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Characteristics of Patients Receiving Cerclage in Arifin Achmad Hospital, Indonesia: 2019-2020

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ABSTRACT

Cerclage is a common management for patients with cervical insufficiency and bulging of membrane in pregnant women, yet controversial, especially in the selection criteria of the patients. The aim of this study to provide the characteristics of patients underwent cerclage in Arifin Achmad Hospital, Pekanbaru, Indonesia.In this retrospective observational study, we assessed the medical records of 12 patients in Arifin Achmad Hospitalfrom 2019 to 2020. The data were presented in univariate; frequency for categoric variables and mean ± standard deviation (SD) for numeric variables. Our data suggested that the patients were predominantly within 20-35 years old (83.3%), with the average age of 29 years old. The majority of patients were having their first pregnancy (41.7%) and second pregnancy (41.7%). As for the nutritional status, mothers receiving cerclage were overweight (50%), normal (41.7%), and underweight (8.5%). More than a half patients had vaginal discharge (66.7%). The diagnosis included premature rupture of membrane (PROM) (91.6%), oligohydramnios (50%), intrauterine growth restriction (25%), anhydramnios (16.4%), incompetent cervix (8.2%), and premature uterus contractility (8.2%). As many as 58.4% of the patients had pregnancy termination at >36 weeks' gestation (term). In conclusion, patients receiving cerclage inArifin Achmad Hospital predominantly were within the optimal age for pregnancy with gestational age of second trimester. The most common pregnancy-related problems making the patients receiving cerclage was PROM.

Keywords: Abortus, premature rupture of membrane, incompetent cervix, cerclage, preterm delivery

Introduction

Recurrent miscarriage (RM), preterm deliveries, and complications of pregnancy are worldwide problems, regardless the advancement in medical field within a few last decades.[1] The aforementioned problems could be caused by multiple factors, where the most common diagnosis for RM include Asherman syndrome (intrauterine adhesion), cervical insufficiency, and uterine fibroids.[2, 3] Furthermore, incompetent cervix is the main cause of miscarriage and RM occur in the mid-trimester and preterm deliveries with bulging amnion without significant uterus contractility or rupture of membrane (ROM). Meanwhile, cervical insufficiency affects 1% of total pregnancy and 8% of women with RM during the midtrimester.[1]

It is clear that cervix is important in keeping the pregnancy,[4] acting as a mechanical barrier against exposure and prolapsed fetal membrane as well as protecting the fetus from ascending infection.[5] Hence, emergency cerclage could be carried out in order to reduce the preterm labor. This treatment has been reported effective, especially for patients with cervical dilation and bulging of fetal amniotic membrane.[6] It also prolongs the gestational age and improves newborns' survival.[6] Another report found the effectivity of cerclage for patients with cervical insufficiency and bulging of amniotic membrane during pregnancy.[7] This procedure is conducted by inserting a stitch around the cervix.[6, 7] The purpose is to mechanically support to maintain the cervix closed during pregnancy. Materials of stitch include silk, tape, or other nonabsorbable materials.[6]

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Despite being a common obstetric management, cerclage is a controversial procedure due to its debatable efficacy and the selection of suitable patients to receive the procedure. Some studies suggest that cerclage does not prolong a pregnancy or improving the survival of neonates.[8] Nonetheless, there are some others showing that cerclage is beneficial for women with short cervix (with or without previously preterm labor) along with the risk of preterm delivery (with or without perinatal death).[8-10] Hence, to fill the gap of knowledge stated earlier, this work aims to observe the characteristics of patients receiving cerclage procedure in Arifin Achmad Hospital, Pekanbaru, Indonesia between 2019-2020.

Methods

This study was retrospective observational using medical records from 2019 to 2020 in Arifin Achmad Hospital, Pekanbaru, Indonesia, with an objective of identifying the characteristics of patients underwent cerclage procedure. All patients having a cerclage procedure were included in this study. Characteristic variables in this study include age, number of pregnancies, number of deliveries, trimester, nutritional status, vaginal discharge, time of termination, and accompanying diagnosis. Furthermore, gestational age, body mass index (BMI), and Apgar score were also collected. The data were descriptively analyzed and presented in univariate. Categoric variables and numeric variables were presented in frequency and mean ± standard deviation (SD), respectively.

