Study of risk factors of abruption placenta in Al.wahda teaching hospital, Aden

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Abstract

The aim of this study is to determine the prevalence and associated risk factors of abruption placenta in Al-Wahda Teaching Hospital in Aden Governorate, from 1st of November 2011to 30th of November 2012.

A case control study was performed for 33 of abruption placenta cases with 165 control cases, conducted at the Department of Obstetrics and Gynecology, Al-Wahda Teaching Hospital.

Out of 6765 deliveries included in the study period, 33 (4.88%) were complicated by placental abruption. Most complications occurred were urgent and in need of massive blood transfusion. The most frequent complication were Postpartum hemorrhage (51.52%), cesarean section (42.43%), hemorrhagic shock (18.18%), hysterectomy (12.12%), renal failure (6.06%), pulmonary embolism (3.03%), and congestive cardiac failure (3.03%). There was one maternal mortality case in the period of study from abruption placenta.

Women aged more than 35 were more likely for experiencing abruption placenta, while grand multipara (> 5 children) were at higher risk for abruption placenta. Gestational age < 37 weeks increased the risk by eight folds. The risk of abruption placenta increased by six folds in hypertensive patients, as well as those with previous history of abruption and previous abortion. Poly hydramnios and abdominal trauma increased the risk of abruption placenta by two folds.

he fetal outcomewas characterized by low body weight <2500 gram seen in 20 cases (60.6%), low APGAR score at 5th min<7 was seen in 4 cases (21.05%), and stillbirth rate in 14 cases (42.42%).

Keywords: Abruption placenta, maternal mortality, hemorrhage, hypertension, stillbirth.

Introduction

Antepartum hemorrhage (APH) is a grave obstetrical emergency, and a serious condition which accounts for a high percentage of maternal and neonatal morbidity and mortality[4,12,24].It is defined as hemorrhage from the birth canal after the 24th week of gestation, at any time until the second stage of labor is completed and has a reported incidence of 3.5% which varies with socio-demographic variables[8,14,16].Placental abruption is the most common cause of late pregnancy bleeding [21]. The four main causes of APH include placenta previa, placental abruption, uterine rupture and unknown etiology[17].

It usually presents as a combination of vaginal bleeding, uterine contractions, and pain[9].Abruption is often discovered when bright red or dark clotted blood is discharged from the vagina. However, bleeding from the vagina is not always the case[2]. Bleeding and pain constitute the classical symptoms of placental abruption, but the clinical picture varies from asymptomatic, in which the diagnosis is made by inspection of the placenta at delivery, to massive abruption leading to fetal death and severe maternal morbidity [26].

The exact etiology of abruption placenta remains obscure, however various risk factors have been implicated, like advanced maternal age, high parity, low socio-economic status, folic acid deficiency, maternal hypertension, and trauma[7,19].Other factors are known to be associated with increased risk of placental abruption as alcohol and cocaine use and cigarette smoking, but there are fewer studies about the importance of opioid abuse in placental abruption[22]. Recently, placental abruption has been reported to be more prevalent in thrombophilic pregnancies and in women with a familial history of venous thromboembolism. Most risk factors for placental abruption are also related to increased risk of venous thromboembolism[13].

Maternal complications include hemorrhagic shock, coagulopathy, disseminated intravascular coagulation, and renal failure. The condition is also associated with increased risks of preterm delivery and intrauterine growth restriction. Neonatal death and long term complications are also adverse outcomes following placental abruption[23].The maternal consequences are secondary to the severity of placental abruption, the fetal effects are also determined by the severity of placental abruption, gestational age and underlying risk factors, like intra-uterine growth restriction. In the developed world, the frequency has been reported from 0.43% to 1.8% with perinatal mortality ranging from 4.4 to 67.3%.2 [11,18].

It is particularly important to investigate the risk factors associated with abruption placenta in our hospital. The objective of the study is to determine the frequency, obstetrical risk factors and the subsequent feto-maternal outcome in women suffering from placental abruption.

