

## Reducing Maternal Morbidities in Placenta Accreta Spectrum Disorders (PASD)

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### Abstract

Placenta Accrete Spectrum Disorder refers to morbidly adherence placenta which cause so many morbidities and even mortalities in Indonesia and worldwide. Dr Soetomo General Hospital has managed hundred PASD cases by interdisciplinary team approach with steeper and steeper learning curve. In order to reduce morbidities and mortalities we analyze our cases and worldwide cases and share in this paper.

Our data and also from other writers b. diagnosis should be accurate diagnosis c. developing world should be developing countries stated that there are some the efforts that can be done 1. Before pregnancy: history of previous cesarean delivery even only one is early warning, incomplete niche development in cesarean scar, appropriate interpregnancy interval, assessment of surgical technique 2. First trimester: screening for cesarean scar pregnancy or cross over sign assessment 3. Second to third trimester: screening by placenta accrete index play important role, placental mapping at tertiary center is mandatory including cervical length measurement, admission to the hospital in some cases, blood preparation, timely referral system, interdisciplinary team approach especially with vascular surgeon, delivery at 34 - 35 weeks in semi-elective approach, diagnosis(placenta mapping). It also seems that preventing primary cesarean delivery especially for breech and maternal request, VBAC - TOLAC in appropriate cases gave the best outcomes.

For developing world such as Indonesia, prevention is much better than the cure. Prevention of primary cesarean delivery, VBAC, timely screen, refer, diagnosis and manage in team approach seem give best results.

**Keywords:** PASD; Morbidities Prevention; Primary CD; VBAC; Appropriate Screen; Diagnosis and Birth Management

### Abbreviations

CD: Cesarean Delivery; TOLAC: Trial of Labor after Cesarean Delivery; VBAC: Vaginal Birth after Cesarean Delivery

### Magnitude of the problems

In 1950: 1 in 30,000 deliveries, 1990: 1 in 731 deliveries and in 2016: 1 in 272 delivery-related discharges In the United States. The frequency of PASD inline with increasing number of cesarean deliveries as follows 1<sup>st</sup>: 3%, 2<sup>nd</sup>: 11%, 3<sup>rd</sup>: 40%, 4<sup>th</sup>: 61% and > 4: 67%. In the absence of placenta previa, the frequency: 1<sup>st</sup>: 0.03%, 2<sup>nd</sup>: 0.2%, 3<sup>rd</sup>: 0.1%, 4<sup>th</sup> - 5<sup>th</sup>: 0.8% and > 5: 4.7%. The most recent data comes from

ACOG-SMFM Dec 2018 stated the overall rate PASD is 1 in 272 for women who had a birth related hospital discharge diagnosis, which is higher than any other published study [1-3].

In Indonesia: 5,050,637 deliveries/260 million, East Java 599.360/39.29 million, Surabaya Dr. Soetomo Hospital: 1300/ 3,457,404 million with 159 PASD cases (Jakarta: 174 cases in 7 tertiary centers). Other analysis at Dr Soetomo Teaching Hospital found that in 2014 - 2018 there were 144 antepartum PASD, increasing from year to year with mean age 33 years, but 45% more than 35 years old, almost 100% with prior cesarean delivery and or curettage with 61 (42%) cases with only one Cesarean Delivery (CD). Of these 144 PASD patients, almost 70% with semi- scheduled CD - 30% emergency cases, 51% conservative surgery, with bleeding volume maximum 21L (in very difficult diffuse cases and hysterectomy), and 5% maternal death [4-6].

### PASD - Iatrogenic disease

As stated by Illich [7] "a vast amount of contemporary clinical care is incidental to the curing of disease but the damage done by medicine to the health of individuals and populations is very significant. These facts are obvious, well documented and well repressed". Medicalization - a sociologic perspective, is the process by which human conditions and problems come to be defined and treated as medical conditions, and thus become the subject of medical study, diagnosis, prevention, or treatment. Iatrogenesis refers to any effect on a person, resulting from any activity of one or more other persons acting as healthcare professionals or promoting products or services as beneficial to health, which does not support a goal of the person affected [7-11].

