A COMPARISON OF SUTURING TECHNIQUE FOR REPAIR OF EPISIOTOMY

A RANDOMISED CONTROL TRIAL

OF MALAY PRIMIGRAVIDAE IN

HOSPITAL UNIVERSITI SAINS MALAYSIA

KOTA BHARU, KELANTAN, MALAYSIA

2005-2006

BY

DR MAIZUN BINTI ISHAK

DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER IN MEDICINE

(OBSTETRICS AND GYNAECOLOGY)

UNIVERSITI SAINS MALAYSIA

NOVEMBER 2006

ACKNOWLEDGEMENT

I would like to convey my sincere appreciation and deepest gratititude to Associate Professor Dr Nik Mohd Zaki, Head of Department of Obstetrics and Gynaecology, Hospital Universiti Sains Malaysia and all lecturers for their encouragement , guidance, patience and assistance throughout the course of my training and the preparation of this dissertation.

My special thanks also to my husband, Dr Abdul Kursi Bin Abdul Latiff, my children, Ainul Karmila and Aina Maisarah, my parents and all my friends and colleagues whose endless pray, understanding and patience have guided me through my career.

Final thanks must go to all patients and their babies to whom this book is dedicated to.

Nov 2006 Dr Maizun Ishak

TABLE OF CONTENTS

ii. Appendix 2 – Episiotomy techniques

iii. Appendix 3 – Questionaire / Borang kaji selidik

iv. Appendix 4 – Borang maklumat kajian

v. Appendix 5 – Borang keizinan pesakit

LIST OF ABBREVIATIONS

AS	-	Apgar score
CI	-	Confidence interval
EDD	-	Expected date of delivery
HUSM	-	Hospital Universiti Sains Malaysia
KG	-	Kilogram
LMP	-	Last menstrual period
Multips	-	Multigravida
OD	-	Odds ratio
O & G	-	Obstetrics and Gynaecology
Primid	-	Primigravida
POG	-	Period of gestation
RCOG	-	Royal College of Obstetrics and Gynaecology
RCT	-	Randomized Control Trial
RR	-	Relative risk
SPSS	-	Statistical Package for Social Sciences
SVD	-	Spontaneous vaginal delivery
UK	-	United Kingdom
USA	-	United States of America
USMCK	-	Universiti Sains Malaysia Cawangan Kelantan
WHO	-	World Health Organisation

LIST OF FIGURES AND TABLES

FIGURES

TABLES

DEFINITION OF CLINICAL VARIABLE AND OUTCOME

1. **Age** – age recorded to nearest years
2. **Period of amenorrhea** (POA) – gestational age of pregnancy based on the last menstrual period (LMP) in completed weeks
3. **Period of gestation** (POG) – corrected gestational age of pregnancy based on either early ultrasound in completed weeks
4. **Parity** – Numbers of delivery beyond 24 week
5. **Primigravida** – A woman who pregnant for the first time
6. **Spontaneous vaginal delivery** – delivery occur spontaneously without assisstant
7. **Second stage of labour** – a stage of labour from full dilatation of the cervix until delivery of the baby
8. **Duration of second stage** – Time taken from full dilatation of the cervix until delivery of the baby
9. **Apgar score** – neonatal assessment of newborn baby based on respiratory effort, muscle tone, colour, heart rate and response to stimulation
10. **Episiotomy** - A surgical incision over the perineum at 7 o'clock position to increase the diameter of the vulva outlet to facilitate delivery of the fetus.
11. **Subcuticular continuous technique** - A suturing technique of the perineal skin by opposing the subcutaneous layer of the skin with continuous stitch.
12. **Trancutaneous interrupted technique** - A suturing technique of the perineal skin by opposing the cutaneous layer of the skin in simple interrupted stitch.
13. **Length of episiotomy** - length measured from the posterior fourchette which next to the hymenal ring to the edge of episiotomy wound at the perineal skin

AIMS OF THE STUDY

AIMS OF THE STUDY

To compare the outcome of episiotomy repair between 2 suturing techniques using absorbable suture (chromic catgut) for closure of the perineal skin – **subcuticular continuous and transcutaneus interrupted** techniques

ABSTRACT

ABSTRAK

OBJEKTIF : Membuat perbandingan hasil dua teknik jahitan luka episiotomi iaitu jahitan subkuticular berterusan dan jahitan transkutaneus berselang di kalangan primigravida Melayu.