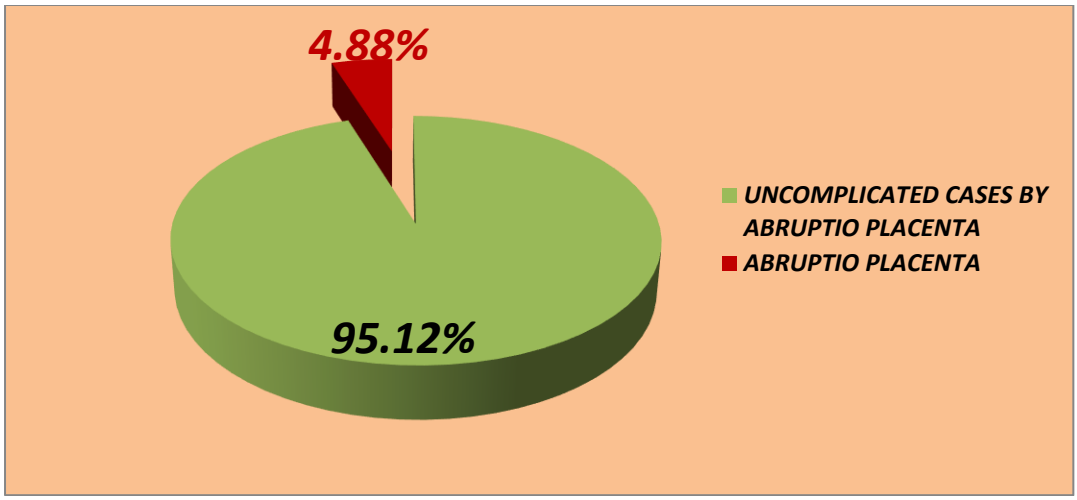
Patients and methods

In a prospective case-control study, birth records included 33 cases with abruption placenta and 165 randomly selected controls from 1st of November 2011 to 30th of November 2012, in Al-Wahda Teaching Hospital - Aden Governorate – Yemen, were investigated. All women with the diagnosis of placental abruption having more than 24 weeks gestation were included in the study. Factors analyzed from the available 198 patients (33 cases and 165 controls) include age of the mother, parity, gestational age, the mode of delivery, need of blood transfusion, maternal mortality and morbidity, risk factors like hypertension, abdominal trauma, previous history of abruption placenta or abortion,in addition to fetal body weight, APGAR score and if the newborn alive or still birth (SB).

These data were collected from the patient directly using designed questioners, then analyzed and processed by using computerizing system SPSS version 15. Data were represented in tables and figures. Variables were tested by using chi square test along with presenting relevant odds ratio (OR). For statistical analysis, P- values ≤ 0.05 was considered significant.

Results:

In the study period, 33 cases with abruption placenta were recorded, representing 4.88% of the total hospital deliveries (6765) for the same period.



Graph 1: Prevalence of complicated and uncomplicated cases with abruptio placenta.

Table 1: Maternal morbidity and mortality in cases of abruption placenta

Type 0f complication	No.	%
Need for blood transfusion		
One pint	10	30.30
Two to three pints	14	42.43
More than Three pints	9	27.27
Mode of delivery		
Cesarean section	14	42.43
Vaginal delivery	19	57.57
Hemorrhagic Shock	6	18.18
Postpartum hemorrhage	17	51.52
Hysterectomy	4*	12.12
Renal failure	2**	6.06
Pulmonary embolism	1	3.03
Congestive cardiac failure	1	3.03
Maternal mortality	1#	3.03
*4 cases of postpartum hemorrhage terminated in hysterectomy **Two cases from shock developed renal failure # the maternal death is a case of pulmonary embolism 8 cases of abruption placenta were un complicated		

Table one shows that 42.43% of the cases of abruption placenta received two to three pints of blood, while 27.27% received more than three pints of blood, and the remainder(30.30%) received only one pint of blood. Slightly more than half of abruption placenta cases were terminated vaginally (57.57%) and, unfortunately, 6 cases developed hemorrhagic shock(18.18%) , one third of them developed renal failure (6.06%). Hysterectomy complicated 12.12% of abruption placenta cases. Congestive heart failure developed in 3.03% , and pulmonary embolism complicated also 3.03% of cases, which,unfortunately, lead to maternal death.

Table 2:Clinical characteristics of women with placental abruption and control groups

Risk factor	Cases (n=33)		Controls (n=165)		OR	95% CI for OR	P value
	No.	%	No.	%			
Age							
< 20 years	1	3.03	26	15.76	0.18	0.02-1.28	0.054
20 – 35 years	13	39.39	127	76.97			
> 35 years	19	57.58	12	7.27			
Previous cesarean section							
Yes	1	3.03	4	2.42	3.84	1.61-9.15	0.003
No	32	96.97	161	97.58			
Parity							
Nulliparous	3	9.09	45	27.27	0.53	0.13-1.90	0.00
Puluripara (1-3)	11	33.33	83	50.30			
Multiparous (4-5)	7	21.21	23	13.94			
Grand multipara(> 5)	12	36.37	14	8.49			
Gestational age							
<37 weeks	11	33.33	19	11.52	8.53	3.05-23.84	0.00
>37 weeks	22	66.67	146	88.48			

