



REVIEW ARTICLE

Prevalence and Associated Factors of Hemorrhoid and Other Perianal Complications during Puerperium among Mothers in Debre Tabor Referral Hospital, Ethiopia: A Cross-Sectional Study

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Abstract

Puerperium is defined as the period of six weeks after child birth during which the mother's reproductive organs return to their original non-pregnant condition. Perianal problems including Constipation, Hemorrhoid and Fissure are among the most common complications among women during puerperium, observed in about 30 to 50 percent of women. Considering this great prevalence and the paucity of similar research in Ethiopia, this study was done to assess the prevalence of perianal problems during puerperium and the risk factors associated with them.

Methods: An institution-based cross-sectional study was conducted from February 1 to April 30, 2022. Quota sampling technique was used to select a total of 191 participants. The data were collected and then entered using EPI DATA version 3.1 and exported to the STATA 14 for analysis. Bivariable and multivariable logistic regression analysis were performed. Adjusted odds ratio (AOR) with 95% confidence interval was used as a measure of association. Variables having P-value < 0.05 from the multivariable analysis were considered to have a significant association with the outcome.

Result: The Total prevalence of all the perianal problems in puerperium encountered in this study was 22.5% (43 mothers). The Perianal problems encountered were Fissure (9.4%) followed by hemorrhoids (7.3%), peri-anal episiotomy infections (4.2%) and peri-anal tears (1.6%).

Comparative analysis showed that Positive family history, past history of perianal diseases, prolonged second stage of labor (> 50 minutes) showed a higher prevalence in Perianal disease Group as compared to the Healthy group. A statistically significant relationship was observed between prevalence of hemorrhoid and past history of any perianal disease ($p = 0.04$). A statistically significant relationship was observed between prevalence of hemorrhoid and parity ($p = 0.02$). There was also statistically significant relationship between constipation during pregnancy and development of hemorrhoid ($p = 0.01$).

Conclusion: Anal fissure, hemorrhoid and perianal episiotomy infections are the most common perianal problems in postpartum period causing significant reduction in quality of life of those afflicted with them.

Keywords

Constipation, Hemorrhoid, Anal fissure, Debre tabor, Ethiopia



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Abbreviations

NGOs: Non-Governmental Organization; OPD: Outpatient Department; SPSS: Statistical Package for Social Science; WHO: World Health Organization

Introduction

Puerperium is an extremely important period of time for a woman. Extensive physiological, biochemical and dietary changes occur during pregnancy and puerperium [1]. The body secretes a large amount of progesterone which causes decreased muscle tone and lower motility of the gastrointestinal tract [2]. About 1/3rd of women after childbirth complain of perianal symptoms. Patients in puerperium show a significant increase in incidence of peri-anal symptoms compared to the normal population [3]. Perianal problems, including Constipation, Hemorrhoids and Fissure, are among the most common digestive complications among women in puerperium. Due to the recurring physical and psychological problems they cause for the patient, these disorders can cause a significant reduction in the life quality of those afflicted with them [4].

Hemorrhoid is the anastomoses between the superior rectal artery and the superior, middle, and inferior rectal vein that surround the distal rectum and anal canal. It is a distal displacement and venous distention of the hemorrhoidal cushions [5]. Based on location, hemorrhoids are usually classified as internal and external hemorrhoids. Internal hemorrhoids arise above the dentate line and are covered by columnar epithelium, while external hemorrhoids arise below the dentate line and are covered by squamous epithelium [6]. Patients with hemorrhoids are usually asymptomatic but the common symptoms are bleeding with or without defecation, a swelling, mild discomfort or irritation and pruritus ani. Though, some patients need to undergo surgery, many hemorrhoid patients can successfully be treated with conservative medication and ointments [7]. The pathogenesis of hemorrhoids is a weakening of the anal cushion leads to descent or prolapse of the hemorrhoids and spasm of the internal sphincter [8]. Studies conducted elsewhere indicated that inadequate dietary fiber, constipation, diarrhea, hypertension, high body mass index (BMI), pregnancy and old age are the commonly identified risk factors for the development of hemorrhoids [9].

Considering the great prevalence of Perianal problems during puerperium and the paucity of similar research conducted in Ethiopia, we aim to assess the prevalence of various Perianal problems seen in women during their puerperal period and the risk factors associated with them.

Methodology

Study area and period

An institution based cross-sectional study design was

conducted from February 1 to April 2022 G.C among mothers who gave birth in Debre Tabor specialized hospital. The hospital was founded in 1953 and it is located in south Gondar administrative zone, Amhara National Regional State, which is about 667 km Northwest of Addis Ababa (the capital city of Ethiopia). According to the 2015 population projection of major cities in Ethiopia, the total population of Debre Tabor town was estimated to be 119,176. Currently, Debre Tabor town has one Referral Hospital and three government Health Centers. Debre Tabor Hospital is a specialized referral hospital, which serves more than three million people of the south Gondar zone and peoples of neighboring zones [10].

