

Evaluating the Effect of Warm versus Regular Room Temperature Sitz Bath in Perineal Wound Healing: A Retrospective Observational Study**Barun Kumar**

Associate Professor, Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, India

Received: 06-02-2023 / Revised: 20-03-2023 / Accepted: 21-04-2023

Corresponding author: Dr. Barun Kumar

Conflict of interest: Nil

Abstract**Aim:** The aim of the present study was to compare the effect of warm versus regular room temperature seitz bath.**Methods:** This was a clinical retrospectively study conducted in the Department of General Surgery, Lord Buddha Koshi medical College and Hospital, Saharsa, Bihar, India for 18 months after taking the approval of the protocol review committee and institutional ethics committee. Out of 104 patients 60 patients (57.70%) opted for warm water seitz bath (Group A) and others 44 (42.30%) (Group B) opted for regular room temperature seitz bath.**Results:** The 60 patients (57.70%) in the study group opted for warm water seitz bath as compared to 44 patients (42.30%) of regular water seitz bath from the second day of surgery onwards. The cases who opted for regular water seitz, were in poor socioeconomic background, due to easy and frequent availability of regular water as compared to warm water. All the 16 cases of episiotomy (26.66%) wounds repaired by gynaecologist opted warm water seitz only.**Conclusion:** The progress of wound healing and postoperative comfort in operated perineal surgical wound does not based on type of seitz bath and the antiseptic solution used for sitz bath. But it is found that the frequency of sitz bath and subsequent improvement in the local hygiene definitely give comfort to the patient and speeds up wound healing.**Keywords:** Sitz bath, Perineal wound healing, Duration of recovery, Hygiene

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Hydrotherapy is a field that pursues disease treatment or health effects using various properties of water for therapeutic purposes and is used synonymously with water therapy, aquatic therapy, pool therapy, and balneotherapy (hot spring and spa). [1] The types of hydrotherapy are typically classified according to the various states of the water (liquid, solid, gas, or mixed state), but can also be classified according to the mechanical stimulation used, such as whirlpool, or the materials mixed with the water, such as mud. [2] Hydrotherapy is a therapeutic modality that maximizes the characteristics and advantages of water and is considered in clinical and alternative medicine to have an excellent therapeutic effect, with few adverse effects. [3]

Mechanical effects can be explained by the properties of water, such as buoyancy, hydrostatic pressure, and resistance, where the effect primarily appears when hydrotherapy is provided via immersion therapy. Buoyancy represents the force

that opposes gravity, and when the body is partially or fully immersed, pain reduction and improvement in exercise ability occur due to the reduction of stress or application of weight to specific body parts. Hydrostatic pressure promotes blood flow by varying the pressure exerted on the body according to the immersion depth, which results in increased blood flow to major organs (the heart, brain, and lungs) or the promotion of diuretic action. [4] Resistance is the force that opposes bodily movement and is associated with the viscosity of the water and results in muscle strengthening. Chemical effects result from minerals, drugs, ions, oxygen, mud, and herbs added to pure water, which triggers chemical reactions on the skin to improve skin integrity and immunity. [5] Moreover, when hydrotherapy is conducted in ocean or mountain areas, the environmental effects can further enhance the psychological effects. Combining complimentary alternative therapies, such as massage, relaxation, music, or aromatherapies, can

also induce health effects by increasing the body’s natural healing ability. [6]

There are very few study reports which emphasize on the actual role of seitz bath in perineal wound healing.1 The literature search does not report any definitive guidelines about suitable temperature for hydrotherapy which will give maximum postoperative comfort and speed up the mechanism of wound healing. However, a warm Sitz bath is more commonly used for the treatment for anorectal disorders. [7,8] Although the effect of using a Sitz bath for anorectal disorders has not been established yet, clinicians still prescribe Sitz baths for patients with anorectal disorders. From clinical observation, the clinical impact of the Sitz bath has been unclear. Patients with anorectal disorders often have improved and their wounds were healed, regardless of their adherence to a strict Sitz bath regimen. No analysis has been conducted to examine the evidence with a systematic approach.

The aim of the present study was to compare the effect of warm versus regular room temperature seitz bath.

Materials and Methods

This was a clinical retrospectively study conducted in the Department of General Surgery, Lord Buddha Koshi medical College and Hospital, Saharsa, Bihar, India for 18 months . The technique, risks, benefits, results and associated complications of the procedure were discussed with all patients.

Total 104 patients comprising cases of haemorrhoids, fissure, perianal fistula, pilonidal sinus, perianal abscess and episiotomy wounds in the age group of 18 years to 55 years were include in this study. Patients with comorbid conditions and immunocompromised medical disorders like diabetes, tuberculosis, HIV are excluded for study. A set protocol of medical line of management was made for all the patients in the form of 5 days course oral antibiotics, metronidazole, H2 blocker along with 3 to 5 days course of analgesic and ointment for local application. All the patients were asked to practice seitz bath of their choice by warm water or regular room temperature seitz bath with added povidone iodine solution 3 to 4 times in a day till the wound heals completely and the patient gets the desired pain relief. The patients were from middle to lower socioeconomic class. Out of 104 patients 60 patients (60%) opted for warm water seitz bath (Group A) and others 44 (42.30%) (Group B) opted for regular room temperature seitz bath. The patients who opts geyser for warm seitz bath were from middle socioeconomic group who had easy accessibility to warm water. The patients from poor socioeconomic class mainly selected for regular room temperature seitz bath.

