

Characteristics of Patients with Placenta Accreta Spectrum at Dr. Hasan Sadikin Central General Hospital in 2019-2023

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Abstract

Objective: This study aimed to describe the epidemiological characteristics of placenta accrete spectrum (PAS) and to identify contributing factors of the patients treated at Dr. Hasan Sadikin General Hospital, Bandung. PAS is a serious obstetric complication caused by abnormal trophoblast invasion into the myometrium. Historically rare—1 in 30,000 conceptions in 1960—its incidence has increased significantly, now occurring in 1 in 500 to 1 in 533 pregnancies.

Methods: A cross-sectional study was conducted using secondary data from 2019–2023. Patient characteristics were analyzed using descriptive statistics.

Result: This study shows the median age of patients was 35 years (23 – 45 years). Nearly half (49.1%) had a history of one prior cesarean section. Urinary tract complications occurred in 8.5% and digestive tract involvement in 9.4% of cases. Additionally, 84.9% of neonates had low birth weight. Higher degrees of PAS were more frequently managed with hysterectomy. However, so far there is no guideline stating the definite indications for conservative management and hysterectomy.

Conclusion: The study highlights the importance of risk identification and prenatal care in managing PAS cases and reducing adverse outcomes. Further longitudinal research is necessary to explore associations between identified risk factors and maternal-fetal outcomes.

Keywords: Description; Epidemiology; Characteristics; Placenta Accreta Spectrum

Karakteristik Pasien dengan Spektrum Plasenta Akreta di RSUD Dr. Hasan Sadikin Tahun 2019 – 2023

Abstrak

Tujuan: Penelitian ini bertujuan untuk mendeskripsikan karakteristik epidemiologis kasus spektrum plasenta akreta (*Placenta Accreta Spectrum*/PAS) dan mengidentifikasi faktor-faktor yang berkontribusi pada pasien yang dirawat di Rumah Sakit Umum Pusat Dr. Hasan Sadikin, Bandung. PAS merupakan komplikasi obstetri serius yang disebabkan oleh invasi abnormal trofoblas ke dalam miometrium. Dahulu kondisi ini sangat jarang terjadi—sekira 1 dari 30.000 konsepsi pada tahun 1960—namun kini insidennya meningkat secara signifikan menjadi 1 dari 500 hingga 1 dari 533 kehamilan.

Metode: Penelitian dilakukan secara potong lintang menggunakan data sekunder dari tahun 2019 hingga 2023. Karakteristik pasien dianalisis menggunakan statistik deskriptif.

Hasil: Hasil penelitian menunjukkan median usia pasien 35 tahun (23 – 45 tahun). Hampir setengah dari pasien (49,1%) memiliki riwayat satu kali operasi sesar. Komplikasi saluran kemih ditemukan pada 8,5% pasien, dan keterlibatan saluran pencernaan pada 9,4% kasus. Selain itu, 84,9% neonatus lahir dengan berat badan lahir rendah. Terdapat hubungan yang signifikan antara derajat PAS dengan jenis penatalaksanaan yang diterima pasien. Namun, hingga kini belum ada pedoman yang menyatakan secara pasti indikasi penggunaan manajemen konservatif atau histerektomi.

Kesimpulan: Penelitian ini menekankan pentingnya identifikasi faktor risiko dan perawatan antenatal dalam menangani kasus PAS guna mengurangi komplikasi. Penelitian longitudinal lebih lanjut diperlukan untuk menilai hubungan antara faktor risiko yang teridentifikasi dengan luaran maternal dan janin.