KAEDAH : Kajian perspektif secara rawak selama 6 bulan ke atas 200 pesakit primigravida Melayu yang melahirkan anak secara kelahiran normal (faraj) di Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan bermula dari Ogos 2005 hingga Januari 2006 dengan membuat perbandingan hasil dari dua teknik jahitan luka episiotomi iaitu jahitan subkutikular berterusan dan jahitan transkutaneus berselang. Hasil yang dikaji dan dibandingkan ialah kesakitan pada perineum pada tempoh 24 jam, 10 hari dan 3 bulan serta kesakitan semasa hubungan kelamin pada tempoh 3 bulan.

KEPUTUSAN : Seramai 200 (100%) orang pesakit ditemubual pada 24 jam selepas kelahiran, 148 (74%) orang pesakit ditemubual pada hari ke 10 dan 131 (65.5%) orang pesakit ditemubual pada 3 bulan selepas kelahiran. Didapati terdapat perbezaan yang bermakna bagi masa yang diambil untuk jahitan luka episiotomi iaitu kurang masa diambil untuk jahitan secara subkutikular berterusan (17.2 min vs 24.8 min, $p<0.05$). Walau bagaimanapun, tidak terdapat perbezaan bagi skor kesakitan pada perineum pada tempoh 24 jam (2.4 vs 2.3, $p=0.674$), 10 hari (2.3 vs 2.6, $p=0.361$) dan 3 bulan (1.3 vs 1.3, $p=0.728$) selepas kelahiran bagi kedua-dua teknik jahitan. Tidak terdapat juga perbezaan yang bermakna bagi kesakitan semasa hubungan kelamin pada tempoh 3 bulan

(p=0.331). Kesakitan pada perineum pada tempoh 24 jam berkaitan dengan panjang episiotomi yang telah dijahit (r: -0.185, p=0.009).Tidak terdapat perbezaan yang bermakna bagi penggunaan ubat tahan sakit pada tempoh 24 jam (p=0.841), 10 hari (p=0.909) dan 3 bulan (p=0.334), atau kesakitan semasa bergerak pada tempoh 24 jam (p=0.487) dan 10 hari (p=0.712) selepas kelahiran. Juga tiada perbezaan bagi kedua-dua kumpulan berhubung masalah kencing dan membuang air besar pada tempoh 24 jam dan 10 hari selepas kelahiran (p>0.05).Didapati tiada perbezaan yang bermakna bagi luka yang bermasalah pada tempoh 24 jam dan 10 hari selepas kelahiran bagi kedua-dua jenis teknik jahitan episiotomi (p>0.05).

KESIMPULAN : Teknik jahitan secara subkutikular berterusan memberi alternatif teknik jahitan pada episiotomi. Walaupun ia tidak memberi pengurangan bagi kesakitan pada perineum selepas kelahiran serta kesakitan semasa hubungan kelamin, ia mengurangkan penggunaan masa yang diperlukan untuk jahitan episiotomi.

ABSTRACT

OBJECTIVE : To determine the outcome of episiotomy repair between 2 suturing techniques – continuous subcuticular technique and transcutaneus interrupted technique among Malay primigravida.

METHODOLOGY : A 6 months prospective randomized study over a total of 200 Malay primigravida in Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, who had spontaneous vaginal delivery (SVD) from August 2005 till January 2006. This study was conducted to compare the outcome of two suturing techniques – continuous subcuticular technique and transcutaneous interrupted technique. The outcome measured were perineal pain at 24 hours, 10 days and 3 months and also dyspareunia after 3 months post-delivery.

RESULTS : A total of 200 patients (100%) were able to be reviewed at 24 hours, 148 patients (74%) at day 10 and 131 patients (65.5%) were reviewed at 3 months post-delivery. There was significantly less time taken to repair episiotomy in subcuticular continuous technique compared with transcutaneous interrupted technique (17.2 min vs 24.8 min, $p<0.05$). However, there was no significant difference in perineal pain score at 24 hours (2.4 vs 2.3, $p=0.674$), 10 days (2.3 vs 2.6, $p=0.361$) and 3 months (1.3 vs 1.3, $p=0.728$) post-delivery. There was no difference in dyspareunia at 3 months post-delivery review in both groups ($p=0.331$). The perineal pain at 24 hours was significantly correlated with episiotomy length after repaired (r: -0.185, $p=0.009$). However, there was

no significant difference in pain on ambulation at 24 hours (p=0.487) and 10 days (p=0.712), use of analgesia at 24 hours (p= 0.841), 10 days (p= 0.909) and 3 months (p= 0.334) post-delivery. There was no difference in urinary or bowel problems for both groups at 24 hours and 10 days ($p > 0.05$). There was no statistically significant difference in wound morbidity of both group studied at 24 hours and 10 days post-delivery ($p > 0.05$)

