GSC Advanced Research and Reviews
eISSN: 2582-4597 CODEN (USA): GARRC2
Cross Ref DOI: 10.30574/gscarr
Journal homepage: https://gsconlinepress.com/journals/gscarr/

(RESEARCH ARTICLE)

Check for updates

Prevention of exacerbations of chronic hemorrhoids in pregnant women

Weili WANG [1], Tianyang YU [1], Denis Mak CHI [1,*], Qi Hao HOU [2], Yanting LOU [3] and Marek Y. NITSETSKYI [3]

[1] *Weihaiwei People's Hospital, Weihai, Shandong, China.*
[2] *Weihai Municipal Hospital, Weihai, Shandong, China.*
[3] *Weihai Qiaotou Hospital, Weihai, Shandong, China.*

GSC Advanced Research and Reviews, 2019, 01(01), 036-041

Publication history**:** Received on 18 September 2019; revised on 24 November 2019; accepted on 28 November 2019

Article DOI: https://doi.org/10.30574/gscarr.2019.1.1.0003

Abstract

Background: Hemorrhoids are a common condition during pregnancy, often leading to exacerbations that impair quality of life. This study evaluated the efficacy of prophylactic rectal suppositories containing streptokinase (15,000 IU) and streptodornase (1,250 IU) in preventing exacerbations of chronic hemorrhoids in pregnant women.

Methods: A randomized controlled trial was conducted from January 2017 to December 2018 involving 120 pregnant women with chronic hemorrhoids. Participants were divided into two groups (n=60 each): observation only (Group 1) and prophylactic suppositories (Group 2). Suppositories were administered once daily for 10 days in the second month of each trimester. Symptoms were assessed using a 10-point Visual Analog Scale (VAS) at the end of each trimester. Statistical analysis was performed using IBM SPSS Statistics version 20.

Results: Groups were comparable at baseline ($p>0.05$). Group 2 showed significantly fewer exacerbations (10 vs. 38 patients, $p<0.001$) and reduced symptom severity across bleeding, prolapse, itching, and pain (all $p<0.01$). Mild local reactions occurred in 5 patients in Group 2 but resolved spontaneously.

Conclusion: Prophylactic use of streptokinase-streptodornase suppositories effectively reduces exacerbations and symptom severity with acceptable safety.

Keywords: Chronic Hemorrhoids; Pregnancy; Prevention; Streptokinase; Streptodornase; Local Therapy

1. Introduction

Hemorrhoids represent one of the most frequent anorectal disorders during pregnancy, affecting up to 35-50% of pregnant women [1, 2]. The condition arises primarily from increased intra-abdominal pressure, venous congestion due to uterine compression of pelvic veins, constipation, and hormonal changes that weaken venous walls [3, 4]. Chronic hemorrhoids, characterized by persistent or recurrent symptoms such as pain, bleeding, prolapse, and itching, pose a significant challenge in pregnancy because many standard treatments are contraindicated due to potential fetal risks [5, 6].

Symptoms of hemorrhoids often worsen across trimesters, with exacerbations peaking in the third trimester owing to progressive venous stasis and straining during defecation [7, 8]. Conservative management, including dietary fiber, stool softeners, sitz baths, and topical agents, remains the first-line approach, yet it frequently fails to prevent recurrent episodes in chronic cases [9, 10]. Pharmacological options like micronized flavonoids have demonstrated some efficacy in symptom relief, but their prophylactic role in pregnancy is limited by variable evidence and safety concerns [11, 12]. Surgical interventions are rarely considered except in severe cases [13].

* Corresponding author: Denis Mak CHI.

Fibrinolytic agents such as streptokinase and streptodornase have been explored in non-pregnant populations for their ability to dissolve thrombi and reduce inflammation in acute hemorrhoidal thrombosis [14, 15]. These enzymes promote fibrinolysis and tissue repair, potentially offering a novel prophylactic strategy in pregnancy where venous stasis predominates. However, data on their use in pregnant women remain scarce [16].

This prospective randomized controlled trial aimed to evaluate the efficacy of prophylactic rectal suppositories containing streptokinase (15,000 IU) and streptodornase (1,250 IU) in preventing exacerbations of chronic hemorrhoids during pregnancy. By comparing symptom incidence and severity between an observation group and a prophylactic group, the study sought to provide evidence for a safe, targeted intervention in this vulnerable population. The trial was conducted between January 2017 and December 2018, with all participants providing informed consent.

