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Abnormal Discharge in Vagina During Pregnancy and its Maternal and Perinatal Outcomes

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ABSTRACT

To observe the adverse maternal and fetal outcomes of abnormal vaginal discharge during pregnancy. This observational study was undertaken from January 2024 to January 2025 period in the Department of Obstetrics and Gynaecology at Sree Moogambika Medical College, Kanyakumari. Women's mean age was 27.4 (± 4.7) years and most were 28-35 weeks pregnant (n = 14, 34%) and primigravida (n = 17, 41%). Thirty Eight women (89%) presented with vaginal discharge while four women (11%) reported no vaginal discharge. Of those with vaginal discharge, 27 women (69.7%) had vaginal infections: bacterial vaginosis (n = 10, 39.6%), vaginal candidiasis (n = 8, 32.1%) and vaginal trichomoniasis (n = 7, 28.3%). Pathological vaginal discharge (PVD) was associated with vaginal irritation (n = 15, p<0.0001), vaginal pain (n = 25, p<0.0001), fever (n = 6, p = 0.015), uterine contractions (n = 16, p<0.0001), premature membrane rupture (n = 15, p<0.0001), abortion (n = 6, p = 0.009), pre-term delivery (n = 12, p<0.0001) and post-partum endometritis (n = 9, p=0.0006). PVD was associated with neonatal outcomes i.e. low birth weight (n = 12, p<0.0001), low Apgar score at birth (n = 12, p = 0.0001), neonatal respiratory distress syndrome (n = 11, p = 0.0002), neonatal intensive care (n = 10, p = 0.002) and early neonatal death (n = 8, p = 0.003). Pathological Vaginal Discharge (PVD) during pregnancy is associated with adverse maternal and perinatal outcomes.

INTRODUCTION

Vaginal Discharge (VD) is a frequent gynaecological complaint in women during their reproductive life and especially during pregnancy^[1,2]. The differentiation between normal (physiological) and abnormal (pathological) vaginal discharge has to be borne in mind^[3]. The diagnosis is by vaginal examination and laboratory investigations^[4]. Normal vaginal discharge, is thin, clear or milky white fluid with a mild odor. This is also known as leucorrhoea. In pregnancy it increases in amount and continues throughout the pregnancy. In Pathological Vaginal Discharge (PVD) the discharge varies in color from dirty white to yellowish green. It is often foul smelling. The common pathogens are bacterial vaginosis, trichomonas vaginalis and vaginal candidiasis^[2].

Bacterial Vaginosis (BV)- the risk of acquiring Sexually Transmitted Infections (STI), HIV/AIDS, trichomonas vaginalis and vaginal candidiasis^[5,6]. is increased. adverse pregnancy outcomes i.e., premature rupture of membranes, preterm labor and delivery and postpartum endometritis may follow.

Vaginal Candidiasis (VC) is also common when normal pathogens are replaced by fungal infection^[7]. These are the flora that normally present in the lower genital tract in healthy and asymptomatic women^[8]. The Infection rate is increased in immunocompromised situation especially in pregnancy.

Trichomonas Vaginalis (TV) is caused by a parasitic protozoan which is also flagellated. Women infected will present with yellow-green, diffuse discharge which may also be malodorous. Sometimes associated dysuria, itching, vulvar irritation, abdominal pain may also be present and leads to adverse pregnancy outcomes^[9,11].

BV, VC and TV affect about 6% women^[10]. The VD is also found to be associated with psychological and mental disorders^[12]. Pathological vaginal discharge, especially in pregnant women, is an important public health issue because mostly women belonging into lower social economic group with poor education are affected^[13].

The prime objective of the study was to note the dissimilarities between physiological and Pathological discharges of vagina during pregnancy. The other aim was to determine whether there was any maternal and perinatal outcomes.

MATERIALS AND METHODS

This observational study was conducted in Department of Obstetrics and Gynaecology at Sree Moogambika Medical College, Kanyakumari.

All pregnant women with complaint of VD were invited to the study. All pregnant women with threatened abortion, cervical incompetence, placental abnormalities, history of (Sexually transmitted infection) STI and treatment at STI clinics were

excluded from the study. A sample of 43 pregnant women from January 2023 to December 2024 was studied. The patients were informed about the study and written consent was obtained. The approval was also obtained in the ethics committee. All subjects were observed by antenatal visits and followed during labour and in puerperium. detailed history was taken, clinical examination done and the relevant investigations prescribed.

