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CASE REPORT

Gravida 7 para 4 abortus 2 (G7P4A2) for multiple repeat caesarean section: general or neuroaxial anesthesia

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ABSTRACT

A caesarean section (CS) is a surgical procedure that has several risks, such as uterine rupture, infection, bleeding, thrombosis, and damage to the bladder, ureters, or intestines. Compared to primary CS, multiple repeat caesarean sections (MRCS) are associated with additional risks, including placenta previa, abnormal placental invasion, difficulty in surgical dissection, longer surgeries, and greater amounts of bleeding. A woman, age 40 years, G7P4A2, gravida aterm, weight 64.4 kg, height 150 cm, Mallampati score 1, open mouth >3 cm, thyromental distance > 3 fingers, neck circumference 33 cm, former caesarean section 4 times, would have her caesarean section and sterilization at Melinda Woman Hospital Bandung-Indonesia. A caesarean section was performed under general anesthesia, induction with propofol, atracurium, and sevoflurane, and maintenance anesthesia with N2O/O2-sevoflurane. Induction-delivery time: 16 minutes, uterine incision 50 seconds, baby born with 1-minute Apgar score was 9 and 5-minute Apgar score was 10. Analgetic fentanyl is given after birth at a dose of 1.5 mcg/kgBw intravenously. There were no caesarean-section complications. Postoperatively, the patient was treated in the wards. Due to concerns about heavy bleeding, which would require massive transfusions, anesthesia was performed under general anesthesia due to the fact that massive transfusions make patient uncomfortable because of various complications of massive transfusion.

Keyword: general anesthesia, multiple repeat caesarean section, neuroaxial anesthesia

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INTRODUCTION

A caesarean section is a surgical procedure that is associated with a number of risks, such as adhesion, uterine rupture, infection, bleeding, thrombosis, and damage to the bladder, ureters, or bowel.[1] Although CS is now safe with the development of anesthetic and surgical techniques and drugs, these complications can potentially be fatal for both the mother and the baby.[2] When compared to primary (elective) CS, multiple repeat caesarean sections (MRCS) carry additional risks, such as placenta previa, aberrant placental invasion, and difficulties in surgical dissection with accompanying complications.[3] The adhesion rates of women with four or more cesarean deliveries were considerably higher than those with three or fewer (46.7% versus 23.8%). Adhesion rates were reported to be 54% for women who had five or more C-sections and 15% for women with two to three C-sections.[2] The higher incidence of adhesions in the MRCS group was primarily a result of the higher total number of repeated surgeries on the abdominal wall. Caesarean sections are frequently linked with drying of the peritoneal surface, exposure to vaginal flora, and residual blood. It is also possible that adhesions influenced by surgical technique, gentle tissue management, and the patient's general health condition may affect tissue healing.[4]

With a prevalence of 1 in 500 to 1 in 2500 pregnancies, placental invasion anomalies, such as placenta acreta, are among the most lethal complications of pregnancy. Prior caesarean sections and placenta previa are the most significant risk factors.[3,5] According to several studies, the occurrence of placental invasion abnormalities increases as the amount of CS increases.[1,6,7,8] Uterine rupture is one of the pregnancy complications that can appear as asymptomatic scar dehiscence; women with four or more CS are more likely to have uterine scar fenestration.[6] MRSC factors have been associated with minor morbidities such as surgery time, length of hospital stay, and number of blood transfusions. It is reasonable to assume that CS was a significant risk factor for increased operation time in the past.[3] Women with five or more CSs experience substantially more obstetric complications than women with fewer recurrent CSs.[1]

Table 1. Lab test results

Examination	Result	Referral Value	Unit
Hematology			
Hemoglobline	11,5	11,7-15,5	g/dL
Hematocrit	33	35-47	%
Erytrocyt	3,70	3,8-5,2	10^6u/L
Leukocyt	9.430	4.500-11.300	/mm3
Count the types of leukocytes			
Eosinophil	1	2-4	%
Basophil	0	<1	%
Neutrophil Rod	0	3-5	%
Neutrophil Segment	64	50-70	%
Limphocyt	27	25-40	%
Monocyt	8	2-8	%
Trombocyt	266	150-450	thousand/mm3
Ureum	16,3	15-40	Mg/dL
Creatinin	0,55	0,6-1,2	Mg/dL
Natrium	141	135-147	Mmol/L
Kalium	4,12	3,5-5	Mmol/L
Current Blood Glucose	78	<125	Mg/Dl
Swab antigen Covid-19	Non-reactive		
Swab PCR Covid-19	Negative		