The patients were evaluated in view of reduction in postoperative pain till 10 days. In addition, 15days follow up assessment about perineal itching, patient comfort in lifestyle in view of discharge from wound and significant reduction in size of the wound or healing status of wound was done.

Results

Table 1: Distribution of cases (Group A)

Type of perineal surgeries	Number of cases=60	%
Hemorrhoids	10	16.66
Fissures in ano	9	15
Fistula in ano	9	15
Perineal abscess	8	13.34
Pilonidal sinus	8	13.34
Episiotomy	16	26.66

The 60 patients (57.70%) in the study group opted for warm water seitz bath as compared to 44 patients (42.30%) of regular water seitz bath from the second day of surgery onwards. The cases who opted for regular water seitz, were in poor

socioeconomic background, due to easy and frequent availability of regular water as compared to warm water. All the 16 cases of episiotomy (26.66%) wounds repaired by gynaecologist opted warm water seitz only.

Table 2: Distribution of cases (Group B)

Type of perineal surgeries	Number of cases=44	%
Hemorrhoids	10	22.72
Fissure in ano	9	20.45
Fistula in ano	9	20.45
Perineal abscess	8	18.18
Pilonidal sinus	8	18.18

After excluding the 10 cases of episiotomy, there was equal selection choice among warm and

regular sitz bath cases. The choice of selection of sitz bath basically depends upon patient’s

discussion with past treated cases of similar disease, educational background, socioeconomic status in the society and treating surgeon's advice.

Discussion

It is patient's psychological behavioral pattern to opt or choose for fomentation by warm object to reduce pain. Moreover, there is a general tendency to believe that warm water has better cleansing property as compared to regular water. Water offers various advantages, including being abundant; not physiologically irritating; and having an excellent solvency, excellent viscosity, high heat capacity, and high heat conductivity. In addition, the density of pure water is similar to the average density of the water present in the human body, although it varies slightly, depending on body parts or temperature changes. The health effects of hydrotherapy generally appear as thermal, mechanical, and chemical effects, either alone or as mixed effects. Thermal effects are elicited via heat (35–400C), body temperature (32–340C), or cold (8–100C) therapy. Heat therapy is typically explained by vasodilation and blood flow facilitation effects, while cold therapy is typically explained by vasoconstriction and pain reduction effects. Mechanical effects can be explained by the properties of water, such as buoyancy, hydrostatic pressure, and resistance, where the effect primarily appears when hydrotherapy is provided via immersion therapy. Buoyancy represents the force that opposes gravity, and when the body is partially or fully immersed, pain reduction and improvement in exercise ability occur due to the reduction of stress or application of weight to specific body parts.

The 60 patients (57.70%) in the study group opted for warm water seitz bath as compared to 44 patients (42.30%) of regular water seitz bath from the second day of surgery onwards. The cases who opted for regular water seitz, were in poor socioeconomic background, due to easy and frequent availability of regular water as compared to warm water. All the 16 cases of episiotomy (26.66%) wounds repaired by gynaecologist opted warm water seitz only. There is no conclusive evidence to support that a particular type of hydrotherapy accelerates wound healing, healing of stretched skeletal muscle and reduces pain at operative site. [9] It is reported that there is no difference in efficacy of result of seitz bath by cold or hot seitz bath. Despite the fact that the exact nature and cause of the conditions is known, the standard conservative treatment options are still a matter of debate. Anal Fissure is a linear ulcer in the squamous epithelium of the anal canal located just distal to the dentate line occurring usually in the posterior midline. It causes severe pain with spasm of the anal canal due to hypertonia of the internal anal sphincter. [10] Pain that is related to

anorectal disorders could be relieved with the use of a Sitz bath, a relatively easy procedure that involves filling a bath tub with warm water. [11] An additive, such as salt, may be used occasionally. [12]

It is reported that the cold-water immersion blunts the sensory stimulus, thus significantly reducing the pain and delays increment in circulating testosterone and cytokines post resistance exercise. [13] The warm water exercise on the contrary appears to stimulate and accumulate more immune cells compared to cold water. [14] The literature study shows that clean tap water is a cost-effective alternative modality of wound irrigation or cleansing agent as compared to normal saline. [15] The tap water is easily available in adequate amount, cost effective and there is no deterioration in the status of the wound healing on its use for wound irrigation. There is no difference in the rate of infection of episiotomy wounds or open wound wash by water with variable temperature or any antiseptic solution. [16] Shower by plain water is an effective mode of improving personal hygiene and population health. [17]

It is reported that there is no difference in efficacy of result of seitz bath by cold or hot seitz bath. There is no definitive protocol or guidelines reported with evidence about the type of hydrotherapy with required temperature, its duration and frequency of body part immersion.^{18,19} The study fulfills the objectives that the postoperative reduction in pain, comfort of patient and duration of perineal wound healing is not based on the duration and type of seitz bath and the antiseptic solution used, but it is based on the tissue handling skills of the surgeon and the local hygiene maintained postoperatively.