Results

A total of 12 patients underwent cerclage procedurewere included and their characteristics are presented in Table 1 and Table 2. The patients received cerclage in Arifin Achmad Hospital within 2019-2020 were dominated (83.7%) by those who were 20-30 years old. The patients were predominately having their first pregnancy (41.7%), in which most of them had or had not been previously pregnant (41.7%).

Most of the subjects were in their second trimester pregnancy (66.6%), followed by those who were having third trimester pregnancy (33.4%). For the nutritional status, the number of mothers having obesity, normal, and underweight conditions were 50%, 41.7%, and 8.3%, respectively. More than half of the subjects had vaginal discharge (66.6%). As many as eleven patients (91.6%) were diagnosed with PROM, six patients (50.0%) with oligohydramnios, and three patients (25%) with intrauterine growth restriction (UIGR). There were 58.4% of the total patients had pregnancy termination at more than 36 weeks gestational age (term).

It was further shown that the mothers' age has an average value of 29 years old; an optimal age for pregnancy and giving birth (Table 2). The average gestational age was 25.66 weeks, categorized as the second trimester pregnancy. The average BMI of the patients was 24.52 kg/m^2; falling into overweight category. Meanwhile, the mean Apgar score of the newborns was 6.8.

Table 1. Frequency of categoric characteristics of the patients (n=12)

Variable	n	%
Age (year)		
20-35	10	83.3
> 35	2	16.7

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Number of pregnancies		
1	5	41.7
2	4	33.3
> 2	3	25.0
Number of deliveries		
0	5	41.7
1	5	41.7
2	2	16.7
Trimester		
2nd	8	66.6
3rd	4	33.4
Nutritional status		
Underweight	1	8.3
Normal	5	41.7
Overweight and obesity	6	50.0
Vaginal discharge		
Yes	8	66.6
No	4	33.4
Time of termination		
Term	7	58.4
Preterm	5	41.6
Accompanying diagnosis		
PROM	11	91.6
Oligohydramnios	6	50.0
IUGR	3	25.0
Anhydramnios	2	16.4
Incompetent cervix	1	8.2
Premature contractility	1	8.2

PROM: premature rupture of membrane; IUGR: intrauterine growth restriction

Table 2. Mean and standard deviation of numeric characteristics of the patients (n=12)

Variable	Mean	Standard Deviation
Mothers' age (years-old)	29.75	3.72
Gestational age (week)	25.66	4.41
BMI (kg/m^2)	24.52	4.58
Apgar score	6.8	2.1

BMI: body mass index

In addition, characteristics of each patient are presented in Table 3. The youngest patient was a 26 years old mother, who had previously been pregnant twice with one miscarriage history. Two patients above 35 years old who had term pregnancy termination and both were diagnosed with PROM.

Table 3. Characteristics of each patient

No.	Age (year)	GPA	BMI (kg/m^2)	Vaginal discharge	Pregnancy Termination	Apgar score	Accompanying diagnosis
1	30	G1P0A0	26	Yes	Preterm	7	PROM, oligohydramnios
2	32	G1P0A0	27	No	Term	3	PROM, oligohydramnios, IUGR
3	26	G3P1A1	22	Yes	Preterm	9	Incompetent cervix

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4	31	G2P1A0	22	Yes	Term	8	PROM
5	27	G2P1A0	31	Yes	Preterm	6	PROM, oligohydramnios
6	27	G2P1A0	17	Yes	Term	4	PROM, anhydramnios, IUGR
7	37	G4P2A1	19	Yes	Term	9	PROM
8	26	G1P0A0	29	No	Preterm	7	PROM, oligohydramnios
9	27	G1P0A0	21	No	Term	8	PROM, oligohydramnios
10	30	G2P1A0	22	No	Term	7	PROM, oligohydramnios, premature contractility
11	28	G1P0A0	30	Yes	Preterm	4	PROM, anhydramnios, IUGR
12	36	G3P2A0	28	Yes	Term	9	PROM