Hypertension Yes No	9 24	27.27 72.73	8 157	4.85 95.15	6.32	4.58- 8.74	0.027
Previous abruption placenta Yes No	5 28	15.15 84.85	0 165	0.00 100.00	6.89	4.89- 9.71	0.00
Previous abortion Yes No	11 22	33.33 66.67	31 134	18.79 81.21	6.72	4.58- 8.73	0.00
Poly hydramnios Yes No	2 31	6.06 93.94	0 165	0.00 100.0	2.60	0.46- 14.80	0.27
Abdominal trauma Yes No	2 31	6.06 93.94	0 165	0.00 100.00	2.16	0.95- 4.92	0.06
OR=Odds ratio; CI=Confidence interval							

Table no. 2 shows that nearly more than half of abruption placenta cases (57.58%) were of women with age more than 37 years old, while it represented the lowest percentage of the control group (7.27%).

Previous cesarean section represented nearly the same percentage (3.03%) for the cases and (2.42%) of the control.

Grand multipara (> 5 children) accounted for about one third of the cases (36.37%) and only less than one tenth of the control group (8.49%).

Gestational age of >37 weeks was seen in about two thirds of the cases (66.67%) and more than four fifths of the controls (88.48%).

Hypertension was found in more than one fifth of the cases (27.27%), while only 4.85% of the control group had hypertension.

Previous abruption placenta was not present in control group, while it was recorded in 15.15% of abruption placenta cases.

Previous abortion was presented in about one third of the cases (33.33%) and in less than one fifth of the controls (18.79%).

Poly hydramnios and abdominal trauma both were not present in the controls and were presented in 6.06% of the cases.

Table 3: Fetal and neonatal outcomes of patients with placental abruption

OUTCOMES	Cases (n=33)		Controls (n=165)		Odds ratio	95% CI for OR	P value
	No.	%	No.	%			
Stillbirth Yes No	14 19	42.42 57.58	2 163	1.2 98.8	86.59	18.33- 409.02	0.00
APGAR score at 5th min <7 >7	4 15	*21.05 *78.95	37 126	#22.70 #77.30	6.05	2.73- 13.45	0.00
Birth weight <2500 gram >2500 gram	20 13	60.6 39.4	31 134	18.79 81.21	5.65	2.49- 12.85	0.00
APGAR=Appearance Pulse Grimace (reflex) Activity Respiration *percentage was calculated from a total of 19 a live neonates of the cases # percentage was calculated from a total of 163 a live neonates of the controls							

Table 3 shows that the prevalence of stillbirth delivery in cases with abruption was 42.42%, while it was 1.20% in thecontrol group.

APGAR score at 5th min was <7 in 21.05% for the neonates of the abruption placenta cases and (22.70) for the neonates of the control group.

Birth weight<2500 gram represented nearly two thirds of the neonates of the abruption cases (60.6%), while it was less than one third of the neonates of the control group (18.79).

Discussion

Abruption placenta, is one of the most devastating pregnancy complications[26]. An alarmingly high figure of abruption placenta was reported in this study(4.88%). Seema Bibi and coworkers, in Pakistan, reported nearly the same percentage (4.7%)[5]. Slightly low percentage was reported in Iran by Zamani E. who showed that the frequency of abruption placenta was 3.49%[27].Lower percentages was reported by Abbasi et al.(1.87%) [1], and by Ghaheh, *et al*(1%) in Iran[10].

Almost all of the study population required blood transfusion, of which 9 (27.27%) women required massive transfusion of more than 4 units of blood. There were one maternal deaths who developed pulmonary embolism as a complication of abruption placenta.

Most of abruption placenta cases occurred in maternal age more than 35 years (57.58%), while most of the control age occurred between 20 – 35 years (76.97%) , this is in agreement with Ghaheh, et al, who found that pregnant women who are younger than20 or older than 35 years had greater risk for placental abruption[10].

Several studies conducted around the world confirmed a 2-5 fold increased risk for abruption placenta development in women with a history of previous cesarean section[22].This study confirmed that the frequency of previouscesarean sections is significantly higher in abruption placenta group than in the control group,corresponding to 3.84 fold higher risk for abruption placenta, and this is in agreement with the study done by Zamani E. (2009) in Iran. [28]

ulti-parity was a risk factor for abruption placenta[6]. Ghaheh, et al. reported that multiparous women had greater risk of placental abruption 1.5 fold than controls[10], this is slightly higher than that reported in this study(19 out of 33).

The risk of abruption placenta was increased in cases of Gestational age less than 37 weeks 33.33% than controls 11.52%, and this is statistically significant.