Conclusion

The progress of wound healing and postoperative comfort in operated perineal surgical wound does not based on type of seitz bath and the antiseptic solution used for sitz bath. But it is found that the frequency of sitz bath and subsequent improvement in the local hygiene definitely give comfort to the patient and speeds up wound healing. The choice of sitz bath which patient prefer is basically based on psychological impression created in the mind of patient, previous experience, socioeconomic status and consultant advice.

References

1. Geytenbeek J. Evidence for effective hydrotherapy. *Physiotherapy*. 2002 Sep 1;88(9):514-29.
2. Almassmoum SM, Balahmar EA, Almutairi ST, Albuainain G, Ahmad R, Naqvi AA. Current clinical status of hydrotherapy; an evidence based retrospective six-years (2012-

- 2017) systemic review. *Bali Medical Journal*. 2018 Oct 3;7(3).
3. Mooventhan A, Nivethitha L. Scientific evidence-based effects of hydrotherapy on various systems of the body. *North American journal of medical sciences*. 2014 May;6(5):199.
 4. Jimenez C, Regnard J, Robinet C, Mourot L, Gomez-Merino D, Chennaoui M, Jammes Y, Dumoulin G, Desruelle AV, Melin B. Whole body immersion and hydromineral homeostasis: effect of water temperature. *European journal of applied physiology*. 2010 Jan; 108:49-58.
 5. Wilcock IM, Cronin JB, Hing WA. Physiological response to water immersion: a method for sport recovery?. *Sports medicine*. 2006 Sep; 36:747-65.
 6. Kraft K. Complementary/Alternative Medicine in the context of prevention of disease and maintenance of health. *Preventive medicine*. 2009 Aug 1;49(2-3):88-92.
 7. Gupta PJ. Effects of warm water sitz bath on symptoms in post-anal sphincterotomy in chronic anal fissure—a randomized and controlled study. *World journal of surgery*. 2007 Jul; 31:1480-4.
 8. Hsu KF, Chia JS, Jao SW, Wu CC, Yang HY, Mai CM, Fu CY, Hsiao CW. Comparison of clinical effects between warm water spray and sitz bath in post-hemorrhoidectomy period. *Journal of Gastrointestinal Surgery*. 2009 Jul; 13:1274-8.
 9. Lang DSP, Tho PC, Ang EN. Effectiveness of the Sitz bath in managing adult patients with anorectal disorders. *Jpn J Nurs Sci*. 2011; 8(2):115-28.
 10. Cross KL, Massey EJ, Fowler AL, Monson JR. The management of anal fissure: ACPGBI position statement. *Colorectal Dis*. 2008 Nov 1;10(Suppl 3):1-7.
 11. McConnell, E. A. Giving your patient a sitz bath. *Nursing*. 1993; 23:14–16.
 12. Leeds A. The art of the sitz bath. *Midwifery today with international midwife*. 2003 Jan 1(65):25-6.
 13. Earp JE, Hatfield DL, Sherman A, Lee EC, Kraemer WJ. Cold-water immersion blunts and delays increases in circulating testosterone and cytokines post-resistance exercise. *Eur J Appl Physiol*. 2019;119(8):1901-7.
 14. Saghebjo M, Einaloo A, Mogharnasi M, Ahmadabadi F, The response of meteorin-like hormone and interleukin-4 in overweight women during exercise in temperate, warm and cold water. *Horm Mol Biol Clin Investig*. 2018;36(3).
 15. Griffiths RD, Fernandez RS, Ussia CA. Is tap water a safe alternative to normal saline for wound irrigation in the community setting? *J Wound Care*. 2001;10(10):407-11.
 16. Fernandez R, Griffiths R. Water for wound cleansing. *Cochrane database Syst Rev*. 2008; 23:(1):CD003861.
 17. Cox SC, Hocking C, Payne D. Showers: from a violent treatment to an agent of cleansing. *Hist Psychiatry*. 2019;30(1):58-76.
 18. An J, Lee I, Yi Y. The Thermal Effects of Water Immersion on Health Outcomes: An Integrative Review. *Int J Environ Res Public Health*. 2019;16(7):1680.
 19. Machado AF, Ferreira PH, Micheletti JK, de Almeida AC, Lemes ÍR, Vanderlei FM, Netto Junior J, Pastre CM. Can water temperature and immersion time influence the effect of cold-water immersion on muscle soreness? A systematic review and meta-analysis. *Sports medicine*. 2016 Apr; 46:503-14.