Population and sample size determination

The source population of the study was all pregnant women in Debre Tabor town in the year 2022. The study population was all mothers giving birth during the time of data collection in Debre Tabor Specialized Hospital. Mothers who were unable to communicate and severely ill were excluded from the study. The sample size was determined using a single population proportion formula, by using a 95% confidence interval, 0.05 margin of error, 10% non-response rate, p-value of 0.13 (13% prevalence of hemorrhoid in adult patients visiting the surgical OPD of Gondar specialized hospital). Therefore, the final sample size was 191 and participants were selected using Quota sampling technique.

Variables and data collection procedures

The four group of factors assessed was lifestyle factors including physical activity, dietary habits, and smoking status. The fifth group of factors assessed was medical history including previous history of perianal disease, chronic medical conditions such as diabetes and hypertension, and use of medications such as laxatives.

The data analysis included both bivariable and multivariable logistic regression models. In the bivariable analysis, each independent variable was assessed for its association with the outcome variable. Variables with a p-value < 0.025 were considered for inclusion in the multivariable logistic regression model.

In the multivariable logistic regression model, variables with a p-value < 0.05 were considered to have a significant association with the outcome variable. Adjusted odds ratios with 95% confidence intervals were used as measures of association.

The study findings showed that several factors were significantly associated with perianal problems. These included age, educational status, occupation, average monthly income, family history of hemorrhoids, history of constipation during pregnancy, mode of delivery, parity, length of 2nd stage of labor, previous history of perianal disease, baby body weight, physical activity, dietary habits, smoking status, chronic medical conditions, and use of medications.

Overall, this study provides valuable insights into the factors associated with perianal problems. The findings can be used to inform preventive strategies and interventions aimed at reducing the burden of perianal problems in the population [11].

Data processing and analysis

Each questionnaire was checked visually for completeness. Data were coded and entered using EPI DATA 3.1 version and exported to the STATA 14 for analysis. Data cleaning was done by identifying and correcting missed values and inconsistencies. Descriptive statistics like frequency and percentage was done to describe the study population in relation to different variables. The binary logistic regression model was used as a primary method of analysis. Variables having p-value < 0.025 from the bivariable analysis were chosen as a candidate for the final multivariable logistic regression model and variables having p-value < 0.05 were considered to have a significant association with the outcome variable. An adjusted odds ratio with 95% CI was used as a measure of association.

Ethical approval

The study conducted herein has received approval from the Ethical Review Committee of the Health Science College at Debre Tabor University. In accordance with ethical guidelines, written informed consent was obtained from all participating mothers subsequent to a concise explanation of the primary objective of the research.

Results

Socio-demographic and clinical characteristics of study participants

More than half (53.4%) of mothers live in rural setting, 48.7% of mothers are in the age range of 15-29 and 44.5% of mothers are farmers. Most of mothers (96.9%) are followers of Orthodox and 39.3% of mothers are uneducated (Table 1).

Clinical characteristics of study participants

The Total prevalence of all perianal problems in puerperium was 43 (22.5%). The Perianal problems encountered were Fissure (9.4%) followed by hemorrhoids (7.3%), peri-anal episiotomy infections (4.2%) and peri-anal tears (1.6%) (Table 2).

By comparative analysis of suspected risk factors of Perianal diseases in puerperium, it was found that positive family history, macrosomia, past history of perianal diseases, prolonged second stage of labor (> 50 minutes) showed a higher prevalence in Perianal disease Group as compared to the Healthy group of which Positive family history of perianal diseases (p = 0.035) and past history of perianal diseases (p = 0.012) were the risk factors that were statistically significant (Table 3).

Table 1: Socio-demographic characteristics of mothers who gave birth in Debre Tabor specialized Hospital, Ethiopia, 2021 (n = 191).

Variable	Frequency	Percentage
Age		
15-29	93	48.7
30-39	84	44.0
40-49	14	7.3
Residence		
Urban	102	53.4
Rural	89	46.6
Occupation		
Farmer	85	44.5
Merchant	12	6.3
Civil servant	51	26.7
Housewife	15	7.8
Student	4	2.1
Daily laborer	15	7.8
Others	9	4.7
Religion		
Orthodox	185	96.9
Muslim	4	2.1
Protestant	2	1
Educational status		
No formal education	75	39.3
Primary education	22	11.5
Secondary education	26	13.6
College or above	68	35.6

Table 2: Prevalence of perianal problems during puerperium in the study area.

Perianal problem	Frequency	Percentage (%)
Hemorrhoids	14	7.3
Fissure	18	9.4
Peri-anal episiotomy infections	8	4.2
Perineal tear	3	1.6
None	148	77.5

A statistically significant relationship was observed between prevalence of hemorrhoid and parity (p = 0.02) and past history of any anorectal disorders (p = 0.04). Mothers with constipation in pregnancy have higher chance of hemorrhoids in pregnancy. This was statistically significant (p = 0.01). There was no significant statistical relationship between prevalence of hemorrhoid and type of current mode of delivery and family history of any anorectal disorders, prolonged length of second stage of labor on presence of hemorrhoids during puerperium (Table 4).

Discussion

In this study, the prevalence of hemorrhoids in

Table 3: Risk factors for perianal problems during puerperium.