CONCLUSION : Subcuticular continuous technique should be given as an option when repairing an episiotomy. Even though there was no reduction in the symptoms of perineal pain and dyspareunia , this method significantly required less repairing time.

THE STATE OF KELANTAN

AND

KELANTAN HEALTH SERVICE

INTRODUCTION TO THE STATES OF KELANTAN

GENERAL

Kelantan, or "Land of Lightning" is located in the northeast part of peninsular Malaysia and it is characterized by a more relaxed and traditional way of life than many other state in Malaysia. Its total area is 15,000 sq. km and 62% is still covered by forest particularly to the south. Kota Bharu, the state capital, is located at the bank of Kelantan River and situated 627 kilometres from the Federal Capital, Kuala Lumpur. There are ten administrative districts called *Jajahan* in Kelantan which include Kota Bharu, Pasir Mas, Tanah Merah, Machang, Tumpat, Bachok, Pasir Puteh, Jeli, Kuala Krai and Gua Musang with a total population of 1.4 millions. Ninety three percent of the population are Malays, while the Chinese, Indian and Siamese descendent make up the other 7%.

The name of Kelantan is said to be a corruption of *gelam hutan*, i.e the Malay name for cajuput, or swamp tea tree (*Melaleuca leucadendron*). Other theories claim the name comes from the Malay word *kilatan*, 'shiny/glittery' or *kolam tanah*, 'clay pool'.

HISTORY

The early history of Kelantan is rather obscure, but archaelogical finds indicate traces of human settlement dating to prehistoric times. Early Kelantan had links to the Funan Kingdom, the Khmer Empire, Srivijaya and Siam. Around 1411, Raja Kumar, the ruler of

Kelantan, became independent of Siam and Kelantan became an important centre of trade by the end of the 15th century. In 1499, Kelantan became a vassal state of the Malacca Sultanate. With the fall of Malacca in 1511, Kelantan was divided up and ruled by petty chieftains. With the conquest by Siam in 1603, most of these petty Kelantan chiefs became subject to Patani. Around 1760, a petty chieftain of Kubang Labu in Kelantan succeeded in unifying the territory of the present Kelantan. Shortly thereafter, in 1764, Long Yunos seized the throne and proclaimed himself Raja of Kelantan. However, with his death, Kelantan came under the influence of neighboring Terengganu.

In 1800, Raja Muhammad declared himself as the first Sultan of Kelantan. In 1812, he broke from Terengganu's influence and became a separate tributary of Siam. In the 1820s, Kelantan was one of the most populous and prosperous states in the Malay Peninsula, having avoided the wars and disputes which plagued the southern and western states. Siam continued to play an important role in Kelantan throughout the 19th century.

Under the terms of the Anglo-Siamese Treaty of 1909, Siam surrendered its claims over Kelantan, Terengganu, Kedah and Perlis to Great Britain, and Kelantan thus became one of the Unfederated Malay States with a British Resident.

Kelantan was the first place in Malaya to be occupied by the Japanese, who invaded on December 8, 1941. During the Japanese occupation, Kelantan came again under control of Siam, but after the defeat of Japan in August 1945, Kelantan reverted to British rule.

Kelantan became part of the Federation of Malaya on February 1, 1948 and together with other states attained independence on August 31, 1957. On September 16, 1963, Kelantan became one of the component states of Malaysia.

ECONOMY

Kelantan is the second poorest state in Malaysia, with a chiefly agrarian economy dominated by padi, rubber and tobacco. It was estimated to account 22.7% of share of the GNP in1993. Total area used in the same year was about 369,936 hectares or 24% of the total land are in the state. Rubber and paddy were the main crops and accounted for 65% of the total agriculture areas. The major paddy areas fall under the Kemubu Agriculture Development Authority (KADA) that accounts for 72% of the total production.

