
ORIGINAL ARTICLE**Evaluation of Different Sitz Bath Methods as a Treatment Modality
in Acute Anal Fissure***Siddharth P. Dubhashi^{1*}, Krishna J. Parmar¹, I. Rege¹**¹Department of Surgery, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Dr. D. Y. Patil Vidyapeeth, Pimpri, Pune-411008 (Maharashtra) India***Abstract :**

Background: Conservative management of anal fissure mainly involves Sitz Bath as a treatment modality. Considering the controversies in the application of Sitz bath in treatment of anal fissure, lack of adequate scientific evidence, this study is designed to evaluate the efficacy of Sitz Bath as a treatment modality. *Aim & Objectives:* The study evaluates the efficacy of Sitz Bath in the treatment of acute anal fissure with respect to pain relief, patient satisfaction, healing of lesions and overall improvement in symptomatology, as well as to assess its effect on the Quality of Life of these patients. *Materials and Methods:* This is a prospective study of 60 patients of acute anal fissure carried out over 2 years with three groups - Group A1 (Warm Sitz Bath with analgesics and high fiber diet), Group A2 (Cold Sitz Bath with analgesics and high fiber diet) and Group B (Analgesics and high fiber diet alone). *Results:* The evaluation parameters were: assessment of pain, patient satisfaction score and improvement in symptomatology. Warm sitz bath resulted in significant reduction in pain scores, greater improvement in symptomatology and patient satisfaction scores. *Conclusion:* An overall improvement in symptomatology is evident with the use of warm sitz bath, thereby giving more patient satisfaction.

Keywords: Anal spasm, Anal Sphincter, Hip bath, Thermo-sphincteric Reflex

Introduction:

Anorectal disorders include a diverse group of pathological disorders that generate significant patient discomfort and disability [1]. 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 [2]. Sitz bath is frequently prescribed for the management of acute anal fissure, but proper instructions as to how to perform it are seldom given to the patients. It is thought to relieve the pain, and improve healing by increasing the local blood circulation. Very little scientific evidence is available on the issue regarding the most suitable temperature for sitz baths [3]. Considering the controversies in the application of conservative measures in treatment of anal fissure, lack of adequate scientific evidence, this study is designed to evaluate the efficacy of sitz bath as a treatment modality in management of acute anal fissure. The objective of the study was to evaluate the efficacy of sitz bath in the treatment of acute

anal fissure, with reference to: pain relief, patient satisfaction, and overall improvement in symptomatology.

Material and Methods:

This is a prospective study carried out at a tertiary care centre over a period of two years. The study was approved by the Institute Review Board.

Sixty patients were divided into two groups (Group A and Group B of 30 each). Group A was further divided into Group A1 and Group A2.

Group A1 (15 cases) - Warm Sitz Bath ($>30^{\circ}\text{C}$), twice daily along with high fibre diet and analgesics.

Group A2 (15 cases) - Cold sitz bath ($<15^{\circ}\text{C}$), twice daily along with high fibre diet and analgesics

Group B (30 cases) - Analgesics and high fibre diet alone.

Analgesic- Injection Diclofenac sodium.1cc I/M 12 hourly in all groups

Written informed consent was obtained from all patients before enrollment into the study.

Patients in age group 21 to 60 years presenting with acute anal fissure were included in the study. Patients <15 years of age and pregnant females were excluded from the study. The first case was allocated to study/control group by lottery method and subsequently cases were allotted alternately to each group.

Sitz Bath –Patients were asked to soak their hips and buttocks in a tub containing plain water

(Temperature being hot or cold depending on the group allotted) for 15 minutes, twice daily, carefully drying the area after each bath.

The evaluation parameters were: assessment of pain (using Visual Analogue Scale) (daily), patient satisfaction score (using Analogue Scale) (after 7 days) and improvement in symptomatology (using Analogue Scale) (days 3, 5 and 7). Chi Square test, ANOVA, and Tukey's tests were used for statistical analysis. All procedures performed in the study were in accordance with the ethical standards of the Institute and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Results:

All patients included in the study were comparable for age and sex. Majority of the patients were in the age group of 31-40 years. 55% of patients were males. Pain during defaecation was the most common presenting symptom, followed by hard stools, bleeding per rectum and constipation.

