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## Original Research Article

## Study of bad obstetric history cases attending tertiary care centre, Tirupati

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## ABSTRACT

**Aim:** To assess the obstetric and medical risk factors in patients with bad obstetric history (BOH) and outcome of pregnancy in case of BOH.**Materials and Methods:** A prospective cross-sectional study was conducted in Government maternity hospital, Tirupati for a period of 1 year from December 2017 to November 2018. All pregnant women who were fulfilling inclusion criteria of BOH, as study group and all possible variable were compared with control group, who got selected randomly from the rest of deliveries. And analysed the results in terms of sociodemographic factors, risk factors, pregnancy complications, mode of delivery, maternal and foetal outcome.**Results:** Of 102 pregnant women in BOH, 76.5% were in age group between 21-30yrs, and 14.7% in age group >30yrs. Primary Recurrent pregnancy loss (RPL) was 51% and that of secondary recurrent pregnancy loss was 49%. History of hypertensive disorders including preeclampsia, eclampsia and chronic hypertension, noted in 11.8% cases, which was higher than previous studies, indicating changing trends in incidence. In foetal complications IUGR (0% vs 9.8%, p=0.026) and IUFD (0% Vs 7.8%, p=0.05) were more in BOH group and statistically significant also. Even though the maternal complications were more in BOH group, there was no statistical significance (P=0.075). Among the various causes of RPL found in the present study, endocrine causes were seen in 12.7%, Anatomical causes were found in 11.8% and in about 63.7% cases no definite cause was found and aetiology was unexplained.**Conclusion:** Present study, supporting the change in definition of recurrent pregnancy loss from 3 consecutive losses to 2. So early evaluation and with appropriate interventions in most of couples outcomes were fruitful.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)

## 1. Introduction

Pregnancy is very precious and very unique experience to women. It is a known fact that at least 12-15% of all recognized conceptions end in miscarriage and pre-clinical pregnancy loss rate is still higher i.e.  $\approx$  30%.<sup>1</sup> Most common cause of 1<sup>st</sup> trimester miscarriages are identified as foetal chromosomal abnormalities. Recurrent pregnancy loss is devastating and frustrating to couple as well as

to clinician. Traditionally, recurrent miscarriage is defined as three or more clinically recognized pregnancy losses before 20 weeks from the last menstrual period.<sup>2</sup> Using the definition recurrent pregnancy loss occurs in approximately 1 in 300 pregnancies. Recurrent pregnancy loss needs proper & timed evaluation & intervention.

When evaluation of women for recurrent pregnancy loss is done, an underlying contributing factors can be identified in 40-50%<sup>3</sup> in couple where no underlying problem is found the chances for a successful pregnancy can typically be in 50-70% range.<sup>3</sup> If a contributing factor is found & treated,

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the prognosis for live foetus is calculated as 80%.<sup>3</sup> If couple had a normal pregnancy & delivery previously prognosis tends to be better.<sup>3</sup>

The evaluation to analyse causes for miscarriage will typically involve inspection of the macro and the micro environment within the uterus. If a pregnancy does occur, the endometrium must develop optimally to provide ongoing attachment and nourishment for the developing pregnancy. Any process, which interferes with normal embryo-endometrium interaction can lead to pregnancy failure.<sup>3</sup> Acquired problems could include polyps, fibroids and adhesions, which even if small, could interfere with an otherwise normal pregnancy. Congenital uterine problems include the septate uterus, bicornuate uterus or a T-shaped uterus related to in-utero diethylstilbesterol (DES) exposure).<sup>3</sup>

A significant immunologically mediated contributor to pregnancy loss is the anti-phospholipid antibody (APLA) syndrome. An otherwise normal pregnancy can miscarry at any stage of pregnancy. Women with APLA are at higher risk in later pregnancy of pre-eclampsia, foetal growth retardation and foetal demise.<sup>3</sup> Gestational diabetes mellitus (GDM) is defined as abnormal glucose tolerance during pregnancy. GDM can be associated with significant morbidity and mortality in the foetus and new-born.

Recurrent miscarriage (RM  $\geq$  3 consecutive early pregnancy losses) affects around 1% of pregnancies. Parental chromosomal anomalies, maternal thrombophilia disorders and structural uterine anomalies have been directly associated with recurrent miscarriage. However, in the vast majority of cases the pathophysiology remains unknown.<sup>3</sup> History taking is very crucial and important to manage BOH (bad obstetrics history) cases as parous women bears in her history more information than clinical examination is likely to provide.