Lown [12] a few decades ago had also commented to modern medicine that depersonalize patients and de-professionalize doctors. Goleman [13] in the "Mind and Medicine" chapter stated that doctor rely heavily on treating the disease not the person who suffered from the disease. Gawande [14] in his book "Being Mortal" claimed that the medicine has to change direction not only fight with disease but help the patients to make their life meaningful and able to write their own life story including fight against terminal stage disease.

### Why did the cesarean delivery rate increase

Data stated that cesarean delivery rates increase worldwide not only in developing countries such Indonesia but also in developed countries [15-19].

In Indonesia [15], rate of CD increased almost 2,5 times, Guirguis., *et al.* in USA: from 1970 - 5.5% to 32,7% in 2013 [16], Barber [17] stated that 50% increase due to primary CD, Boerma [18] in 2015, which was almost double the number of births by this method in 2000, FIGO - Visser, *et al.* [19]: the delivery fees for physicians for undertaking CD and attending vaginal delivery should be the same, including private practice settings; WHO and Betran [20,21] stated that interventions to reduce overuse must be multicomponent and locally tailored, addressing women's and health professionals' concerns, as well as health system and financial factors; Miller [22] in 'Beyond too little, too late and too much, too soon' proposed a pathway towards evidence-based, respectful maternity care. Guirguis proposed 8 items that cause the CD increase as follows 1. Women are delaying childbearing, leading to more births among women of older age. This group has a high rate of CD and medical complications 2. A higher proportion of births are occurring in nulliparous women who are at a higher risk for cesarean delivery 3. Continuous fetal monitoring during labor has increased the cesarean delivery rate for category II and III tracings 4. There are concerns about medical legal action in the event of an adverse fetal outcome if a CD is not performed 5. A diagnosis of dystocia is made more frequently and managed by cesarean delivery 6. Term vaginal breech delivery has been discouraged by the medical literature 7. Routine scheduled repeat cesarean delivery is more commonplace 8. There is cesarean delivery secondary to "Maternal Request".

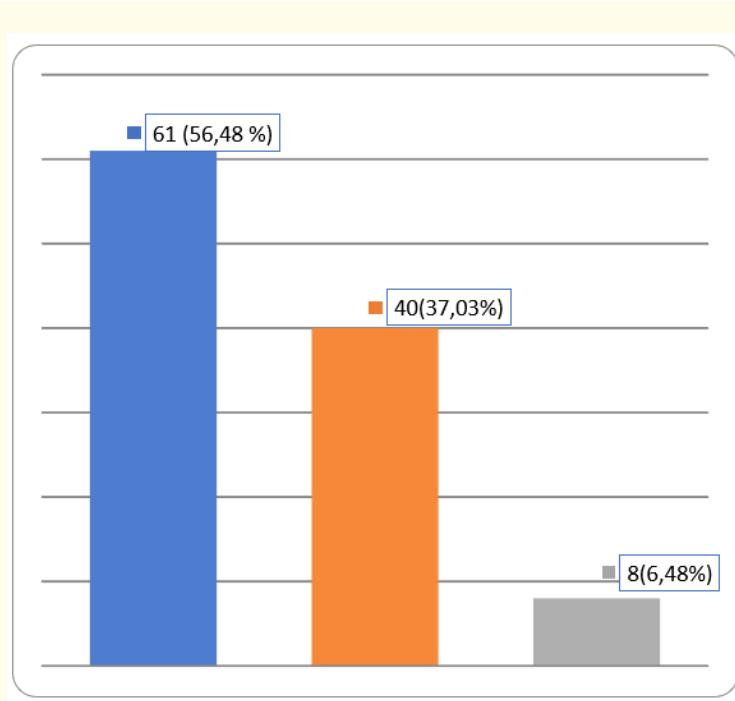
### Efforts to reduce maternal mortality in PASD

There are at least 7 efforts to reduce maternal morbidity and mortality in PASD cases as follow.

**Eligibility to get pregnant:** In women who plan to get pregnant, some conditions are contraindicated for them especially previous placenta accreta. Even though pregnancy after PASD is very uncommon, the possibility occur when conservative surgery performed - Palacios [23] reported 106 pregnancies after PASD.

