

Caesarean sections at Sultan Qaboos University Hospital: A three year review

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مراجعة للعمليات القيصرية التي أجريت في مستشفى جامعة السلطان قابوس خلال ثلاث سنوات

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المستخلص: الهدف: مراجعة العمليات القيصرية التي أجريت في مستشفى جامعة السلطان قابوس خلال ثلاث سنوات. **الطريقة:** - مراجعة وتحليل السجلات الطبية لـ 727 مريضة أجريت لهن العملية قيصرية في مستشفى جامعة السلطان قابوس خلال ثلاث سنوات من أول يونيو 1998 ولغاية الثلاثين من يوليو 2001. **النتائج:** أجريت العملية القيصرية بمعدل 12% منها 42.6% مكررة، عند إتمام فترة الحمل وتحت التخدير العام. كانت أغلب العمليات القيصرية لسيدات في الفئة العمرية بين 26-30 سنة، وبمعدل إيجابي 2-3 ولادات سابقة. أكثر الأسباب شيوعاً لتلك العمليات الكرب الجنيني وكانت الحمى أكثر المضاعفات. **الخلاصة:** يشابه معدل وأسباب العمليات القيصرية وطبيعة المضاعفات الناتجة عنها في مستشفى جامعة السلطان قابوس تلك التي تجرى في أقسام الولادة في المستشفيات الأكاديمية في الدول المتقدمة.

ABSTRACT. Objective: To review the caesarean sections (C/S) performed at Sultan Qaboos University Hospital (SQUH), Muscat, Oman, over a period of three years. **Method:** The records of 727 patients who underwent C/S at SQUH during the three year period from 1st July 1998 to 30th June 2001 were analysed. **Results:** The C/S rate during this period was 13%, 42.6% of which were repeat C/S. Most were performed on women in the age group 26-30 years and of parity 2-3. The majority of the caesareans were at term and done under general anaesthesia. The most common indication was fetal distress and the most common complication was fever. **Conclusion:** The rate, indications, nature and frequency of complications of C/S performed at SQUH are similar to those at obstetric departments in academic hospitals in developed countries.

Key words: Caesarean section, cephalopelvic disproportion, prophylactic antibiotics, macrosomia, disseminated intravascular coagulation.

THE RATE OF CAESAREAN SECTIONS (C/S) HAS been continuously increasing around the world since 1970, a major contributing factor being the fear of litigation.¹ The average rate of C/S at most Western obstetric units varies between 5 and 15%. Data from the less developed countries are insufficient for comparison.²

Oman is a country with extremely high parity. It is a common experience that the woman refuses caesarean section, fearing it might limit the number of her children. This different attitude was one of the reasons why we wanted to review the C/S performed at Sultan Qaboos University Hospital (SQUH), Muscat.

METHOD

The records of all patients who underwent C/S at SQUH between July 1, 1998 and June 30, 2001 were analysed.

The age and parity of the women, gestational age,

indications for the C/S, type of anaesthesia, abdominal incision-delivery interval, post operative complications, birth weights and Apgar scores of the neonates were analysed. The decision to undertake each C/S was discussed with a consultant.

RESULTS

During the period of study, there were 5,571 deliveries at SQUH, of which 727 were by C/S, an incidence of 13 per cent. All operations performed during the period of the study were lower segment caesareans except 3 cases of "inverted T" incisions. Of these 727 patients, 502 (69.1%) were multi-gravidae (gravida: 2-14). Table 1 shows the number of deliveries by type and year during the period of the study. Patients who had C/S were categorised according to age and parity [Table 2].

The majority in the study group comprised of Omanis, who numbered 576 (79.2%). Most abdominal deliveries

Table 1. Total number of deliveries by type and year

Type of delivery	1998		1999		2000		2001	
	No.	%	No.	%	No.	%	No.	%
Vaginal delivery	658	82.3	1338	80.5	1740	84.3	864	82.8
Caesarean	111	13.9	248	14.9	243	11.8	125	12.0
Vacuum	25	3.1	72	4.3	74	3.6	47	4.5
Forceps	6	0.8	5	0.3	7	0.3	8	0.8
Total	800	100.0	1663	100.0	2064	100.0	1044	100.0

were performed on women in the age group of 26–30, and those who were of parity 2–3. The indications for primary C/S are shown in Table 3, which shows that fetal distress was the most common indication. There were 310 (42.6%) repeat C/S [Table 4]. Fetal macrosomia was present in only 3.4% of all caesareans. Estimated blood loss during caesareans was less than 500 ml in 66.7%; only in 7.7% was it more than 1,000 ml.

Most C/S were done under general anaesthesia—637 (87.6%). Out of the 727 C/S, 629 (86.5%) were term pregnancies and 98 (13.5%) were pre-term. Among the multiple pregnancies who had C/S, there were 5 sets of triplets and one set of sextuplets. The majority of C/S were emergencies—488 (67.1%)—whereas 239 (32.9%) were elective. All the women except two (99.7%) patients had received antenatal care. Most of our patients received antibiotics—623 (85.7%), of which 202 were prophylactic (single dose of 1.5 g cefuroxime). Table 5 shows the maternal complications following C/S, the most common of which was fever (25%). There was one maternal death due to septicaemia followed by disseminated intravascular coagulation (DIC). Average incision-delivery interval was 8.4 minutes, and the average hospital stay, 6.4 days. 716 (98.6%) of the neonates were born

Table 2. Association between maternal age, parity and number of caesarean sections

Age(years)	No. of C/S	%	Parity	No of C/S	%
≤ 20	46	6.3	Primipara	225	30.9
21-25	204	28.1	2-3	362	49.8
26-30	225	30.9	4-6	85	11.7
31-35	164	22.6	>7	55	7.6
36-40	72	9.9			
>40	16	2.2			
Total C/S	727	100.0		727	100.0