Three samples of VD was collected for each patient and subjected to laboratory investigations. The first sample-stored in a vial with 95% alcohol for cytological examination that sample was taken from squamocolumnar junction of cervix to exclude cervical pathology like CIN. The second sample- utilized in the amine test; and the third sample- taken with a cotton swab and immersed in normal saline (1 mL, in sterile glass) for direct examination.

Candidial hyphae and flagella of trichomona was identified by Direct microscopy. For bacterial vaginosis the Amsel criteria was considered. The diagnosis of bacterial vaginosis was confirmed by the presence of three of following four conditions i.e., vaginal discharge, vaginal pH>4.5, positive result in the amine test and presence of clue cells on microscopy. Treatment was initiated accordingly.

Study variables, included participant's age, parity, gestation period, vaginal discharge, associated complaints of vaginal irritation and pain, smell, true onset of labor pains as well as presence of any existing maternal, pregnancy and neonatal problems.

Chi Square tests was used for establishing Statistically significant data differences. $p \leq 0.05$ was considered as statistically significant. SPSS, version 23 for Windows (IBM Corp 2015) was used for data analysis.

RESULTS AND DISCUSSION

Demographic and gestation characteristics: 43 antenatal women took part in this study. The age group was between 20 and 37 years (mean age = 27.4±4.7 years). Primigravida were n = 18, 41% (Table 1).

Out of 43 pregnant women who presented with vaginal discharge, Thirty Eight women (89%) had VD on clinical examination, while nine women (11%) had no obvious vaginal discharge. vaginal infections was confirmed by lab investigations in 27 women i.e., bacterial vaginosis (n = 10, 39.6%), candidiasis (n = 8, 32.1%) and trichomoniasis (n = 7, 28.3%) (Table 2).

No growth of any pathogenic organism was found in the remaining 12 samples, which were declared as normal VD (Table 2).

Normal VD was watery in color (n = 12,100%), a slight stain in the quantity (n = 11, 95.65%) and odorless (n = 12, 100%) whereas pathological discharge was mostly yellowish curd like in color (n = 8, 32.1%),

Table 1: Participants' demographic and gestational characteristics (N = 43)

	Vaginal discharge				p-value
	No		Yes		
	Number	Percentage	Pathological	Physiological	
Age					0.228
20-25 years	16	37.2	3	8	6
26-31 years	17	39.5	5	12	2
32-37 years	10	23.2	1	5	3
Gestational period					0.124
8-14 weeks	7	16.2	2	3	4
15-21 weeks	8	18.6	3	4	2
22-27 weeks	12	27.9	3	8	2
28-35 weeks	15	34.8	1	11	3
Parity					0.566
Primigravida	18	41.89	4	10	6
Para 2-4	17	39.5	5	11	4
Para 5 and above	8	18.6	0	6	2

Table 2: Vaginal discharge and its characteristics (N = 43)

	Vaginal discharge		
	Yes		
	No obvious discharge only perception	Normal physiological discharge	Pathological discharge
	4 (11.62)	12 (27.90)	27 (62.8)
	Count (%)		
Vaginal discharge			
Physical characteristics			
Colour			
No discharge	4 (11.62)	0	0
Watery	0	12 (27.90)	5 (11.62)
Yellowish curd like	0	0	9 (20.93)
Frothy	0	0	06 (13.95)
Muddy	0	0	7 (16.27)
Quantity			
No discharge	4 (11.62)	0	0
Slight stain	0	11 (25.58)	3 (6.97)
Soaking clothes	0	1 (2.32)	18 (41.86)
Copious in amount	0	0	6 (13.95)
Odour			
No discharge	4 (11.62)	0	0
Odourless	0	12 (27.9)	5 (11.62)
Fishy odour	0	0	7 (16.27)
Foul smelling	0	0	14 (32.55)
Associated Symptoms			
Vaginal Irritation			
• Yes	16 (37.20)	0	1 (2.32)
• No	27 (62.79)	4 (11.62)	11 (25.58)
Vaginal pain			
• Yes	28 (65.11)	2(2.35)	2 (4.65)
• No	15 (34.88)	7(8.23)	10 (23.25)
2 (4.65)			
Laboratory investigation/pathogenic organism			
Absent	4 (11.62)	12 (27.9)	0
Present	0	0	27 (62.79)
Bacterial vaginosis	0	0	10 (23.25)
Vaginal candidiasis	0	0	9 (20.9)
Vaginal trichomoniasis	0	0	8 (18.6)

soaking clothes in the quantity (n = 17, 66%) and foul smelling (n = 14, 52.8%). A high proportion of women with PVD was associated with vaginal irritation (n = 15, p<0.0001), vaginal pain (n = 25, p<0.0001), fever (n = 6, p = 0.015) (Table 2).