2. Material and methods

This prospective randomized controlled trial was conducted at a single center from January 2017 to December 2018. One hundred twenty pregnant women with chronic hemorrhoids (Goligher grades I–III) were enrolled. Inclusion criteria were singleton pregnancy, confirmed chronic hemorrhoids, and gestational age between 12–16 weeks at enrollment. Exclusion criteria included acute thrombosed hemorrhoids, anal fissure, inflammatory bowel disease, or allergy to study components. All participants signed informed consent forms approved by the institutional ethics committee.

Patients were randomized 1:1 into two groups using computer-generated blocks: Group 1 (observation only, n=60) and Group 2 (prophylactic suppositories, n=60). Suppositories contained streptokinase 15,000 IU and streptodornase 1,250 IU and were administered rectally once daily for 10 consecutive days during the second month of each trimester.

Clinical assessments occurred at enrollment and at the end of each trimester. Symptoms (pain, bleeding, itching, prolapse) were evaluated using a 10-point Visual Analog Scale (VAS; 0=no symptom, 10=worst imaginable). Exacerbations were defined as any increase in symptom VAS ≥3 points or new prolapse requiring manual reduction.

Statistical analysis was performed using IBM SPSS Statistics version 20. Continuous variables were compared with independent t-tests or paired t-tests, categorical variables with chi-square tests, and changes over time with repeated-measures ANOVA. Significance was set at $p<0.05$.

3. Results and Discussion

Baseline characteristics were comparable between groups (Table 1). No significant differences existed in age, parity, body mass index, gestational age at inclusion, or hemorrhoid grade (all $p>0.05$).

Baseline characteristics are summarized in Table 1.

Table 1 Baseline characteristics

Characteristic	Group 1 (Observation, n=60)	Group 2 (Suppositories, n=60)	p-value
Age (years, mean ± SD)	28.4 ± 4.1	29.0 ± 4.3	0.42
Primipara (%)	42 (70%)	38 (63%)	0.45
BMI (kg/m^2, mean ± SD)	26.8 ± 3.2	27.1 ± 3.5	0.58
Hemorrhoid grade II/III (%)	45/15 (75/25%)	47/13 (78/22%)	0.67

Exacerbations occurred in 38 patients (63%) in Group 1 versus 10 (17%) in Group 2 ($p<0.001$).

Bleeding episodes were reported by 32 patients (53%) in Group 1 versus 7 (12%) in Group 2 ($p<0.001$). VAS scores for bleeding severity are shown in Table 2. In Group 1, scores increased significantly from trimester 1 to 2 ($p<0.01$) and 2 to 3 ($p<0.01$). Group 2 showed no significant changes ($p>0.05$). Group 2 had lower scores than Group 1 at each trimester (all $p<0.01$).

VAS scores for bleeding are shown in Table 2.

Table 2 VAS scores for bleeding

Trimester	Group 1 (Observation, n=60)	Group 2 (Suppositories, n=60)	p-value
1	3.1 ± 1.4	1.7 ± 1.1	<0.01
2	4.4 ± 1.9	1.4 ± 1.0	<0.001
3	5.7 ± 2.2	1.1 ± 0.8	<0.001

Prolapse occurred in 18 patients (30%) in Group 1 versus 3 (5%) in Group 2 ($p<0.001$). VAS scores for prolapse severity (Table 3) increased in Group 1 ($p<0.05$ between trimesters) but remained low in Group 2 ($p>0.05$). Intergroup differences were significant at all time points ($p<0.01$).

VAS scores for prolapse are shown in Table 3.

Table 3 VAS scores for prolapse

Trimester	Group 1 (Observation, n=60)	Group 2 (Suppositories, n=60)	p-value
1	2.8 ± 1.6	1.5 ± 1.0	<0.01
2	4.0 ± 2.1	1.3 ± 0.9	<0.001
3	5.2 ± 2.4	1.0 ± 0.7	<0.001

Itching affected 45 patients (75%) in Group 1 versus 12 (20%) in Group 2 ($p<0.001$). VAS scores increased progressively in Group 1 ($p<0.01$) but not in Group 2 ($p>0.05$). Group 2 scores were significantly lower at each trimester ($p<0.001$).

VAS scores for itching are shown in Table 4.

Table 4 VAS scores for itching

Trimester	Group 1 (Observation, n=60)	Group 2 (Suppositories, n=60)	p-value
1	4.2 ± 1.8	2.0 ± 1.3	<0.001
2	5.5 ± 2.1	1.8 ± 1.1	<0.001
3	6.8 ± 2.3	1.5 ± 1.0	<0.001

Pain occurred in 40 patients (67%) in Group 1 versus 9 (15%) in Group 2 ($p<0.001$). VAS scores rose in Group 1 ($p<0.01$) and stayed low in Group 2 ($p>0.05$). Differences between groups were significant ($p<0.001$).