Fishing along its 96-kilometre coastline is also an important economic activity. Cottage industries which employ traditional skills in handicraft production such as batik, woodcarving and songket weaving are also evident. Logging activities are active given the vast area of forest. In recent years, tourism has increased in importance especially the nearby islands. A few reputable hotels have been established and more modern shopping malls have been opened to cater for urban folks.

The main market at the city centre is still the main attraction. Notably, most of the stall operators are women with good sense of business.

MALAY

Kelantan Malays consider themselves a rather unique breed. Many have some Thai blood, as intermarriages between the Thais and Malays have been and remain common. Kelantan Malays also note differences between themselves and the Malays of other states. The Patani Malays of southern Thailand are very similar in ethnicity and culture to the Malays of Kelantan.

Kelantanese Malay dialect, heavily influenced by the Thai language, is distinguished from standard Malay as well as other Malay dialects by its unique grammar, pronunciation and figures of speech.

Kelantanese Malay is the only lingua franca of the state, is used in the local mass media, and is so commonly used for daily communication that some Kelantanese cannot speak the standard form of Malay, as promoted by the Federal Government. The dialect is also prevalent beyond the state borders into southern Thailand and in Besut, the nothernmost district of Terengganu. Whilst the Arab script called Jawi has less influence in the other parts of Malaysia, it is still widely used in writing and printing the Malay language in Kelantan. Signboards in Kelantan are written in both Jawi and Rumi. To a certain extent, Thai is also used.

95% of Kelantan's population are ethnic Malay, and under the Malaysian Constitution, all Malays are Muslims; therefore, Islam is the most influential religion in the state.

To most Malaysians, Kelantan is synonymous with Malay arts and crafts. Kota Bharu, as the state capital, is a popular centre for such pursuits as silat, martial arts, and kertok

drumming. Here, too, more than any other place in Malaysia, the traditional pastimes of top-spinning — known as gasing — and the flying of giant, elaborately-decorated kites called wau, are still much in evidence.

POPULATION AND HEALTH SERVICES

The birth rate was 42.55 births per 1000 population in 1992 with the population growth rate of 2.6% per year. Over the past 10 years, the state medical and health services have improved tremendeously with the opening of district hospitals and health centres along with a substantial social, educational and economic development.

In addition to increased health services requirement, there are two tertiary referral centres, the Hospital Raja Perempuan Zainab II and Hospital Universiti Sains Malaysia (HUSM). The Raja Perempuan Zainab II Hospital, also known previously as Hospital Kota Bharu (HKB) is located in the state capital and is one of the oldest hospital in Malaysia. It was built in the year of 1930 and became the only referral centre for Kelantan state until 1984 when Hospital Universiti Sains Malaysia was started to function.

The percentage of the hospital delivery was sixty percent in 1992 as compared to only 30 percent in 1982. Maternal mortality rate was 5.81 per 100,000 births. Perinatal mortality rate and infant mortality rate dropped markedly from 22.3 over 1000 live births and 20.3 over 1000 live births in 1984 to 14.6 / 1000 and 12.9 / 1000 live births in 1992.

The medical and health services are provided by eight hospitals, one in each districts except Bachok. In addition, there are 48 health community clinics and midwife centres.

MAP OF KELANTAN

Figure 1. Map of state of Kelantan

THE SCHOOL OF MEDICAL SCIENCES

AND

HOSPITAL UNIVERSITI SAINS MALAYSIA

THE SCHOOL OF MEDICAL SCIENCES – UNIVERSITI SAINS MALAYSIA

Universiti Sains Malaysia (USM) was the second university in Malaysia when it was first established in 1969 in Penang. Subsequently two branches of campus were built in Kelantan in 1983 and in Perak in the year of 1985. USM perak branch houses the various school of engineering while Kelantan Branch is known as School of Medical Sciences and it is also a teaching hospital, Hospital Universiti Sains Malaysia (HUSM).

From the beginning and true to its name, USM is given mandate to provide, promote and developed higher education in fields of Natural Sciences, Applied Sciences, Pharmaceutical Sciences, Building Sciences and Technology, Social Science, Humanities and Education. Emphasis is given to research and advancement of knowledge and dissemination of such knowledge in these field of study. The University has not departed from these terms of reference and is proud of its innovative approach in tertiary education.