In contrast, other researchers discovered that five or more CS were not associated with additional maternal and fetal risk factors when compared to four or fewer CS.[2] Similarly, the other researchers observed that four or more CSs posed a low risk to the mother but may be associated with an increased risk of neonatal morbidity, predominantly referring to premature non-elective CS.[9] There is no difference in the Apgar scores between caesarean sections performed under general anesthesia or neuroaxial anesthesia.[10,11,12,13] Given the results of these research reports and the possibility of various complications, such as long surgery, adhesion, and heavy bleeding, it was decided that anesthesia in this case was carried out under general anesthesia.

CASES

Anamnesa

A Female, 40 years old, Gravida 7 Para 4 Abortus 2 (G7P4A2), with four previous caesarean sections, would have her fifth caesarean section and sterilization.

Physical Examination

Gravid aterm, weight 64.4 kg, height 150 cm, Mallampati score 1, open mouth >3 cm, thyromental distance > 3 fingers, neck circumference 33 cm

Anesthesia Management

The patient was instructed to fast according to the 2-4-6-8 formula and was required to abstain from solid food starting 8 hours preoperatively. In the operating room, the patient was in a supine position, a blood pressure monitor, ECG, and SpO2 were installed, and binasal oxygen was given at 3 L/min. Intravenous induction with 2 mg/kg body weight propofol, muscle paralysis with 35 mg atracurium, and 10 mg dexamethasone were administered. One gram of tranexamic acid and 1 gram of paracetamol were administered intravenously. One hundred percent oxygen and sevoflurane were used for ventilation. The patient was intubated with a 6.5 endotracheal tube with a cuff. Anesthetic maintenance with N2O/O2, sevoflurane. A baby boy was born with a body weight of 2500 g and a body length of 50 cm. The 1-minute Apgar score was 9 and 5-minute Apgar score was 10. After birth, the baby was given fentanyl 75 μg, methylergonovin 0.2 mg intravenously and 0.2 mg intramuscularly, and oxytocin 20 IU in drops dissolved in 500 cc RL. Monitoring of blood pressure, pulse rate, SpO2, and uterine contractions is shown in the table 2. Analgesics were 1 gram of paracetamol and 50 mg of dexketoprofen intravenous boluses. The operation time was 95 minutes, the induction-delivery time was 16 minutes, and the uterine incision delivery time was 50 seconds. The Linear Analog Scale (LAS) was 8–9. The amount of bleeding was 800 cc.

Table 2. Blood pressure, Heart rate, SpO_2 and Linear Analog Scale (LAS)

Time	Blood Pressure (mmHg)	Heart Rate (x/minute)	SpO_2 (%)	LAS
9.25	112/73/106	105	100	
Post intubation range 3 minute	126/75/93	123	100	
	130/69/89	113	100	
	115/58/77	95	100	
	114/56/80	74	100	
Baby born 9.41				
9.45	90/52/65	68	100	8, Ephedrin 1cc
9.46	93/59/70	71	100	8, Ephedrin 1cc
9.47	121/65/82	71	100	
9.48	122/64/88	75	100	8
	113/65/81	85	100	8
	115/66/81	80	100	9
	99/57/75	79	100	9
	88/55/67	80	100	Ephedrin 1 cc
10.03	101/60/74	91	10010.0	
	125/71/92	84	100	
	113/60/80	90	100	
	105/56/77	89	100	
	107/56/77	85	99	
	99/54/75	78	100	
	102/51/73	75	100	
	106/55/76	73	100	
	101/55/76	90	100	
	119/73/88	82	100	
	123/70/91	80	100	
10.36	110/57/79	71	100	
	103/55/75	70	100	
	104/56/77	84	100	
	112/55/77	75	100	
	111/55/79	72	100	
	96/52/71	70	100	
	123/64/84	87	100	
The end of Surgery 11.00				

SBP = systolic blood pressure; DBP = diastolic blood pressure; MAP = mean arterial pressure, HR= heart rate; LAS = linear analog scale