The mean pain score in patients receiving warm sitz bath (Group A1), cold sitz bath (Group A2) and the control group (Group B), on day 1 was 7.07 and 7.33 and 7.73 respectively, and that measured on the 7th day were 2.80, 4.67 and 5.47 respectively, with pain relief most evident with warm sitz bath followed by cold sitz bath. The difference in pain scores was statistically significant on days 1-3 and highly significant on day 4-7 (Tables 1A and 1B).

The overall patient satisfaction score (mean) assessed on day 7 was 3.93 in group A1, 2.47 in group A2 and 1.82 in group B patients (Table 2). The improvement in symptomatology on day

three was 2.13, 1.60, 0.83 whereas on day seven, it was 4, 2.47 and 1.78 in patients receiving warm, cold and no sitz bath respectively (Tables 3A and 3B).

Table 1A: Pain Scores

Pain Score on	GroupA1	Group A2	Group B	F value	p value
	Mean ± SD	Mean ± SD	Mean ± SD	D	
Day 1	7.07 ± 0.96	7.33 ± 0.62	7.73 ± 0.83	3.59	<0.05
Day 2	6.60 ± 0.91	6.93 ± 0.79	7.40 ± 1.07	3.63	<0.05
Day 3	6.00 ± 1.00	6.67 ± 0.90	6.92 ± 1.08	4.05	<0.05
Day 4	5.07 ± 1.10	6.30 ± 0.96	6.57 ± 1.08	10.34	<0.001
Day 5	4.13 ± 1.36	5.67 ± 1.17	6.12 ± 1.37	11.36	<0.001
Day 6	3.60 ± 1.50	5.13 ± 1.12	5.87 ± 1.28	15.13	<0.001
Day 7	2.80 ± 1.01	4.67 ± 0.98	5.47 ± 1.19	29.32	<0.001

(Visual Analogue Scale; 0-10, 0: No pain, 10: Agonizing pain)

Table 1B: Pain Scores – Intergroup Comparison

Pain Score on	A1 Vs A2	A1 Vs B	A2 Vs B
	p	P	p
Day 1	>0.05	<0.05	>0.05
Day 2	>0.05	<0.05	>0.05
Day 3	>0.05	<0.05	>0.05
Day 4	<0.01	<0.001	>0.05
Day 5	<0.01	<0.001	>0.05
Day 6	<0.01	<0.001	>0.05
Day 7	<0.001	<0.001	>0.05

Table 2: Patient Satisfaction Score

Patient Satisfaction Score on	Group A1 (n=15)	Group A2 (n=15)	Group B (n=30)	F Value	p Value
	Mean ± SD	Mean ± SD	Mean ± SD		
Day 7	3.93 ± 0.94	2.47 ± 0.52	1.82±0.48	55.78	<0.0001

(Visual Analogue Scale; 0-5, 0- very poor, 5- excellent)

Table 3A: Improvement in Symptomatology

Improvement in symptomatology on	Group A1 (n=15)	Group A2 (n=15)	Group B (n=30)	F Value	p Value
	Mean ± SD	Mean± SD	Mean±SD		
Day 3	2.13 ±0.64	1.60±0.91	0.83 ± 0.66	17.24	<0.001
Day 5	3.07 ±0.88	2.0±0.93	1.35 ± 0.57	25.89	<0.001
Day 7	4±0.73	2.47±0.55	1.78 ±0.66	57.02	<0.001

(Visual Analogue Scale; 0-5, 0- no improvement, 5- comfortable)

Table 3B: Improvement in Symptomatology - Intergroup Comparison

Improvement in symptomatology on	A1 Vs A2	A1 Vs B	A2 Vs B
	p	p	p
Day 3	>0.05	<0.001	<0.05
Day 5	<0.001	<0.001	<0.05
Day 7	<0.001	<0.001	<0.05