The role of previous abruption placenta implies genetic base for abruption placenta development [28].There are some indications from other studies that previous abruption placenta could be a risk factor for itsdevelopment in current pregnancy[15]. Thisstudy confirmed that having a previous abruption placenta increases the risk by nearly seven folds (OR=6.8), and it is statistically significant.

Hypertension during pregnancy increased the risk of abruption placenta by 8.53 folds than non hypertensive, the study which done by Ananth noted an associations between history of hypertension and placental abruption. .[2]

The current study showed statistically significance history of previous abortion to increase the chance of abruption placenta by six folds (OR=6.72).Ghaheh, et al. showed, in their study, that 29% of women had a history of previous abortion resulting in greater risk for placental abruption[10]. The mechanism how previous abortions pre-dispose to placental abruption development could be explained with possible endometrial damage during repeated abortions, which impedes successful implantations of placenta[20]. Polyhydramnios and abdominal trauma doubled the risk of abruption placenta (OR=2.60, OR=2.16 respectively).

The perinatal mortality rate depends on gestational age, fetal weight, and the degree of abruption placenta[3]. About half of perinatal deaths due to abruption placenta makes this disorder a major contributor to stillbirth[25]. In our study, 42.42% (14 cases) of fetuses had still birth and 21.05% of new born had APGAR score in 5th minutes less than 7 after birth, this is in agreement

with the study done by Ghaheh et al.[10]. Signal showed that APH(Ante Partum Heamorrhage) is a grave obstetrical emergency that leads to low birth weight, intrauterine death, and birth asphyxia[6].

Furthermore, 60.0% (20 cases) of newborn had weightless than 2500 gram. Abruption placenta with these clinical characteristics should be closely monitored and prompt delivery should be carried out at tertiary care centers with adequate maternal-neonatal intensive care facilities.

Despite heightened awareness, abruption placenta still remains unpredictable and unpreventable. A clinicallyuseful predictive test is needed to detect individuals atrisk[26]. Antenatal care plays a significant role in decreasingthe incidence of abruption placenta. [1]

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دراسة عوامل الخطورة المتعلقة بانفصال المشيمة الباكر في مستشفى الوحدة التعليمي–عدن

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الملخص

تهدف هذه الدراسة إلى معرفة معدل وقوع انفصال المشيمة الباكر والعوامل المتعلقة بهفي مستشفى الوحدة التعليمي–عدن 1نوفمبر 2011- 30 نوفمبر2012م.
تُعدً هذه الدراسة مستقبلية وصفية لثلاثة وثلاثين امرأة حامل تضاعفت بانفصال المشيمة الباكر، تم مقارنتها مع مئة وخمسة وستون حالة لم تحدث لديهنً انفصال مشيمة باكر, ولدن في مستشفى الوحدة التعليمي للفترة من الأول من نوفمبر 2011م - الثلاثون من نوفمبر 2012م.
تم تشخيص ثلاثة وثلاثين حالة انفصال مشيمة باكر بمعدل وقوع 4.88%، معظم الحالات احتجن إلى تركيب طارئ وغزير للدم. النزيف ما بعد الولادة ظهر عند 51.52%، العمليات القيصرية 42.43%، الصدمة النزيفية 18.18%، استئصال المحبلة 12.12%, الفشل الكلوي 6.06%. وأخيراً انسداد الوعاء الدموي الرئوي وفشل القلب المحتقن بنسبة 3.03% لكل واحد منهما. ولسوء الحظ هناك حالة وفاة أمهات واحدة في فترة الدراسة.
العمر عند الأمهات أكثر من 35 سنة. و رقم الولادة أكثر من 5 أطفال ارتبط بخطورة حدوث انفصال مشيمة باكر36.37% مقابل 8.49% وفترة الحمل أكثر من 37 أسبوع صاحبت بزيادة انفصال المشيمة الباكر بمعدل ثمانية أضعاف . ارتفاع الضغط يزيد خطورة انفصال المشيمة الباكر بمعدل ستة أضعاف وبالمثل انفصال المشيمة الباكر بالنسبة للحمل السابق الإجهاض السابق و زيادة السائل الامنيوني والتعرض للصدمات يزيد خطورة انفصال المشيمة الباكر بمعدل ضعفين المواليد للأمهات ذوات انفصال المشيمة الباكر كانوا بوزن يقل عن 2500 جرام 60.6%، ابجر< 7 في الدقيقة الخامسة من الولادة وجد في 21.5%، ولادة جنين ميت وجدن في 42.42%.

الكلمات المفتاحية: انفصال المشيمة، وفيات الامهات، النزيف، ارتفاع الضغط، ولادة جنين ميت.