MANUAL PLACENTAL REMOVAL VERSUS CORD TRACTION FOR PLACENTAL DELIVERY AT CAESAREAN SECTION

Thesis

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بسم الله الرحمن الرحيم

(رَبِّ أَوْزِعْنِي أَنْ أَشْكُرَ نِعْمَتَكَ الَّتِي أَنْعَمْتَ عَلَيَّ وَعَلَى
وَالِدَيَّ وَأَنْ أَعْمَلَ صَالِحًا تَرْضَاهُ وَأَصْلِحْ لِي فِي ذُرِّيَّتِي إِنِّي تُبْتُ
إِلَيْكَ وَإِنِّي مِنَ الْمُسْلِمِينَ)

صدق الله العظيم

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LIST OF ABBREVIATIONS

Abbrev.	Meaning
11ß-HSD1	11ß- hydroxy steroid dehydro-genase enzymes-1
11ß-HSD2	11ß- hydroxy steroid dehydro-genase enzymes-2
ADPase	Adenosine diphosphatease
AFP	Alpha-fetoprotein
ATP	Adenosine triphosphate
ATPase	Potassium adenosine triphosphatase and calcium adenosine triphosphatase
BC	Before Century
CCT	Controlled Cord Traction
CD	Cesarean Delivery
CDs	Cesarean Deliveries
CEACAM1	Carcinoembryonic Antigen related adhesion molecule 1
CK	Creatine kinase
CO2	Carbon dioxide
CRH	Corticotropin releasing hormone
CRHBP	Corticotropin releasing hormone binding protein
CRHR1	Corticotropin releasing hormone receptor type 1
DHEAS	Dehydroepiandrosterone sluphate
EVTs	Extravillous trophoblasts .
GLUT	Glucose transporter
HB	Hemoglobin
HCG	Human chorionic gonadotropin
HCT	Hematocrit
HpL	Human placental lactogen
IGF	Insulin-like growth factors

LIST OF ABBREVIATIONS (Cont...)

Abbrev.	Meaning
IGF 1	Insulin-like growth factors-1
IGF 2	Insulin-like growth factors-2
IGFBPs	Insulin–like growth factors binding proteins
IgG	Immunoglobulin G
IM	Intramuscular
IU	International unit
IV	Intravenous
K(+)	ATPase and Ca2(+)
MRI	Magnetic resonance imaging
O_2	Oxygen
PIGF	Placental growth factor
PPH	Postpartum hemorrhage
RCTS	Randomized Controlled Trials
SUA	Single Umblicial Artery
VAS	Visual Analog or Analogue Scale
VBAC	Vaginal birth after cesarean section
VEGF	Vascular endothelial growth factor
VEGF-R1(FLT)	Vascular endothelial growth factor receptor 1
VEGF-R2(KDR)	Vascular endothelial growth factor receptor 2

INTRODUCTION

Caesarean section is the most common major operation performed on women. Some of the Short term morbidities of caesarean section include hemorrhage ***(Chamberlion 1999; Combs, 1991)***, need for blood transfusion ***(Klapholz, 1990)***, post operative fever and Endometritis ***(Newton, 1990)***. Long term morbidities include placenta preavia, placenta accreta and ectopic pregnancy ***(Almedin, 2002; Gillian, 2002; Hemminki, 1996)***. Some of complications mentioned increased by different ways of performing caesarean section operation and variation in techniques ***(Alderdice, 2003; Anderson 2004; Bamijboye, 2003; Dodd, 2004; Hofmery, 2004; Jacobs-Jakhn, 2004; Mathai, 2007)***.

The method of removing the placenta is one such procedure that may increase or decrease in the morbidity of caesarean section.

The process of placental separation starts immediately after delivery of the baby by contraction and retraction of uterine muscle which result in reduction in the size of the uterus consequently the placental bed to which the placenta is attached become smaller than the incompressible placenta, the placenta sheared off and blood vessels supplying the denuded placental bed are compressed by continued contraction and retraction of uterine muscle to reduce the bleeding and oxytocin is given after delivery of the baby to minimize blood loss ***(Cotter, 2001).***

Placental delivery types at caesarean section have been described as, placental drainage with spontaneous delivery, cord traction with spontaneous placental separation and manual removal.

In placental drainage, the end of the umbilical cord is left unclamped, placental blood drained and placenta delivers spontaneously through uterine incision, this method is not widely used ***(Sharma, 1995)***.

The two methods most frequently used are cord traction combined with external uterine massage or expression of the uterus, and manual removal. Cord traction involves gentle traction on the umbilical cord with external uterine massage after delivery of the baby and oxytocic has been given this method takes about three to five minutes ***(Cotter, 2001)***.

