics and Gynecology, Al-Galaa Teaching Hospital

Under Supervision of
Professor Dr. Gasser El-Bishry
Professor of Obstetrics and Gynecology
Faculty of Medicine
Ain Shams University

Dr. Wessam Magdy Abuelghar
Assistant professor of Obstetrics and Gynecology
Faculty of Medicine
Ain Shams University

Faculty of Medicine
Ain Shams University
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Introduction

Cesarean section originally performed as a last resort, mostly on dead or dying mothers **(Todman, 2007).** However, cesarean delivery now is the most common obstetric intraperitoneal operation, and the number of cesarean deliveries is increasing worldwide **(Malvasi et al., 2009).**

Cesarean delivery is performed for maternal or fetal indications, or both. The leading indications for cesarean delivery are previous cesarean delivery, breech presentation, dystocia, and fetal distress. These indications are responsible for 85% of all cesarean deliveries **(Placek and Taffel, 1988).**

A variety of surgical techniques for all elements of the cesarean section operation is in use. Many have not yet been rigorously evaluated in randomized controlled trials and it is not known whether any are associated with better outcomes for women and babies. Because huge number of women undergoes cesarean section, even small differences in postoperative morbidity rates between techniques could translate into improved health for substantial numbers of women, and significant cost savings **(The CORONIS trial collaborative group, 2007).**

Cesarean delivery yields a lower transverse abdominal scar and variable degrees of weakness of the abdominal muscles, especially if the patient has repeated cesarean deliveries (**Coldron et al., 2008)**. These changes contribute directly to the development of a disturbed abdominal contour **(Borg-Stein and Dugan, 2007).**

Despite this, there is no widely accepted technique for performing cesarean section, numerous approaches have been described and technique often varies from surgeon to surgeon **(Walsh, 2010).**

Aim of the work

The aim of the study was to compare closure and non-closure of the rectus muscle during primary cesarean section as regard early postoperative outcomes and effect on abdominal contour.

Review of literature

Cesarean Section

1. Introduction

A Caesarean section (often C-section, also other spellings) is a surgical procedure in which one or more incisions are made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies, or, rarely, to remove a dead fetus. A late-term abortion using Caesarean section procedures is termed a hysterotomy abortion and is very rarely performed. The first modern Caesarean section was performed by German gynecologist Ferdinand Adolf Kehrer in 1881 **(Lydon-Rochelle et al., 2000).**

A Caesarean section is often performed when a vaginal delivery would put the baby's or mother's life or health at risk. Some are also performed upon request **(Finger, 2003).**

The rate has risen to 46% in China and to levels of 25% and above in many Asian, European and Latin American countries. The rate has increased in the United States, to 33% of all births in 2012, up from 21% in 1996 **(ACOG and SMFM , 2014).**

Across Europe, there are differences between countries: in Italy the Caesarean section rate is 40%, while in the Nordic countries it is 14% **(ACOG , SMFM, 2014).**

2. History

The mother of Bindusara (born c. 320 BCE, ruled 298 – c.272 BCE), the second Mauryan Samrat (emperor) of India, accidentally consumed poison and died when she was close to delivering him. Chanakya, the Chandragupta's teacher and adviser, made up his mind that the baby should survive. He cut open the belly of the queen and took out the baby, thus saving the baby's life **(Lurie, 2005).**

According to the ancient Chinese Records of the Grand Historian, Luzhong, a sixth-generation descendant of the Yellow Emperor, had six sons, all born by "cutting open the body". The sixth son Jilian founded the House of Mi that ruled the State of Chu (c. 1030–223 BCE). In the Irish mythological text the Ulster Cycle, the character Furbaide Ferbend is said to have been born by posthumous Caesarean section, after his mother was murdered by his evil aunt Medb. The Babylonian Talmud, an ancient Jewish religious text, mentions a procedure similar to the Caesarean section. The procedure is termed yotzei dofen **(Lurie, 2005).**

Caesarean section usually resulted in the death of the mother; the first recorded incidence of a woman surviving a Caesarean section was in the 1580s, in Siegershausen, Switzerland: Jakob Nufer, a pig gelder, is supposed to have performed the operation on his wife after a prolonged labor. However, there is some basis for supposing that women regularly survived the operation in Roman times **(Boss, 1961).**

For most of the time since the 16th century, the procedure had a high mortality rate. However, it was long considered an extreme measure, performed only when the mother was already dead or considered to be beyond help. In Great Britain and Ireland, the mortality rate in 1865 was 85%. Key steps in reducing mortality were:

- Introduction of the transverse incision technique to minimize bleeding by Ferdinand Adolf Kehrer in 1881 is thought to be first modern CS performed.
- The introduction of uterine suturing by Max Sänger in 1882.
- Modification by Hermann Johannes Pfannenstiel in 1900, see Pfannenstiel incision.
- Extraperitoneal CS and then moving to low transverse incision.
- Adherence to principles of asepsis.
- Anesthesia advances.
- Blood transfusion.
- Antibiotics.

European travelers in the Great Lakes region of Africa during the 19th century observed Caesarean sections being performed on a regular basis. The expectant mother was normally anesthetized with alcohol, and herbal mixtures were used to encourage healing. From the well-developed nature of the procedures employed, European observers concluded they had been employed for some time **(Pain, 2014).**

3. Prevalence

In the United Kingdom, in 2008, the Caesarean section rate was 24%. In Ireland, the rate was 26.1% in 2009. The Canadian rate was 26% in 2005–2006. Australia has a high Caesarean section rate, at 31% in 2007. In the United States, the rate of C-section is around 33% and varies from 23% to 40% depending on the state in question **(ACOG and SMFM, 2014).**

In Italy, the incidence of Caesarean sections is particularly high, although it varies from region to region. In Campania, 60% of 2008 births reportedly occurred via Caesarean sections. In the Rome region, the mean incidence is around 44%, but can reach as high as 85% in some private clinics **(ACOG and SMFM, 2014).**

With nearly 1.3 million stays, Cesarean section was one of the most common procedures performed in U.S. hospitals in 2011. It was the second-most common procedure performed for people ages 18 to 44 years old. Caesarean rates in the U.S. have risen considerably since 1996. The procedure increased 60% from 1996 to 2009. In 2010, the Cesarean delivery rate was 32.8% of all births (a slight decrease from 2009's high of 32.9% of all births) **(Hamilton et al., 2009).**

3.1. Changing rates

A study found that in 2011, women covered by private insurance were 11% more likely to have a caesarean section delivery those covered by Medicaid**.** China has been cited as having the highest rates of C-sections in the world at 46% as of 2008 **(Moore et al., 2014).**

Studies have shown that continuity of care with a known carer may significantly decrease the rate of Caesarean delivery, but there is also research that appears to show that there is no significant difference in Caesarean rates when comparing midwife continuity care to conventional fragmented care. More emergency Caesareans-about 66%-are performed during the day rather than during the night **(Goldstick et al., 2003).**

In the United States C-section, rates have increased from just over 20% in 1996 to 33% in 2011. This increase has not resulted in improved outcomes resulting in the position that C-sections may be done too frequently **(ACOG and SMFM, 2014).**

The World Health Organization officially withdrew its previous recommendation of a 15% C-section rates in June 2010. Their official statement read, "There is no empirical evidence for an optimum percentage. What matters most is that all women who need caesarean sections receive them" **(Moore et al., 2014).**