Kata Kunci: Deskripsi; Epidemiologi; Karakteristik; Spektrum Plasenta Akreta

Introduction

Placenta accreta spectrum (PAS) or abnormal invasive placenta (AIP), formerly known as placental adhesion, refers to pathological placental adhesion conditions such as placenta increta, placenta percreta, and placenta accreta. PAS results from abnormal trophoblastic invasion into the myometrium, serosa, or surrounding pelvic organs.¹the uterine serosa or even beyond, extending to pelvic organs. It is classified depending on the degree of invasion into placenta accreta (invasion <50% of the myometrium In 1960, the incidence of PAS occurred in only 1 in 30,000 conceptions, but currently the incidence of PAS has increased from 1 in 500 to 533 pregnancies.^{2,3}

Various risk factors for PAS events continue to be known along with the development of the times. Risk factors known to influence PAS are maternal age, history of cesarean section (CS), history of uterine surgery, history of curettage, history of placenta previa, and in-vitro fertilization.²⁻⁸ History of uterine surgery includes myomectomy, bicornuate uterus, adenomyosis, submucosal fibroids, and myotonic dystrophy.^{2,3,5} The history of the operation causes damage to the endometrium, resulting in scarring in the area of the incision or due to too deep invasion of the myometrium by trophoblasts, resulting in abnormal placental attachment.^{9,10} However, the most significant risk factor for PAS is a history of cesarean section (CS).¹¹ The incidence of PAS has also increased along with the increase in CS deliveries recently.⁵ A history of one CS can increase the risk by up to 50%, and a history of two CSs will increase it up to 2 times compared to those who gave birth vaginally.¹¹

Several studies and case reports have identified specific risk factors for abnormal placental invasion, other than placenta previa or recurrent CS. However, these studies are limited by the small number of placenta

accreta cases. Therefore, the aim of this study was to describe the epidemiological characteristics of pregnant women with placenta accreta spectrum at Dr. Hasan Sadikin General Hospital, Bandung as a tertiary and national referral hospital by assessing more factors that may play a role in the occurrence of this spectrum.

Method

This study used a cross-sectional method by reviewing secondary data from all pregnant women who had given birth at the Department of Obstetrics and Gynecology, Hasan Sadikin General Hospital, Bandung from January 2019 to December 2023. Placenta accreta in this study was defined according to the **American College of Obstetricians and Gynecologists (ACOG)** and the **International Federation of Gynecology and Obstetrics (FIGO)** criteria.^{12,13} The inclusion criteria of the study were pregnant women diagnosed with placenta accreta spectrum and treated with total hysterectomy or wedge resection surgery. Exclusion criteria were multiple pregnancies and incomplete medical records.

Ethical approval for this study was granted by the Ethics Committee of Hasan Sadikin General Hospital with number DP.04.03/D.XIV.6.5/231/2024.

This is a descriptive cross-sectional study. Patient characteristics are described as means with standard deviations for normally distributed numerical data and percentages for categorical variables. Patient characteristics observed in this study were age, parity status, previous history of CS, history of curettage, and IVF method. Maternal outcomes were also observed in this study; bleeding status based on subgroup analysis (gestational age, PAS stage¹³, and history of surgery involving uterine manipulation). The statistical analysis in this study was using SPSS 46.0 for Windows and was using the Kolmogorov-Smirnov test

for the data distribution normality.

Result

The results of data collection obtained 120 pregnant women who experienced placenta accreta spectrum in the period from January to December 2023. A total of 106 patients who met the inclusion and exclusion criteria were included in the study.

Table 1 Characteristics of Subjects with Placenta Accreta Spectrum

Variable	N=106
Age (years)	
Median	35.00
Range (min-max)	23.00-45.00
Weight (kg)	
Median	60.00
Range (min-max)	47.00-98.00
Height (cm)	
Median	157.00
Range (min-max)	150.00-172.00
Parity	
Primipara	0(0.0%)
Multipara	81(76.4%)
Grand multipara	25(23.6%)
Mother's Education	
Graduated from elementary school	13(12.3%)
Graduated from junior high school	42(39.6%)
Graduated from high school	49(46.2%)
Bachelor's Degree	2(1.9%)
Family income	
< Minimum wage	22(20.8%)
≥ Minimum wage	84(79.2%)
PA Result Degree	
Degree 1	9(8.5%)
Degree 2	45(42.5%)
Degree 3	52(49.1%)

Note: *) Kolmogorov-Smirnov Test

Data distribution for the numerical category in this study were abnormal. The median age was 35 years (range: 23–45), median weight was 60 kg (47–98), and median height was 157 cm (150–172). Most patients were multiparous (76.4%), had a high school education (46.2%), and 79.2% had income ≥ minimum wage. Based on pathology, 49.1% had PAS degree 3.