The other condition that must be carefully be assessed are history of more than 3 times cesarean deliveries or uterine surgery [2-6].

Resnik and other writers found that the risk of PASD in first (primary) cesarean birth: 3%, second cesarean birth: 11%, third cesarean births: 40%, fourth cesarean births: 61% and fifth or greater cesarean birth: 67%. But be careful, in Surabaya there were many cases of PASD with only one CD [2-6].



**Figure 1:** Distribution of PASD according to number of previous cesarean delivery (modified from ref 6).  
the blue bar: 3 times CD the orange bar: 2 times CD, the grey bar: 1 CD

### Surgical technique for CD

There are two reasons why we suggest this important 1. Very few PASD cases with CD performed at Dr Soetomo teaching hospital. Our Standard Operating Procedure include bladder flap creation, exteriorization of the uterus, two layer uterine closure, reperitonealization and washing 2. A significant proportion of PASD cases with history only one CD [4-6].

According to CORONIS trial any of these surgical techniques is acceptable, Basket, *et al.* reported on conflicting and inadequate data on the outcome of single- versus double-layer closure, Malvasi and Renzo: scientific literature leans toward a simple continuous suture

in single layer, Stark: only single-layer closure with huge needles-80 mm in diameter, Guirguis and Apuzio: the importance of approximation, Berghella: two-layer uterine closure rather than a one-layer closure for women who would consider a trial of labor after a previous cesarean delivery [24-29].

### Reducing primary cesarean delivery

#### External version and vaginal delivery of breech presentation

Most of the breech presentation especially in primigravida giving births by cesarean delivery. This phenomenon are based on Term breech trial by Hannah., *et al.* in 2083 women and found that perinatal mortality, neonatal mortality, or serious neonatal morbidity was significantly lower for the planned caesarean section group than for the planned vaginal birth group: 17 of 1039 [1.6%] vs 52 of 1039 [5.0%]; relative risk 0.33;  $p < 0.0001$ . Subsequent studies showed almost the same results such as Hofmeyr, *et al.*: Planned caesarean delivery compared with planned vaginal birth reduced perinatal or neonatal death as well as the composite outcome death or serious neonatal morbidity, at the expense of somewhat increased maternal morbidity. In 2-year follow up, infant medical problems were increased following planned caesarean delivery and no difference in long-term neurodevelopmental delay or the outcome "death or neurodevelopmental delay" was found, though the numbers were too small to exclude the possibility of an important difference in either direction. ACOG: if vaginal breech deliver is planned, the risks that perinatal or neonatal mortality or short term serious morbidity may be higher than if CD is planned [30-34]. And we have to acknowledge that most more recently trained obstetricians (in developed and developing countries) are no longer skilled in vaginal breech delivery.

#### TOLAC and VBAC

There is some fear on uterine rupture if they perform TOLAC and VBAC, but Metz stated that VBAC rate of 60 - 80%, with an estimated uterine rupture rate of 0.4 - 0.7%; Grobman found that induced labor appears to be associated with a higher rate of uterine rupture than spontaneous labor, but the absolute difference is low. Landon and Frey: the risk of uterine rupture is approximately 0.3% in women with a prior cesarean regardless of mode of delivery. A prior vaginal delivery, either before or after the prior cesarean delivery, significantly reduces the risk of uterine rupture. Dekker reported in a large Australian population study - 68% had a repeat CD, 56% who labored delivered vaginally (18%), there were only two uterine rupture/1000 births, but IOL and/or augmentation was associated with a dramatic increase in the risk of rupture [35-38].

#### Category II cardiotocography

One of the indication of CD is category II or atypical or non-reassuring or suspicious include all FHR patterns that are not classified as category I (normal) or category III (abnormal) - an added parameter should be looked upon in order to reduce the number of CD. Macones stated that the potential for development of fetal acidosis varies widely across the different types of category II tracings. Patients with these tracings should be evaluated for factors that may reduce fetal oxygenation, taking into account associated clinical circumstances (e.g. abruption, intrauterine growth restriction, trial of labor after cesarean, stage of labor, decelerations/bradycardia). Fetal scalp pH or lactate is an important aspect of managing category II CTG patterns. Miller stated that Contemporary evidence does not confirm earlier assumptions that electronic FHR monitoring is associated independently with a significant increase in the rate of cesarean delivery [39,40].