Risk Factor	Peri-anal diseases group, n (%)	Healthy group, n (%)	Odds ratio (95% CI)	P-value
Age > 30 years	13 (13.3%)	85 (86.7%)	0.576	0.285
Positive family history	21 (55.3%)	17 (44.7%)	1.665	0.035
Macrosomia	17 (56.7%)	13 (43.3%)	1.070	0.892
Vaginal delivery	27 (24.3%)	84 (75.7%)	1.561	0.128
Caesarean section	16 (20%)	64 (80%)	1.484	0.128
Past history of peri-anal diseases	31 (57.4%)	23 (42.6%)	1.258	0.012
Second stage of labor > 50 mins	29 (55.7%)	23 (44.3%)	1.361	0.125

Table 4: Relationship between significant risk factors and hemorrhoids during puerperium.

Risk factor	Hemorrhoids		P value
	Positive	Negative	
Parity			
Primipara	5(5.9%)	79 (94.1%)	0.02
Multipara	9(8.4%)	98 (91.6%)	
Risk Factor	Hemorrhoid		P-value
Past history	Positive	Negative	
Present	9 (8.65%)	95 (91.35%)	0.04
Absent	5 (5.75%)	82 (94.25%)	
Risk Factor	Hemorrhoid		P value
Hx of constipation	Positive	Negative	
Present	10 (9.2%)	99 (90.8%)	0.01
Absent	4 (4.9%)	78 (95.1%)	

puerperal subjects is 7.3%. This finding was in agreement with studies done by Poskus, et al. [1], Rabindranath and Rahul [3], Sheikh, et al. [8] and Kibret, et al. [12]. Most of these studies were believed to be overestimated, this can be attributed to the fact that many studies had an anal examination done during pregnancy.

We have found that with increasing parity, the likelihood of developing hemorrhoids is high. This was similar to findings from Martinez, et al. [2], Gardner, et al. [6] and Zhang, et al. [11]. This increment in hemorrhoid risk with increased parity might be attributed to the repeated change in the environment and emotional stress on repeated pregnancies causing a constipation and further hemorrhoids in subsequent pregnancies [2]. It can also be attributed to increased vascular growth factors in consequent pregnancies [13].

In this study we have found that past history of perianal problems was found to have increase the risk of hemorrhoids in pregnancy and puerperium which was also seen in studies done by Zagriadskii, et al. [9], Martinez, et al. [2], Rampal, et al. [7] and Kibret, et al. [12]. This could be attributed to the increase in hemorrhoidal symptoms as pregnancy progresses since circulating blood volume reportedly increases by 25-40% [9]. This leads to increased vascular engorgement and dilatation, with venous stasis increased by the enlarging gravid uterus or increased pelvic floor laxity [6].

Mothers with history of constipation during

pregnancy were more likely to develop hemorrhoid as compared to those who did not have constipation during their pregnancy. This was in line with findings by Zhang, et al. [11], Oumar, et al. [5] and Godeberge, et al. [9]. This might be due to intensive straining during defecation, impairment of defecation habits during pregnancy, decrease in physical activity, compression of the lower bowel by the uterus and psycho-social stress [11]. It might also be due to pregnancy induced increment in intraabdominal pressure which leads to vascular engorgement [14].

We have found that mothers who gave birth to heavier babies (> 4000 grams) were associated with the development of anal fissure during puerperium. This was in agreement with findings from Oumar, et al. [5], Zhang, et al. [11] and Beksac, et al. [4]. This might be due to decreased blood flow in anal mucosa due to heavier baby in pregnancy which in turn causes higher chances of fissure in puerperium [15]. Heavier baby can cause increased perineal tears causing higher chances of developing fissure [9].

Conclusion

We have found a slightly higher prevalence of hemorrhoid among mothers during the puerperium period. This was the first study conducted as far as our search is concerned. Past history of perianal diseases, History of constipation during pregnancy and increased parity were found to be independent risk factors of perianal disease during puerperium. Multiparous

mothers and patients with past history of perianal diseases have higher prevalence of Hemorrhoids in puerperium. Mothers with Prolonged second stage of labor and macrosomic babies are more likely to develop hemorrhoid during puerperium.

Hemorrhoid and other Perianal problems which occur during puerperium can have intensive physical and psychological problems in mothers, which can directly deteriorate the quality of life of mothers. The elimination of these risk factors may lead to a higher quality of life during pregnancy and puerperium.

Recommendation

Local health care facilities and international NGOs working on women affairs should focus on minimizing the risk factors of hemorrhoid and other perianal problems.

Mothers should have been advised on the control and prevention mechanisms of constipation and hemorrhoid during their ANC follow up and other medical visits during pregnancy.

Large scale and holistic study should be conducted on the prevalence, determinants and causes of perianal problems encountered during puerperal period.

Declarations

Data availability

The SPSS data used to support the findings of this study are available from the corresponding author upon request.

Ethical approval

Ethical approval was obtained from Debre Tabor University Ethical Review Board and a letter of permission to conduct the study was obtained from Debre Tabor Hospital clinical director office.

Conflict of interest

The authors declare that they have no competing interests.

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