Table 3. Indications for primary caesarean section

Indication	No	%
Fetal distress	134	32.1
Breech	78	18.7
Failure to progress	55	13.2
Cephalo pelvic disproportion	31	7.4
Antepartum haemorrhage	31	7.4
Multiple pregnancy	23	5.5
Abnormal lie	13	3.1
Cord prolapse	10	2.4
Failed induction	9	2.2
Big baby (> 4 kg)	9	2.2
Bad obstetric history	6	1.4
Patient's request	5	1.2
Severe pre-eclampsia	4	1.0
Previous myomectomy-opened cavity	4	1.0
Previous pelvic floor repair	3	0.7
Fibroid uterus-obstructing delivery	1	0.2
Previous classical caesarean section	1	0.2
Total	417	100.0

with the Apgar score ≥ 7 at 5 minutes. Among the singleton babies, the minimum birth weight was 575 g and the maximum was 5,010 g. Four hundred and thirteen (56.8%) were male.

DISCUSSION

No single factor can account for the dramatic increase in caesarean deliveries during the last 30 years around the world. The widespread introduction of electronic fetal monitoring coupled with the increase in litigation has undoubtedly played a major part.³ Teaching hospitals tend to have lower caesarean delivery rates than do private institutions.⁴ When one considers that 30% of all

Table 4. Indications for repeat caesarean sections

Indication	No	%
Two or more caesarean sections previously	137	44.2
fetal distress	29	9.4
Cephalo pelvic disproportion	28	9.0
Failure to progress	24	7.7
Patient request	17	5.5
Big baby (≥ 4 kg)	16	5.2
Breech	14	4.5
Failed induction	10	3.2
Antepartum haemorrhage	7	2.3
Abnormal lie	7	2.3
Multiple pregnancy	5	1.6
Bad obstetric history	4	1.3
Previous myomectomy -opened cavity	3	1.0
Previous classical caesarean section	3	1.0
Fibroid uterus -obstructing delivery	3	1.0
Severe pre-eclampsia	2	0.6
Cord prolapse	1	0.3
Total	310	100

caesarean deliveries performed are repeat caesareans, it would be difficult to decrease the total C/S rate without reducing the repeat caesareans.⁵

In hospitals with appropriate facilities, services and staff, for a prompt emergency caesarean birth, a proper selection of cases should permit a safe trial of vaginal delivery for women who have had a previous lower segment transverse caesarean birth.⁵ In our hospital trial of vaginal delivery is the standard practice for such patients, provided the cause for the previous C/S does not recur.

The indications for C/S can be maternal or fetal. In our study, the most common indication for primary C/S was fetal distress. For repeat caesareans, two or more previous C/S was the most common indication. These findings agree with other recently published data.^{6,7} Multiple pregnancy and breech presentation are additional factors contributing to the rise in C/S.^{7,8} Each case should be thoroughly evaluated to determine the possibility for vaginal delivery.

Infection must never be underestimated as it continues to be an important cause of maternal mortality.⁹ The wound infection rate among the women in our study was 2.8% compared with other reports, which give figures as high as 10%.¹⁰ The infections in our group included a rare case of necrotising fasciitis, successfully treated with wound debridement and antibiotics.

Confidential enquiries into maternal death in United Kingdom during 1994–96 shows an increase in the rate of maternal death from sepsis from 3.9 to 6.4 per million maternities compared to the last triennium.⁹ The onset of infection can be insidious and can rapidly progress to a fulminating septicaemia. The only mortality in our group was that of a 31-year-old primipara, who had an uncomplicated C/S under antibiotic cover, because of prolonged labour. Few hours later she developed high fever and postpartum haemorrhage with a clinical diagnosis of DIC. In spite of intensive treatment she could not be saved. According to Murphy, the routine use of prophylactic antibiotics is associated with a statistically significant and clinically important reduction in postpartum febrile morbidity, wound infection and other serious infections.¹¹

The average blood loss in our patients was 0.5–0.6 l, much less than the reported 0.7–1.0 l.¹² Spontaneous expulsion of placenta at caesarean significantly reduces blood loss by about 300 ml.¹³ Our patients with severe postpartum haemorrhage were successfully managed with uterotonics, replacement of blood/blood products and uterine artery ligation/embolisation, except for five patients who had hysterectomy for uncontrolled haemorrhage.

Though the average hospital stay was 6.4 days, many patients left earlier. Literature shows that discharge as early as post operative day 2 has been safe.¹⁴ Liberman et.al., in a recently published study, noticed an increase in the number of boys born by C/S, which is in agreement with our study, where 56% of the babies born were male.¹⁵

Table 5. Maternal Complications

Maternal Complication	No.	%
Fever	182	25.0
Blood transfusion	62	8.5
Wound Infection	20	2.8
Urinary tract Infection	11	1.5
Disseminated intravascular coagulation (DIC)	3	0.4
Respiratory tract Infection	2	0.3
Scar dehiscence	1	0.1
Rupture of uterus	1	0.1
Pulmonary embolism	1	0.1
Postpartum blindness	1	0.1
Maternal death	1	0.1

CONCLUSION

In spite of high parity and the reluctance of our patients to undergo caesarean section, our rate of caesarean is similar to that of the rest of the world. The indications and the nature and frequency of complications of C/S performed at SQUH are similar to other obstetric departments in academic hospitals in developed countries. Our study also confirms that even though the caesarean is one of the most commonly performed surgical procedures today, it is not without risks. We agree with the other authors that the routine use of prophylactic antibiotics helps reduce the morbidity associated with caesarean sections.

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