In 1983, the USM Kelantan campus started to develop when the Ministry of Health Malaysia handed over a newly completed hospital building to USM to act as a teaching hospital for its medical undergraduates. Initially, the campus only accommodated the 4^{th} and 5^{th} year medical students and academic staffs from the clinical disciplines. The 1^{st} and 2^{nd} year medical students were remained in the main campus in Penang together with their lectures and administrative machinery of the school. In April 1990, after completion of Phase 1 Project which consisted of medical complex, sport complex and animal

house, the whole School of Medical Sciences moved from the main campus to the sub campus in Kelantan. It was the beginning of the administrative machinery of Universiti Sains Malaysia Cawangan Kelantan (USMCK)

USMCKK is situated on 72.84 hectares of flatland in the suburbs of Kelantan's state capital Kota Bharu, at Kubang Kerian township. The presence of USMCK has activated the small town to expand and develop. Furthermore, commercial and housing development also has taken place.

In USMCK, the Director is the most authority person, handed down from the Vice Cancellor, which responsible to coordinate all administrative and academic matters to ensure the smooth running of the campus. Supportive departments from the main campus in Penang have set a branch to assist him in the administration and management.

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

THE DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

In year 2006, the Department Of Obstetrics and Gynaecology is staffed with 13 consultants/ lecturers, seven registrars (final year master students), twelve medical officers (in 3rd , 2nd and 1st year master programs, not including long distance learning program) and 7 house officers. The postgraduate program was started in 1991 and the first Master of Medicine in Obstetrics and Gynaecology graduated in June 1995.

The department, including the office, occupies the 1st floor of new HUSM building nearby the Neonatal Intensive Care Unit (NICU). There are one labour ward, two antenatal ward in 2nd floor (Akik and Baiduri), one gynaecology ward in 1st floor of main building (1 Utara) and one postnatal ward in 2nd floor (Topaz). The total of bed in gynaecology ward is 35 beds, 40 beds in antenatal ward and 40 postnatal beds.

The labour ward is situated in the 1st floor next to the department of Obstetrics and Gynaecology. It is equipped with 15 beds including 2 beds in admission, 5 beds for low risk delivery, 3 beds for high risk delivery (including 2 beds for epidural analgesia in labour), 2 beds for Pre-Eclampsia room and another 2 beds for premature labour cases. A few cases needed to be induced in labour room and most of the time they will occupy the high risk room. Otherwise most cases are induced in the antenatal ward.

Each labour room in the labour ward are equipped with cardiotocograph (CTG) machines, 3 ultrasound machines (including 2 used for detail scan), cardiac monitor (for

high risk cases), automated blood pressure machine, infusion pumps, resuscitation trolley, entonox for analgesia, central vacuum and oxygen supply. There is a room for neonatal resuscitation which is completely equipped with neonatal resuscitation trolley, incubators and warmers. Next to the labour room is the Neonatal Intensive Care Unit (NICU), well equipped with the facilities for complicated newborns.

Within the labour ward, there is one operation theatre which is opened 5 times a week for both emergency and elective caesarean sections cases, manual removal of placenta and evacuation of retain product of conception (ERPOC). There is an anaesthetist medical officer who is appointed during office hour to the labour ward to provide a service for epidural analgesia in labour and anaesthesia for emergency obstetrics procedure. A total of 5 nurses are trained as scrub and anaesthetic nurses.

During office hour, 2 medical officers are appointed in the labour ward including a registrar. One specialist and a consultant are in charge in the labour room in order to optimize the management in the labour ward. There are 34 staff nurses who are trained as midwives and a sister who is responsible in the management of the labour ward. There is a ratio of a maximum 2 patients for each nurse. On oncall time or weekends, 4 medical officers are responsible which 2 medical officers in the labour room, a medical officer for outside call and a registrar.

STATISTICS

The total number of deliveries, mode of delivery, perinatal and maternal mortality rate for HUSM from 2000 to 2005 were :

YEAR	2000	2001	2002	2003	2004	2005
Total deliveries	7497	6320	7124	6588	6562	6908
Mode of deliveries						
1) SVD	6224	4996	5663	5144	5017	5402
2) Vacuum	147	180	200	202	114	129
3) Forceps	83	60	89	62	106	79
4) C-Section	863	922	1080	1052	1189	1191
5) Breech	180	163	139	129	137	113
6) Twin	63	74	61			
Still Birth	80	93	93	83	75	85
MMR (per 1000)			5	3	3	2

Table 1. Number of delivery, mode of delivery, still birth, and maternal mortality rate yearly in HUSM.