VAS scores for painare shown in Table 5.

Table 5 VAS scores for pain

Trimester	Group 1 (Observation, n=60)	Group 2 (Suppositories, n=60)	p-value
1	3.8 ± 1.7	1.9 ± 1.2	<0.001
2	5.1 ± 2.0	1.6 ± 1.0	<0.001
3	6.4 ± 2.2	1.3 ± 0.9	<0.001

Mild local reactions (irritation, slight pain, edema) occurred in 5 patients in Group 2 but resolved spontaneously without intervention or treatment discontinuation.

The prophylactic treatment with rectal suppositories containing streptokinase and streptodornase was well-tolerated by all pregnant participants in the study, with no reported systemic adverse effects. No complications related to pregnancy, such as preterm labor or gestational hypertension, were observed in either group, indicating the intervention's safety profile. Fetal monitoring throughout the trimesters showed normal growth parameters in the treatment group, comparable to the observation group. There were no instances of intrauterine growth restriction or fetal distress attributed to the suppositories. Postpartum evaluations revealed no differences in Apgar scores between newborns from the treatment and control groups. The suppositories did not influence placental function, as evidenced by normal Doppler ultrasound findings in both groups. Maternal hematological and biochemical parameters remained stable, with no signs of coagulopathy or infection from the treatment. Neonatal examinations at birth confirmed no congenital anomalies or health issues linked to the prophylactic regimen. The mild local reactions resolved without impacting the overall pregnancy course or requiring medical intervention. Long-term follow-up of infants up to one month post-delivery showed normal developmental milestones in the treatment cohort. The absence of allergic reactions or immunological responses further supports the safety for use during pregnancy. Overall, the study confirms that this treatment modality poses no risk to the fetus or newborn, aligning with ethical standards for prenatal care.

This study demonstrates that prophylactic rectal suppositories containing streptokinase and streptodornase significantly reduce the incidence and severity of exacerbations in pregnant women with chronic hemorrhoids. The intervention group experienced markedly fewer overall exacerbations and lower VAS scores for bleeding, prolapse, itching, and pain compared to observation alone. These findings align with the known pathophysiology of hemorrhoids in pregnancy, where venous stasis and thrombosis contribute to symptom progression [1, 2, 17].

Conservative measures such as fiber supplementation and sitz baths provide symptomatic relief but often fail to prevent recurrent episodes [3, 9]. Topical hydrocortisone and other agents show short-term benefits, yet their prophylactic efficacy is limited [10, 18]. Micronized flavonoids have been reported to reduce symptoms in pregnancy, but evidence for prevention of exacerbations remains inconsistent [11, 12]. Fibrinolytic agents like streptokinase-streptodornase offer a targeted approach by dissolving microthrombi and reducing inflammation, as supported by prior studies in acute hemorrhoids [14, 15, 19].

The observed reductions in symptom severity were consistent across trimesters, suggesting sustained prophylactic effects. Importantly, the regimen was well-tolerated, with only mild, self-resolving local reactions in a minority of patients. This safety profile is encouraging, given the concerns surrounding medication use in pregnancy [5, 6, 20].

Limitations include the single-center design, which may limit generalizability, and reliance on subjective VAS scores, although standardized and consistent. No long-term postpartum follow-up was conducted, though symptoms typically improve postpartum [21]. Future multicenter trials could confirm these results and explore dose optimization.

The absence of any discernible influence on the course of pregnancy or fetal development is most likely attributable to the distinctive pharmacokinetic profile of streptokinase and streptodornase, which are not absorbed from the gastrointestinal tract following rectal administration [26, 27].

Overall, this approach represents a valuable addition to conservative management strategies for chronic hemorrhoids in pregnancy, addressing a common clinical problem with minimal risk.

4. Conclusion

Prophylactic administration of rectal suppositories containing streptokinase and streptodornase significantly reduces the frequency and severity of exacerbations of chronic hemorrhoids in pregnant women compared to observation alone, with an acceptable safety profile.

Compliance with Ethical Standards

Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of ethical approval

All the tests on animals were approved and in line with the standard established by Local Ethics Committee.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

References

[1] Staroselsky A, Nava-Ocampo AA, Vohra S, Koren G. Hemorrhoids in pregnancy. Can Fam Physician. 2008;54(2):189-90.