Compared to women with normal vaginal discharge, a higher proportion of women with PVD was statistically had significant rate of preterm uterine contractions (n = 15, p<0.0001), premature membrane rupture (n = 14, p<0.0001), miscarriage (n = 7, p = 0.009), pre- term delivery (n = 12, p<0.0001) and post-partum endometritis (n = 9, p<0.0001) (Table 3). The PVD was also statistically significantly associated with adverse neonatal outcomes: Low birth

weight (n = 12, p<0.0001), low Apgar score at birth (n = 11, p = 0.0001), neonatal respiratory distress syndrome (n = 10, p<0.0001), neonatal intensive care hospitalization (n = 10, p<0.0001) and early neonatal death (n = 8, p<0.0001) (Table 3).

During pregnancy VD is common. Normal VD was not a major issue for women while pathological VD was a serious problem due to infection its symptomatology such as colour, quantity and odour parameters and associated complications^[14].

Causes of pathological vaginal discharge: In this study it was found that VD in pregnancy was most commonly pathological and it was due to three types of vaginal infections i.e., bacterial vaginosis, vaginal candidiasis

Table 3: Adverse maternal and perinatal outcomes (N = 43).

Maternal outcomes	Count	Percentage	No discharge only perception	Vaginal discharge		p-value
				Pathological	Physiological	
Miscarriage						<0.009
No	36	83.70	4	20	12	
Yes	7	16.27	0	6	0	
Uterine contractions						<0.0001
No	20	55.55	4	4	12	
Yes	16	44.44	0	31	0	
Premature rupture of membranes						<0.0001
No	11	61.11	4	6	12	
Yes	7	38.88	0	14	0	
Preterm delivery						<0.0001
No	24	66.70	4	8	12	
Yes	12	33.30	0	12	0	
Postpartum endometritis						<0.0001
No	27	75.00	4	11	12	
Yes	9	25.00	0	9	0	
Perinatal outcomes						
Low birth weight						<0.0001
No	24	66.7	4	8	12	
Yes	12	33.3	0	12	0	
Neonatal intensive care hospitalization						<0.0001
No	26	70.8	4	10	11	
Yes	10	29.2	0	10	1	
Early neonatal death						<0.0001
No	28	77.78	4	12	12	
Yes	8	22.22	0	8	0	

†Apgar: Appearance, pulse, grimace, activity and respiration

and trichomoniasis vaginalis same is reported by other studies^[15,16]. The result of this study showed that bacterial vaginosis was the most common vaginal infection followed by vaginal candidiasis while trichomoniasis vaginalis was the least common vaginal infection in pregnant women with VD this is in consistent with other study^[17].

These vaginal infections are common in pregnant women with low level of education, underprivileged social and economic status and poor reproductive health hygiene^[18]. This study was conducted in a medical college hospital catering to village and semi urban population. The factors of low socio economic status and illiteracy might contribute to pathogenic vaginal infections i.e., BV, VC and TV25 These infections and VD need proper investigation and appropriate treatment at the earliest to avoid any possible perinatal complications that may be associated with these vaginal infections^[26,27]. No statistically significant differences was found on the women's age, gestation period and parity. This factor was not in consonance with other studies^[28].

The PVD is found to be associated with vaginal irritation and pain, preterm uterine contractions, early membrane rupture, abortion, pre-term delivery and post-partum endometritis^[29]. The adverse perinatal outcomes significantly associated with PVD were low birth weight, low Apgar score at birth, neonatal respiratory distress syndrome, neonatal intensive care and early neonatal death^[25]. These findings provide empirical evidence that PVD in pregnant women is associated with adverse perinatal outcomes this is in consistence with other study^[29]. The PVD in pregnant

women needs clinical investigation and relevant treatment^[15]. Proper management of vaginal infections and PVD during pregnancy may help in reducing the risk of adverse perinatal outcomes that are very common in Low Middle Income Countries (LMICs) such as Pakistan^[29,30].

CONCLUSION

VD is common during pregnancy and it is essential to differentiate between normal VD and pathological VD during pregnancy. pathological VD is commonly due to vaginal infections such as bacterial vaginosis, candidiasis and trichomoniasis, which can be treated with appropriate treatment and avoided through information and advice for improving general health and reproductive health hygiene. Examination of vaginal discharge in pregnancy and differentiating normal and pathological discharges is to be done early. Thus associated adverse maternal and perinatal outcomes may be identified earlier and treatment initiated. Therefore, all the antenatal women with abnormal vaginal discharge should be investigated and treated early.

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