In this study we aimed to identify treatable risk factors & medical conditions associated with bad obstetric history. And to measure the perinatal outcome after the interventions and identify other correctable social, ethical and environmental causes like maternal obesity, conceiving at old age etc. for further improvement in outcome.

## 2. Materials and Methods

A prospective cross-sectional study was conducted in Government maternity hospital, Tirupati for a period of 1 year from December 2017 to November 2018. Institutional ethical committee clearance was taken. In this study all BOH pregnant women attending OPD/IPD, meeting inclusion criteria of women aged 18 to 44 years with history of at least two or more miscarriage of less than 20weeks gestation, still births, IUFD and neonatal deaths were evaluated. Women with induced miscarriages, who does not given consent were excluded. A detailed history of pregnant women like maternal age, parity prior obstetric history,

co-existing medical, surgical conditions, family history of BOH, current obstetric history were noted through a pre-structured proforma and thorough clinical examination was performed. Relevant Investigations were done. And all possible variable were compared with control group, who got selected randomly from the rest of deliveries. And analysed the results in terms of sociodemographic factors, risk factors, pregnancy complications, mode of delivery, maternal and foetal outcome.

In these patients, the fetomaternal outcome were studied along the following lines-

### 2.1. Obstetric medical complications

like Antiphospholipid Abs (APLA) syndrome, Hypothyroidism, Tuberculosis Under Treatment, Gestational Diabetics Mellitus (GDM), Preeclampsia, Premature rupture of Membranes (PROM), Antepartum Haemorrhage (APH), Malpresentations, Cervical Incompetence, Threatened Miscarriage, Multifetal Pregnancy, Severe Oligohydramnios, IUGR (intra uterine growth retardation), Preterm Delivery.

### 2.2. Mode of delivery

Like Normal Vaginal Delivery, Vacuum Assisted/Outlet forceps Assisted, lower segment caesarean Section (LSCS).

### 2.3. Neonatal outcome

Like Term Delivery, Preterm Delivery, Intrauterine foetal Death (IUFD) + Neonatal Demise.

Collected data were entered in the MS excel sheet and analysed using Epi Info V7. Statistical significance for continuous variables were tested using student t-test and discrete variables using CHI-SQUARE test. Descriptive statistics were presented as frequencies and percentages.

## 3. Results

During study period, 102 BOH cases were included in the study and were compared with control group of 102 cases, who got selected randomly from rest of 12,238 deliveries in various aspects and results were analysed as follows.

Table 1 shows, there was statistically significant difference between two groups in terms of age distribution (P=0.018) and birth weight (P=0.039). At the time of inclusion in the study, 19.6% in control group and 94% in BOH group were belongs to  $\geq G_3$ . In BOH group as patients experienced previous pregnancy loss they belonged to higher gravida with max gravida of  $G_9$ .

52% (n=53) in control group were zero parity as they are primigravida but in BOH group 31.4% (n=32) were zero parous with  $\geq 2$  previous miscarriages.

Table 2 shows, in the present study, there was almost equal distribution of the patients among Primary RPL

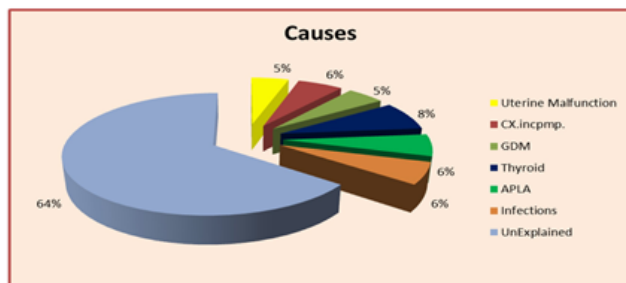
**Table 1:** Comparison of characteristics between two groups

C h aracters	Control group (n=102)	BOH group (n=102)	Chi square Value	P value
<b>Age(years)</b>				
Mean	23.81	25.82	10.113	<b>0.018</b>
SD	3.371	4.204		
<b>BMI</b>				
Mean	23.27	25.10	1.658	0.436
SD	2.68	2.82		
Periconceptional folic acid intake	3.9%(4)	31.4%(32)	-	-
<b>Conception</b>				
Spontaneous	96.1%(98)	89.2%(91)	-	-
Ovulation induction	2.9%(3)	9.8%(10)	-	-
IUI	1%(1)	1%(1)	-	-
Consanguinity	15.7%(16)	24.5%(25)	-	0.1617
<b>Birth weight</b>				
Mean	2.82	2.54	10.116	0.039
SD	0.498	0.746		
<b>Gravida</b>				
≥G3	19.6%(20)	94.1%(96)	-	-

group (51%) i.e. these patients did not have any successful previous pregnancy, and secondary RPL group(49%) i.e. those who had at least one successful past pregnancy.