Table 2 Risk Factors for Pregnant Women with Placenta Accreta Spectrum

Variable	N=106
BMI (kg/m ²)	
Normal	86(81.1%)
Overweight	18(17.0%)
Obese	2(1.9%)
History of previous cesarean section	
0	10(9.4%)
1	52(49.1%)
2	37(34.9%)
3	6(5.7%)
4	1(0.9%)
Location of the hospital type where the previous CS was performed	
RS Type C	105(99.1%)
RS Type D	1(0.9%)
IVF History	
Yes	0(0.0%)
No	106(100.0%)
History of curettage	
Yes	1(0.9%)
No	105(99.1%)
History of uterine surgery	
Yes	3(2.8%)
No	103(97.2%)

For risk factors, 81.1% had a normal BMI, and 49.1% had a history of one cesarean section. Nearly all prior cesarean deliveries occurred at type C hospitals (99.1%). A history of IVF, curettage, and uterine surgery was rare (≤2.8%)

Table 3 Maternal Outcomes in Pregnant Women with Placenta Accreta Spectrum

Variable	N=106
Operation management	
Radical Hysterectomy	83(78.3%)
Conservative	23(21.7%)
Operation Duration (minutes)	
Median	60
Range (min-max)	60-180
Amount of Bleeding (cc)	
Median	2500
Range (min-max)	1300-4600
Maternal Mortality	
Yes	0(0.0%)
No	106(100.0%)
Histerorrhaphy	
Yes	0(0.0%)
No	106(100.0%)
Urinary tract complications	
Yes	9(8.5%)
No	97(91.5%)
Digestive tract complications	
Yes	10(9.4%)
No	96(90.6%)

Note: *) Kolmogorov-Smirnov Test

In terms of maternal outcomes, 78.3% underwent radical hysterectomy, while 21.7% had conservative surgery. The median surgical time was 60 minutes, and median blood loss was 2500 cc (range: 1300–4600). There was no maternal mortality. Urinary and gastrointestinal complications occurred in 8.5% and 9.4% of patients, respectively.

Table 4 Neonatal Outcomes in Pregnant Women with Placenta Accreta Spectrum

Variabel	N=106
Premature	
Yes	106(100.0%)
No	0(0.0%)
Neonatal Death	

Yes	0(0.0%)
No	106(100.0%)
LBW	
Yes	90(84.9%)
No	16(15.1%)
Short for Gestational Age	
Yes	15(14.2%)
No	91(85.8%)
Asphyxia	
Yes	0(0.0%)
No	106(100.0%)

For neonatal outcomes, all infants were born prematurely, 84.9% had low birth weight (LBW), and 14.2% were small for gestational age. There were no cases of neonatal death or asphyxia.

Discussion

This study provides an epidemiological analysis of patients with placenta accreta spectrum at Hasan Sadikin General Hospital from January 2019 to December 2023. Our findings suggest that there is a significant relationship between the degree of PAS and the management received by patients. However, so far there is no guideline stating the definite indications for conservative management and hysterectomy. The Society for Maternal-Fetal Medicine (SMFM) survey in 2012 reported that 32% of practitioners had tried conservative pregnancy management for PAS disorders. The majority of members of the Society of Perinatal Obstetricians, with and without recent experience in the management of PAS disorders, chose conservative management, 69% and 70%, respectively, compared to 31% when the accreta villi were confined to the uterus in placenta accreta or increta. This may be related to the high maternal morbidity rate (40%-50%) in mothers who underwent hysterectomy. Moreover, in cases of placenta percreta, the mortality rate can reach 7%