Manual removal of the placenta done by the use of gloved hand with gentle sawing action to separate the placenta from its placental bed, this method takes about two minutes to be done. Some obstetricians practice manual removal as they consider it quicker to deliver than cord traction. The process of manual removal of the of the placenta cause more bleeding ***(Chamberlion, 1999)*** and may increase the risk of infection ***(Mccurdy, 1992),*** so there is some studies ***(Anorluri et al., 2008)***, have found manual removal of placenta to increase postoperative morbidity, while other studies have not ***(Candas, 1998)***,

So the primary objective is to compare the risk of significant blood loss associated with spontaneous and manual removal of the placenta during caesarean section. The secondary outcome measures are infectious morbidity, duration of the surgery and feto- maternal transfusion ***(Michel et al., 2004)***.

AIM OF THE WORK

The aim of this work is to compare the manual Removal of placenta and spontaneous placental delivery combined with cord traction at caesarean section.

Chapter (1)

CESAREAN SECTION

Introduction

The cesarean delivery is defined as the birth of a fetus through incisions in the abdominal wall (Laparotomy) and the uterine wall (Hysterotomy) ***(Cunningham et al., 2000).***

The terms cesarean section, cesarean delivery, and cesarean birth may be used to describe the delivery of a fetus through a surgical incision of the anterior uterine wall.

Cesarean section is a tautology; both words connote incision, Therefore, cesarean birth or cesarean delivery, are preferable terms ***(Richard et al., 1996).***

Cesarean section is the most common laparotomy done in the world today. Thus any useful refinement in the operative technique, however minimal, is likely to yield substantial benefits.

Historical Background

The exact origin of the term cesarean delivery is unclear. The popular beliefs that Julius Cesar was born in this manner with the result that the procedure became known as the cesarean operation.

Several circumstances weaken this explanation. First, the mother of Julius Cesar lived for many years after his birth in

(100 BC.) and as late as the 17th century, the operation was almost invariably fatal. Second, the operation, whether done on living or dead women, it is not mentioned by any medical writer before the middle ages ***(Cunningham et al., 2002).***

It has been widely believed that the name of the operation is derived from a Roman law, supposedly created by Numa Pompilius (8th century BC). Ordering that the procedure be done upon women dying in the last few weeks of pregnancy in hope of saving the child. This explanation holds that this lex regia, later called lex cesarea and the operation itself became known as the cesarean operation ***(Percival et al., 1980).*** The term cesarean may have arisen in the middle ages from the latin verb caedere (to cut), and the term section is delivered from the latin verb seco (cut) ***(Sewell and Washington, 1993).***

The first authenticated cesarean delivery was performed by Trautmann of wittenberg in 1610, with the mother succumbing to post-operative infection (25) days later ***(Larry et al., 2002).***

In 1769, A uterine incision in the lower uterine segment was suggested as early by Robert Wallace, but was not done until a century later ***(Sewell and Washington, 1993).***

Although, the cesarean birthes performed in Paris between 1787 and 1876 demonstrated that 100% of maternal mortality rate, mostly due to infection or hemorrhage ***(Sewell and Washington, 1993).***

In 1846, The introduction of diethyl ether anaesthetic agent at Massachusetts General Hospital were increased the feasibility of major abdominal operations although, mortality rates for cesarean birth still high secondary to infections and bleeding ***(Richard et al., 1996).***

In 1876, Eduardo Porro, an Italian Professor recommended hysterectomy combined with cesarean birth to control uterine hemorrhage and prevent systemic infection ***(Steven et al., 1996).*** And it is considered the first major surgical advance in the technique of the cesarean section ***(Miller, 1992).*** Eduardo Porro technique resulted in a dramatic decline in the maternal mortality ***(Spreet et al., 1958).***

In 1882, Max Saenger introduced the technique of suturing the uterus. He advocated performing a vertical incision in the uterus that avoided the lower uterine segment, then he closed the uterus in two layers by using silver wire for the deep suture and fine silk for the superficial serosa ***(Sewell and Washington, 1993).***

In 1926, Munro Kerr recommended a semilunar uterine incision with the curve directed upward. The only objection to this incision was the danger of extending into the uterine vessels at the edges of the incision. However, Kerr argued that using careful technique, the vessels could be avoided ***(Larry et al., 2002),*** It was to reduce and contain the risk of sepsis. This was modified by ***Pfaneuf (1931)*** into the present day upward low transverse uterine incision ***(Cunningham et al., 2001).***