Table 3 shows among various risk factors, preeclampsia (19.6% vs 8.8%, P=0.03) and preterm delivery (13.7% vs 4.9%, P=0.04) were more in BOH group than in control group and it was statistically significant also. APLA (5.9% vs 0%), malpresentations (6.9% vs 0%), cervical incompetence(6.9% vs 0%) were more in BOH group. In foetal complications IUGR (9.8%vs 1%, P=0.026) and IUFD (7.8% vs 0, P=0.05) were more in BOH group and statistically significant.

Figure 1 shows, among the various causes of RPL found in the present study, endocrine causes were seen in 12.7% (n=13), Anatomical causes were found in 11.8% (n=12) and in about 63.7% (n=65) cases no definite cause was found and aetiology was unexplained.



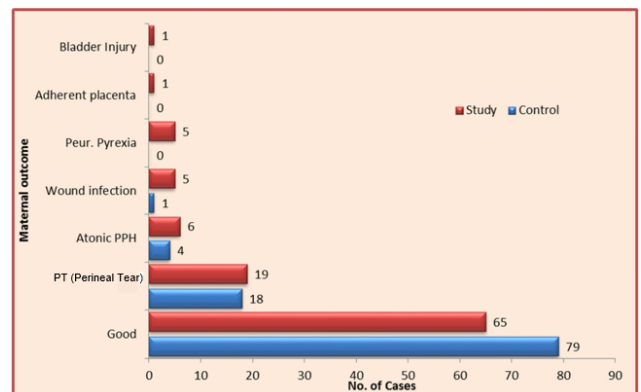
**Fig. 1:** Showing etiological factors for RPL

Regarding mode of delivery, there were more LSCS (39.2% vs 22.3%) in BOH group compared to control group. Mean birth weight in BOH was 2.54kg and in control group it was 2.82kg, which was statistically significant (P=0.039)

in comparison with control group. This indicating that BOH group was more likely to deliver low birth weight babies.

Table 4 shows, perinatal outcome was comparatively better in control group (99% vs 85.3%).

Figure 2 shows, even though the maternal complications were more in BOH group, it was not statistically significant (p=0.075).



**Fig. 2:** Representation of maternal outcome

Incidence of thick meconium liquor in BOH group was 20.6% and in control group was 11.8% and there was no statistical significance (P=0.127).

Table 5 shows, There was no statistical significance (P=0.388) in foetal outcome based on previous number of abortions.

#### 4. Discussion

As per reviewed literature, recurrent pregnancy loss (RPL), also referred to as recurrent miscarriage or habitual abortion,

**Table 2:** Distribution of cases according to type of recurrent pregnancy loss

Type of RPL	No. of Cases (n=102)	Percentage (%)
Primary	52	51.0
Secondary	50	49.0
Total	102	100.0

**Table 3:** Comparison between BOH group and control group in complications

Complications	Control(n=102)		Study(n=102)		Estimated relative risk (95% CI)	p-value
	Cases	%	Cases	%		
Anaemia	96	94	96	94	1.00 (0.43 – 2.29)	1.000
Hypothyroidism	5	4.9	8	7.8	1.60 (0.54 - 4.73)	0.395NS
Graves' disease	0	0.0	1	1.0	3.0 (0.12 – 72.79)	0.500 NS
Gestational diabetes	1	1.0	5	4.9	6.0 (0.73 -48.96)	0.09 NS
Tuberculosis	0	0.0	1	1.0	3.0 (0.12 – 72.79)	0.500 NS
APLA	0	0.0	6	5.9	13.0 (0.74-227.79)	0.079 NS
Preeclampsia	9	8.8	20	19.6	2.22 (1.06-4.65)	0.03*
PROM	10	9.8	10	9.8	1.00 (0.43 – 2.29)	1.000
APH	0	0.0	1	1.0	3.0 (0.12 – 72.79)	0.500 NS
Rh-ve pregnancy	3	2.9	8	7.8	2.67 (0.73 -9.768)	0.138 NS
Oligo Hydramnios	2	2.0	6	5.9	3.0(0.62 – 14.52)	0.172 NS
Polyhydramnios	0	0.0	5	4.9	11.0 (0.61-196.39)	0.103 NS
Twins	1	1.0	1	1.0	1.00 (0.06 – 15.77)	1.000
Breech	0	0.0	7	6.9	15.0 (0.87 -259.2)	0.06 NS
Preterm	5	4.9	14	13.7	2.80 (1.05 – 7.49)	0.04*
Past dates	12	11.8	13	12.7	1.08 (0.52 – 2.26)	0.83 NS
Cervical incompetence	0	0.0	7	6.9	15.0 (0.87 -259.2)	0.06 NS
Uterine anomalies	0	0.0	5	4.9	11.0 (0.62-96.39)	0.103 NS
Adenomyosis	0	0.0	1	1.0	3.0 (0.12 – 72.79)	0.500 NS
Prior caesarean	10	9.8	15	14.7	1.50 (0.71 – 3.18)	0.290 NS
Foetal growth restriction	1	1.0	10	9.8	10.0 (1.30 -76.70)	0.026*
Miscarriages	0	0.0	4	3.9	9.0 (0.49 – 165.04)	0.139 NS
Anomalous Baby	0	0.0	3	2.9	7.0 (0.37 – 133.83)	0.196 NS
Intra uterine foetal demise	0	0.0	8	7.8	16.7 (0.98-285.20)	0.05*