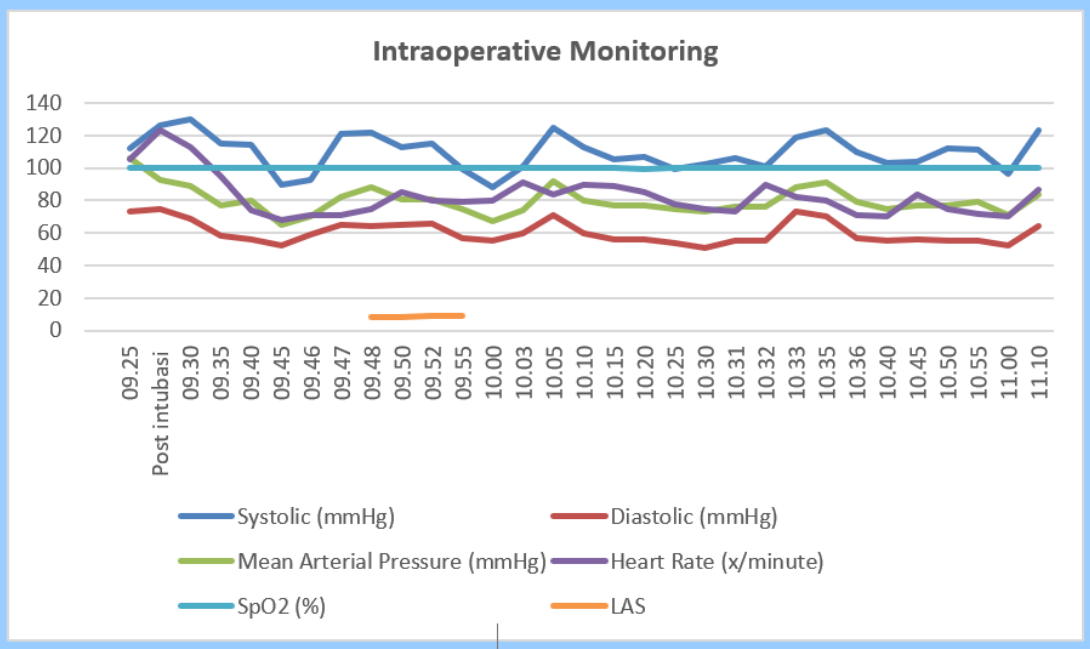

Figure 1: SBP, DBP, MAP, HR and LAS
Note: SBP = systolic blood pressure; DBP = diastolic blood pressure; MAP = mean arterial pressure, HR= heart rate; LAS = linear analog scale

Postoperative Management

The patient was treated in standard treatment rooms following surgery. The patient's condition was stable. As postoperative analgesia, 100 mg of dexketoprofen and 100 mg of meperidine dissolved in 500 cc of RL were given for 24 hours.

DISCUSSION

A caesarean section (CS) is one of the most common obstetric surgeries performed. A CS is defined as the birth of a fetus through incisions in the abdominal wall and uterine wall.[1] Primary (electile) caesarean section in multiparous women means the first caesarean performed on a multiparity patient who previously delivered vaginally. [14] Multiparous means those who have given birth once or more after the age of viability. These include primi-para (unipara-para 1), multipara (para 2, 3, and 4), and grande multipara (para more than 4). A grande multipara is a women who has given birth to five or more children. A woman may undergo a maximum of three caesarean sections.The greater the frequency of c-sections, the greater the risk of placental problems such as placenta accreta and placenta praevia. Due to tissue adhesions, five or more CSs are associated with prolonged operative times.[14]

Former caesarean delivery patients face the following issues: 1) uterine contraction problems; 2) the possibility of placenta accreta; 3) the abundance of tissue adhesions, resulting in the possibility of heavy bleeding; and 4) longer surgical procedures. Induction delivery times longer than 10 minutes and uterine incision delivery times longer than 180 seconds can affect the baby's Apgar score.[15] MRCS is associated with higher rates of maternal and neonatal morbidity than fewer caesarean sections. The associated maternal morbidity is largely secondary to placental praevia and accreta, while the higher rates of preterm birth are most likely a result of antepartum hemorrhage.[1]

The operation time in this case was 95 minutes. The extended duration of the operation was primarily attributable to the 16-minute period between the beginning of the skin incision and the delivery of the baby, which was caused by tissue adhesion factors. The degree of adhesion in this case (fifth caesarean section) was very high.[2] Typically, the obstetrician performs the caesarean section within only 5 minutes. In this case, the induction-delivery time was 16 minutes, but taking into account the uterine blood flow (UBF = UAP-UVP divided by UVR) remained adequate. Although the induction-delivery time was almost 2 times longer, it did not affect the Apgar value of 1 minute and 5 minutes.[15]