#### Cesarean delivery on maternal request (CDMR)

Liu [41] studied 66226 women and found that compared with nulliparous women who tried vaginal delivery, women who underwent CDMR had similar short-term maternal outcomes with some neonatal benefit - the same result with Berghella., *et al* [42].

Lokugamage, *et al.* [43]: Birthing is not purely a biomedical event; it is a biopsychosocial experience for the family, and is not meaningfully defined for many women in terms of morbidity and mortality outcomes but in quality of the experience overall. Maternity institutions should nurture an organizational culture that promotes compassionate care, respect for rights, high staff morale and flexible application of evidence-supported care. Edozien [44]: By adopting a biopsychosocial model of intrapartum care, doctors and midwives can enhance the birth experience of women under their care and achieve optimal clinical outcomes while also securing psychological well-being.

ACOG [45] estimated that 2.5% of all births in the United States are cesarean delivery on maternal request and stated on this issue: is not a well-recognized clinical entity and in the absence of other indications for early delivery, cesarean delivery on maternal request should not be performed before a gestational age of 39 weeks; and, given the high repeat cesarean delivery rate, patients should be informed that the risks of placenta previa, placenta accreta spectrum, and gravid hysterectomy increase with each subsequent cesarean delivery.

Norwitz [46] also found that planned cesarean delivery is associated with a lower risk of fetal injury than planned vaginal delivery, but longer hospital stay/recovery and increased risks of neonatal respiratory problems, abnormal placentation in future pregnancies and uterine rupture in future pregnancies if a trial of labor is attempted.

If we apply Gawande opinion is this case, without financial considerations and after exposed to complete explanation from the provider maybe there is a place for the mother to write by herself one of biggest event in her life - being a mother. It is a life changing event, some consider psychologically as traumatic event.

### Dystocia

There is premise that failure to progress means failure to wait which is in accordance with Zhang [47] findings and Ehsanipoor [48] and Funai [49] suggestions. Zhang found in 62,415 mothers, the rate of cervical dilation accelerated after 6 cm, and progress from 4 cm to 6 cm was far slower than Friedman or WHO curve. In the first stage, they recommended different definition for protracted or arrest active phase. In the second stage of labor they also recommended longer duration pushing and different criteria for arrest of descent

### Induction of labour (IoL)

Writers (plus S) found that Induction of Labor results in better outcome either for the mother and for the neonates either retrospectively [50-53] or prospectively [54,55].

The risk of waiting is increase with the gestational age showing that old premise that uterus is the best incubator no longer fits. So, induction of labour is not a risk factor for Cesarean delivery.

### Other interventions

Repair of niche formations before pregnancy; identify and manage CSP and pregnancy with cross over signs I and II in the first trimester of pregnancy; identify and refer suspected PASD cases in the second trimester, manage PASD at tertiary centre only, perform the CD at 34 - 35 weeks of pregnancy, follow the Palacios findings in vascularization in PASD(S1, S2, neovascularization, marked increase in anastomosis, aorta compression), Dr Soetomo Teaching hospital as the tertiary hospital in Surabaya East Java Indonesia until October 2019 faced 284 cases and increasing year by year (2013: 1, 2014: 4, 2015: 7, 2016: 24, 2017: 60, 2018: 75, 2019: 83 cases) including 53 cases with aorta compression(clamping) [56].

### Conclusion

There many efforts sholud be there are many that can be done to this catastrophic obstetrics complication. It seem that for developing countries, prevention of primary cesarean delivery, screening for cross over sign, and accrete by placenta accrete index continue with placenta mapping to confirm the depth and widespread of the adherence, interdisciplinary team approach and also timely delivery seem to be the best for this time. Continual improvement in all aspects of the managing pregnancy should be done.

### Declarations

The author declares that they have no competing interests.

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