**Table 4:** Comparison of perinatal outcome in boh group and control group.

Foetal outcome	Control		Study		Total	
	Cases	%	Cases	%	Cases	%
Alive	101	99.0	87	85.3	188	92.2
Neonatal death	0	0.0	1	1.0	1	0.5
Intra uterine foetal demise	1	1.0	8	7.8	9	4.4
Miscarriages	0	0.0	4	3.9	4	2.0
Still births	0	0.0	2	2.0	2	1.0

**Table 5:** Number of miscarriages vs. foetal outcome in BOH group

Number of Miscarriages	Number of RPL Patients	Percentage (%)	Foetal Outcome					Miscarriages	% of Live Babies
			Term	Preterm	IUFD	Still Birth	ND		
Zero	24	23.5	16	4	3	0	1	0	83.3
One	19	18.6	12	3	3	0	0	1	78.9
Two	30	29.4	25	0	2	2	0	1	83.3
Three	18	17.6	16	1	0	0	0	1	94.4
Four	7	6.9	5	1	0	0	0	1	85.7
Five	3	2.9	0	3	0	0	0	1	100.0
Six	1	1.0	1	0	0	0	0	0	100.0
Total	102	100.0	75	12	8	2	1	5	

was historically defined as 3 consecutive pregnancy losses prior to 20 weeks from the last menstrual period. American society for reproductive Medicine (2013)<sup>4</sup> now changed definition of Recurrent pregnancy loss as two or more failed pregnancies confirmed by sonographic or histological examination. Current study was also in favour of changed definition, as there was no statistically significant difference in foetal outcome in patients with 2 and 3 miscarriages (83.3% in >A2 and 94.4% in >A3) (Table 5). The results were similar to the study done by Arora M et al,<sup>5</sup> in which the number that delivered were 47% in the group with 2 miscarriages and 42.8% in the group with 3 miscarriages, which was not statistically significant.

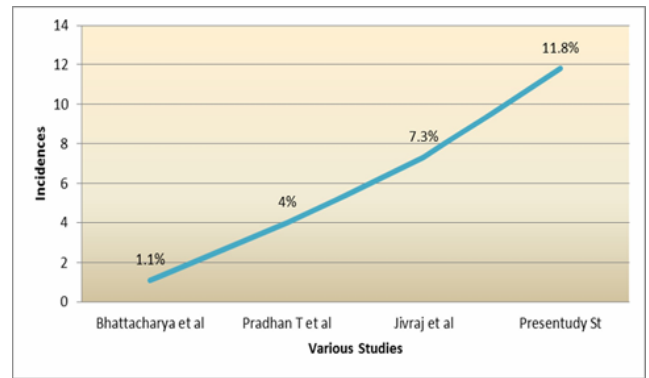
Periconceptional folic acid intake in BOH group was 31.4% (32) whereas in control group, 3.9%(4). Out of 32 cases, 30 patients delivered alive babies. This indicates that periconceptional folic acid prophylaxis had a significant role in prevention of foetal wastage due to neural tube defects.

Spontaneous conception noted in 89.2% (91) BOH cases. 9.8% (10) cases conceived only after ovulation induction and one case had IUI treatment. In post induction cases of BOH group, seven cases delivered term babies, two had preterm but alive issues and only one case got aborted of unexplained reasons.

History of congenital anomalies in previous pregnancy was present in 2.9% patients, it was consistent with Pradhan T et al<sup>6</sup> study (3%). 10.8% patients gave a history of infertility and conceived after ovulation induction or IUI treatment, showing increasing trends when compared with previous studies(5.5%).<sup>6</sup> History of preterm labour was present in 19.6%, which was consistent with previous study (16%<sup>6</sup>).