There are no issues with uterine contractions following surgery that last longer than usual due to the liberation of adhesion tissue and suturing after the birth of the infant. LAS scores of 8 and 9 with 2 ampoules of sintosinon in 500 cc RL and bolus methergin administration 1 ampoule administered intravenously and 1 ampoule administered intramuscularly. Patients do not require blood transfusions because the quantity of haemorrhage is still within the reasonable limits for caesarean section surgery, which is about 800 mL. Since there is no placental invasion disorder, the placenta can be born intact. Repeated caesarean sections (5-9) carry no specific additional risks for the mother or baby when compared to those with a lower number (3 or 4).[2] Maternal complications with respect to the number of previous caesarean sections have been evaluated. In patients with placenta praevia and a prior caesarean section, the risk of caesarean hysterectomy was 14 times higher than in patients with placenta praevia and no previous caesarean section. The risk of caesarean hysterectomy is higher as the number of previous caesarean sections increases. Those who have had three or more previous caesarean sections are at significantly more inclined to require blood transfusions. Postoperative pyrexia is more common in women with three or more previous caesarean sections compared to those who had only one.[16] The prevalence of intra-abdominal adhesions and bladder injury during CS is also higher in women with a history of three or more previous CS than in women with only had one.[4] The level of placenta accreta increases along with caesarean delivery. The most substantial risk factors are previous caesarean delivery, previa, and advanced maternal age.[5]

There is no definitive maximum number of cesarean sections a woman may receive.[6] The risk of placenta previa was 0.26% with a uterus without scarring and increased almost linearly with the number of previous caesarean sections, reaching 10% in patients who had previously undergone four or more CSs. On the incidence of placenta previa, the effects of advanced age and parity were less pronounced. Patients with placenta previa and a non-scarred uterus have a 5% chance of developing placenta accreta. Those with placenta previa and had one c-section, the risk of placenta previa was 24%. It rises to 67% (two out of three) with placenta previa and four or more caesarean sections.[7] The bleeding caused by placenta accreta can result in hysterectomy, blood transfusion, multiple organ failure, and death. The incidence of accreta increases steadily due to an increase in caesarean deliveries. Placenta previa is the primary risk factor in women with a history of cesarean delivery. Prenatal ultrasound can be used to diagnose placenta accreta, allowing scheduled delivery in a multidisciplinary centre for accreta. There is controversy regarding optimal management, including optimal delivery times, surgical approaches, the use of additional measures, and conservative therapy (uterine sparing). (Silver) In order to evaluate the maternal and neonatal risk associated with high-order caesarean sections, case-control studies were conducted on women who had a caesarean section for the fourth time or more, compared to women who had a

caesarean section for the second or third time. Women who had multiple (> or = 4) caesarean sections had significantly more intra-abdominal adhesions ($P < 0.0001$) than women who had dissections for the 2nd or 3rd time.[9]

Recurrent CS increases the risk of uterine rupture and intraoperative complications, making these patients a high-risk group. There is no absolute upper limit to the allowable number of repeated caesarean deliveries.[17] Overall, the risk of transfusion in association with caesarean sections is low. However, the risk is increased for mothers with severe preoperative anaemia and placenta previa. The former argues for optimising the mother's antenatal iron status to avoid severe anaemia, and the latter for careful perioperative planning when the presence of previa complicates caesarean sections.[18] Because serious maternal morbidity increases progressively with an increasing number of caesarean deliveries, the number of pregnancies should be considered during counselling regarding repeated elective caesarean sections versus attempted vaginal deliveries and when discussing the benefits of elective primary caesarean delivery.[19]

CONCLUSION

In conclusion, the treatments of anaesthesia patients are Recurrent CSs (four or more) does not seem to increase the risk of maternal complications except for the degree of intra-abdominal adhesions that cause the length of surgery to increase. As long as maintaining UBF remains adequate, based on the factors of UAP, UVP, and UVR eating, the Apgar score will remain good. While there is no significant difference in major morbidity linked to MRSC, it is important to remember that CS is an operational delivery that entails a number of risks, such as uterine rupture, infection, hemorrhage, thrombosis, and peripheral organ damage. The decision about anaesthesia technique must be based on various factors.

DECLARATION OF INTERESTS

There are no conflicts of interest.

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