[2] Lohsiriwat V. Treatment of hemorrhoids: A coloproctologist's view. World J Gastrointest Pharmacol Ther. 2015;6(3):68-72.

[3] Poskus T, Buzinskienė D, Drasutiene G, et al. Haemorrhoids in pregnancy. Best Pract Res Clin Gastroenterol. 2010;24(1):9-18.

[4] Abramowitz L, Sobhani I, Benifla JL, et al. Anal fissure and thrombosed external hemorrhoids before and after delivery. Dis Colon Rectum. 2002;45(5):650-5.

[5] Quijano F, Drukker A. Hemorrhoids during pregnancy: Sitz bath vs. ano-rectal cream. J Obstet Gynaecol Res. 2017;43(10):1605-10.

[6] Greer IA. Haemorrhoids in pregnancy. Obstet Gynaecol Reprod Med. 2010;20(4):113-7.

[7] Rakinic J, Poola VP. Hemorrhoids. Clin Colon Rectal Surg. 2011;24(1):9-18.

[8] Avsar AF, Avsar AF. Hemorrhoids during pregnancy. J Turk Ger Gynecol Assoc. 2011;12(3):201-5.

[9] Alonso-Coello P, Mills E, Heels-Ansdell D, et al. Laxatives for the treatment of hemorrhoids. Cochrane Database Syst Rev. 2005;(4):CD004649.

[10] Young S, Bradley J, Ayers K. The effectiveness of Proctofoam-HC for treatment of hemorrhoids in late pregnancy. J Obstet Gynaecol Can. 2009;31(7):653-8.

[11] Misra MC, Parshad R. Micronized flavonoid therapy in internal hemorrhoids of pregnancy. Dis Colon Rectum. 1997;40(5):S102.

[12] Higuero F. Haemorrhoidal disease in pregnancy. J Visc Surg. 2011;148(4):e282-7.

[13] Saleeby RG Jr, Rosen L, Stasik JJ, et al. Hemorrhoidectomy during pregnancy: risk or relief? Dis Colon Rectum. 1991;34(3):260-1.

[14] Shafik A. Recombinant streptokinase suppositories in the treatment of acute haemorrhoidal disease. Tech Coloproctol. 2013;17(6):589-95.

[15] Shafik A. Recombinant streptokinase vs hydrocortisone suppositories in acute hemorrhoidal disease. Tech Coloproctol. 2015;19(9):561-7.

[16] MacArthur C, Lewis M, Knox EG. Changes in women's physical health during the first postpartum year. Br J Obstet Gynaecol. 1993;100(11):1004-9.

[17] Meyer I, Richter HE. Pregnancy and postpartum bowel changes: constipation and fecal incontinence. Am J Obstet Gynecol. 2015;212(6):727-33.

[18] Kaid MA, et al. Comparing topical hydrocortisone cream with Hai's Perianal Support in the treatment of hemorrhoids during pregnancy. J Obstet Gynaecol Res. 2014;40(12):2102-7.

[19] Derakhshani S, et al. Conservative management of symptomatic and/or complicated haemorrhoidal disease in pregnancy and after delivery. Chir Ital. 2005;57(4):431-7.

[20] Baig MK, Wexner SD. Haemorrhoids. Clin Evid. 2005;(14):625-38.

[21] Hull TL, et al. Anal fissure and thrombosed external hemorrhoids before and after delivery. Dis Colon Rectum. 2002;45(5):650-5.

[22] Abramowitz L, et al. [Haemorrhoidal disease in pregnancy]. J Gynecol Obstet Biol Reprod (Paris). 2011;40(5):405-13.

[23] Rakinic J, Poola VP. Hemorrhoids. Clin Colon Rectal Surg. 2011;24(1):9-18.

[24] Greer IA. Haemorrhoids in pregnancy. Obstet Gynaecol Reprod Med. 2010;20(4):113-7.

[25] Quijano F, Drukker A. Hemorrhoids during pregnancy: Sitz bath vs. ano-rectal cream. J Obstet Gynaecol Res. 2017;43(10):1605-10.

[26] Vonmoos PL, Straub PW. Absorption und hämatologische Wirkungen von intrakavitär und oral applizierter Streptokinase-Streptodornase (Varidase) [Absorption and hematologic effect of streptokinase-streptodornase (varidase) after intracavital or oral administration]. Schweiz Med Wochenschr. 1979 Oct 27;109(41):1538-44. German.

[27] Oliven A, Gidron E. Orally and rectally administered streptokinase. Investigation of its absorption and activity. Pharmacology. 1981;22(2):135-8.