Among various risk factors preeclampsia (8.8% vs 19.6%,  $p=0.03$ ) and preterm delivery (4.9% vs 13.7%,  $p=0.04$ ) were more in BOH group than in control group and statistically significant also. It was in consistence with Singh G et al study<sup>3</sup> in which, preeclampsia (20.25% vs 5.33%,  $p<0.01$ ) and preterm deliveries (17.72% vs 6.33%,  $p<0.01$ ) was found a statistically significant factor in BOH group. Hypertension with proteinuria leads to reduced plasma volume there by supply of nutrients to the growing foetus resulting in higher still births and preterm labours leading to prematurity and neonatal deaths. History of hypertensive disorders including preeclampsia, eclampsia and chronic hypertension, noted in 11.8% cases, which was higher than previous studies. It was 1.1% in study by Bhattacharya et al,<sup>7</sup> 4% in Pradhan T et al<sup>6</sup> study and 7.3% in the study by Jivraj et al,<sup>8</sup> indicating changing trends in incidence (Figure 3).

Even though APLA (0% Vs 5.9%,  $p=0.079$ ), malpresentations (0% vs 7%,  $p=0.06$ ) and cervical incompetence (0% vs 7%,  $p=0.06$ ) were more in BOH group there was no statistically significant difference between two group. But in Singh G et al. study,<sup>3</sup> APLA



**Fig. 3:** Incidence of hypertensive disorders in previous pregnancies obstetrics and medical complications in present pregnancy

(10.13% vs 4%,  $p<0.05$ ), malpresentations (7.59% vs 2.33%,  $p<0.05$ ), cervical incompetence (5.06% vs 0%,  $p<0.01$ ) were more in BOH group and there was a statistical significant difference between two groups. Other risk factors like, hypothyroidism (4.9% vs 7.8%), GDM (1% vs 6%), APH (0 vs 1%) were even though more in BOH group, there was no statistical significance. Anaemia, PROM and postdates incidence were almost equal and there was no statistical significance and it was similar to Singh G et al<sup>3</sup> study.

APLA syndrome are frequently associated with a history of repetitive foetal deaths.<sup>3</sup> Treatment given for APLA syndrome was daily low dose aspirin and heparin during pregnancy. out of 6 APLA cases, only one case got spontaneous abortion. The incidence of good foetal outcome among them is 83%.

Seven patients presented with cervical incompetence, which were diagnosed both by previous preterm history and ultrasound findings, with cervical length <2cm and funnelling. In them six cases treated with mc Donald's cervical stitch and removed at 36-37wks gestation. Five cases delivered alive babies at term but one case presented with preterm PROM, and delivered dead baby of 1kg. one case out of 7 cases, presented with incomplete abortion at the time of diagnosis.

The incidence of uterine anomalies in present study is 4.9%(5), it was in consistence with Pradhan T et al.<sup>6</sup> study, in which incidence was 5.7%. Out of 5 cases, 2 cases were sub septate uterus, one was septate, one was arcuate and one was didelphis uterus. Four cases diagnosed at routine ultrasound. Uterine didelphis case only diagnosed at the time of delivery as patient presented to our institute in active phase of labour with IUFD and adherent placenta which was removed under short general anaesthesia. Out of remaining four cases, one patient delivered at term. Two patients had preterm labour and one got aborted.

GDM complicating pregnancy incidence in present study was 4.9%(5). All cases managed with inj. Insulin with

satisfactory glycaemic levels. One case complicated with preterm delivery. Remaining four cases reached term and one case delivered by normal vaginal delivery and three by LSCS. Thus indicating increased incidence of LSCS in this group.

Thyroid disease incidence in present study was 8.8% (8+1). Only one case presented with congenital anomalous baby with pleural effusion and ascites. Remaining 7.8% cases delivered healthy babies.

One twin case in study group had h/o four recurrent twin gestation in previous pregnancies, complicated with preterm labour and neonatal death due to prematurity. To confirmed the role and aetiology of recurrent twin gestation in recurrent pregnancy loss, further study is needed.

## 5. Conclusion

Present study, supporting the change in definition of recurrent pregnancy loss from 3 consecutive losses to 2. And even after investigations and evaluations the aetiology of recurrent pregnancy loss were not identified in majority of cases (64.7%). Early detection, evaluation and with appropriate interventions, in most of couples outcomes were fruitful.

## 6. Source of Funding

None.

## 7. Conflict of Interest

The authors declare no conflict of interest.

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