PROM: premature rupture of membrane; IUGR: intrauterine growth restriction

Discussion

Cerclage was carried out through a surgical procedure, followed by insertion of stitch around the cervix (as close as possible to the internal cervical bone). This procedure was applied during the 14-24 weeks pregnancy via transvaginal or transabdominal route.[11] Usually, the stitch was removed during the 37 weeks pregnancy with the absence of counterindication. The stitch would not be removed if the patient undergo a cesarean delivery in order to allow the cerclage to be used for the following pregnancy.[11] Emergency cerclage could reduce preterm deliveries in patients with cervical dilation (without pain) and bulging of fetal amnion.[6]

In this study, the age distribution of mothers receiving cerclage in Arifin Achmad Hospital was predominantly within the age range for optimal pregnancy and delivery (20-35 years old). Some patients were having their first pregnancy (41.7%), and others were in their second pregnancy (41.7%). Similar study also reported that the number of pregnancies were not different significantly between patients who received and did not receive cerclage.[12, 13]

All patients undergoing cerclage have passed the first trimester of their pregnancy, where the average gestational age was 25.6 weeks. Hence, most of the gestational age in our case could be categorized in the second trimester.[11] This is in agreement with a previous report, where the patients' pregnancies were within the second trimester (18.6±4.5 weeks).[12] The time reported for cervical cerclage procedure was in the third month of pregnancy (first trimester). Nonetheless, some women were required for emergency cerclage in the following months of pregnancy when the cervical opening or shortening occur. Patients with a history of receiving emergency cerclage are recommended to undergo cerclage procedure for the next pregnancies.[7, 14]

Mothers undergoing cerclage were categorized into obesity (50%), normal (41.7%), and underweight (8.3%). Another study showed a similar patients' characteristics, where 40% of the patients were obese.[15]Although the BMI was not correlated to successful outcome of cerclage, obese patients who did not receiving cerclage gave birth at earlier gestational age.[15]

A report suggested that cerclage could extend gestational age and improve the survival of the newborn.[6] Another study found that the extension of gestational age could reach 7.4 weeks with 42% mothers gave birth after 28 weeks and 30.4% others – after 34 weeks.[16] Furthermore, the percentage of the take-home-baby rate reached 50.7%.[16] Positive outcomes were also reported with a study observing 85 elective and 10 emergency cerclage cases.[17] The pregnancy was prolonged up to 20.98 and 4 weeks for elective and emergency cases,

respectively. The numbers of abortus and preterm deliveries were significantly decrease upon the cerclage procedure.[17] As in our study, 58.4% patients had term deliveries (>36 weeks). The average gestational age in this study was higher to that of previously reported (34.1 weeks). In that reported study, the vaginal delivery rate reached 96%.[18]As the limitation, our study did not identify the outcome of pregnancy and fetus of patients receiving cerclage procedure.

There some precautions need taken, in regards of applying cerclage procedure. Insertion of cervical cerclage in patients with PROM is not recommended due to the lack of evidence. Some researches exhibited that cerclage insertion on patients with PROM could prolong the gestational age, but with the increase of infection risk to the mother and neonates.[19] Similarly to patients with vaginal discharges (66.7% patients in this study had vaginal discharges). In this case, the risk of ascending infection increases that might contribute to the bulging of membrane and preterm deliveries.[20] Additionally, cervical cerclage could be removed upon the occurrence of vaginal bleeding and heavy uterus contractility.[19]

Conclusions

Patients who received cerclage in Arifin Achmad Hospital were within the second trimester of pregnancy, which is the optimal age for pregnancy. In general, the patients had histories of vaginal discharges and overnutrition or obesity. The major pregnancy-related problem making the patients to undergo cerclage procedure was PROM.

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