due to damage to pelvic organs and blood vessels.¹⁴

In peripartum hysterectomy, unintentional urinary tract injury can occur, reaching 29%. The majority (78%) of injuries involve the bladder, while the rest involve the ureter. The risk of urinary tract injury can be reduced by placing a ureteral stent before surgery. In addition, the retroperitoneal space can be opened to visualize the ureter so that it can help and prevent unintentional damage to the ureter. In this study, urinary tract complications did not differ significantly in each degree of PAS.

Maternal age is an independent risk factor for PAS.¹⁴ In women aged thirty-five years or older without a history of cesarean section, there was an increase in the odds ratio of 1.30 (95% confidence interval 1.13-1.50) for every one-year increase in age.¹⁴ the uterine serosa or even beyond, extending to pelvic organs. It is classified depending on the degree of invasion into placenta accreta (invasion <50% of the myometrium In this study, the average age of PAS patients was 34.39 years with a median of 35 years.

Cesarean section has been known to be a risk factor for PAS. This risk increases with increasing history of cesarean section. The odds ratio of PAS in women with a history of two cesarean sections ranged from 8.6 (95% CI 3.536-21.078) to 17.4 (95% CI 9.0-31.4).¹⁵ This risk increased in women with three or more previous cesarean sections to 55.9 (95% CI 25.0-110.3).¹⁵ In this study, the subjects were dominated by women with a history of one or two cesarean sections.

Surgical trauma to the endometrium or myometrium is associated with PAS. This trauma occurs in curettage, manual placenta, postpartum endometritis or myomectomy.¹⁶ In this study, there was 1 person who had a history of curettage and 4 people who had a history of uterine surgery.

In this study, there were 84.9% of neonates who had low birth weight. This is

in line with other studies which stated that neonates born from PAS pregnancies had significantly lower birth weight (OR 1.21; 95% confidence interval 0.49–2.96).¹⁷ perinatal outcomes, and consequences for subsequent births”, ”type”: ”article-journal”, ”volume”: ”208”}, ”uris”: [”http://www.mendeley.com/documents/?uuid=19cc6b52-2c52-4797-94ee-85e036841147”]}, ”mendeley”: {”formattedCitation”: ”¹⁷”, ”plainTextFormattedCitation”: ”17”, ”previouslyFormattedCitation”: ”¹⁷”, ”properties”: {”noteIndex”: 0}, ”schema”: ”https://github.com/citation-style-language/schema/raw/master/csl-citation.json”} This may be related to the gestational age at birth. In this study, all neonates were born prematurely without asphyxia and all were alive. However, an Australian study reported an increased risk of neonatal death in pregnancies with PAS (RR 8.0; 99% confidence interval 1.5-41.6).¹⁸

This study has several limitations. The relatively small number of subjects involved may affect the generalizability of the findings to a wider population. Further studies with longitudinal studies and larger sample sizes are needed to strengthen these findings. In addition, we do not have specific data on the surgical techniques used in the management of PAS. Different surgical techniques may have different impacts on clinical outcomes. Future studies should include detailed data on the surgical techniques used to understand their impact on patient outcomes.

Conflict of Interest

There is no conflict of interest in this study.

Conclusion

It was concluded that maternal age and prior cesarean section may be contributing factors for the incidence of PAS. There may

be a significant relationship between PAS severity and chosen management strategies, warranting further investigation. In this study, the median age of PAS patients was 35 years ranging from 23–45 years. The majority of patients had a history of cesarean section once. There were 84.9% of neonates who had low birth weight in patients with PAS related to the gestational age at the time of termination. However, further research with a longitudinal design is needed to understand the long-term impact of placenta accreta spectrum and the effectiveness of various management strategies.

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