Discussion:

Historically, the use of sitz bath to improve the blood circulation can be traced to early 19th century as part of the old European tradition. Today, sitz bath has been a commonly used conservative therapy for patients with acute anal fissure to relieve symptoms like pain. Although the effect of using sitz bath in anorectal disorders has not been established yet, clinicians still prescribe sitz baths for patients with anal fissure and other anorectal disorders. The clinical impact of sitz bath has been unclear. Patients with anal fissure often showed improvement and fissures healed regardless of the adherence to a strict sitz bath regimen. There has been no rigid analysis conducted to examine the evidence using a systematic approach [4].

A Sitz bath, also called a hip bath is a type of bath in which only the hips and buttocks are soaked in water or saline solution. Sitz baths are recommended for their soothing effect and their ability to relax the anal sphincter muscles. It is frequently recommended because of the low morbidity it carries [5].

It has been hypothesized that the pain relief after sitz bath could be the result of internal anal sphincter relaxation, with a resulting diminution of the rectal neck pressure. A decrease in the internal sphincter pressure during the sitz bath has been observed. It is postulated that the relaxation of the internal sphincter muscle is mediated through sensory perianal skin receptors getting stimulated by warm water. The decrease in the spasm and pain relief is attributed to this 'thermo-sphincteric reflex'. The same mechanism also has

been proposed for relaxation of the internal urethral sphincter to induce urination in patients after anorectal operations [6]. The perceived advantages of sitz bath include improvements in hygiene, relief of discomfort such as burning sensation or itching, and wound healing [7]. In addition, sitz bath has been reported as beneficial for limiting infectious disease and preventing sepsis following surgery [8].

A variety of medicaments and additives have been used and recommended with sitz bath for different proctologic disorders. These include antiseptic solutions, table salt, povidone iodine, potassium permanganate, vinegar, etc. How far these additives are useful remains an issue of debate. The basis of sitz bath is application of variable temperature to the ano-perineal region, and the other factors are secondary. Addition of medicaments to the water can cause various allergic skin reactions. In general, the water is expected to cover only the perineum and lower pelvis. Immersing other parts of the body in warm water could lead to systemic vasodilatation and decreased circulation to the perianal area [9].

Cold sitz bath causes a contraction of the cutaneous blood vessels of the area covered by the water. This effect seems especially felt in the head, and may on certain occasions be used to increase cerebral activity. Superficial cold application may cause physiologic reactions such as decrease in local metabolic function, local oedema, nerve conduction velocity, muscle spasm and increase in local anaesthetic effects [10].

The hot water causes an atonic dilation in the cutaneous blood vessels. The quantity of blood in

the pelvis is largely increased. Hot sitz bath relieves pain by lowering anal pressure, and improves anal blood circulation that relieves the congestion and oedema [11]. It is hypothesized that hot water baths have a greater analgesic effect than the cold water with longer durations of low internal sphincter pressure [3,12].

A study of 24 patients of acute anal pain due to haemorrhoidal disease/acute anal fissure randomized into two groups: one receiving warm sitz bath and the other receiving cold sitz bath has demonstrated no statistically significant difference in the pain scores. The variation in maximum anorectal resting pressure measured before and after the sitz bath also has shown no significant difference [3].

A study by Gupta [13] compared the analgesic effect of treatment with and without sitz bath in patients with anal fissure through a randomised clinical trial. It shows that there was no significant pain relief or wound healing in patients taking warm water sitz baths, although there was greater overall patient satisfaction.

The benefits of hydrotherapy on different systems of the body have been reviewed. These depend on the temperature of the water. Though these effects are scientifically evidence-based, there is lack of evidence for the mechanism on how hydrotherapy brings about an improvement in the disease process [14].

A systemic review [4] of four studies (268 participants) was conducted. One study was a randomized controlled trial with a clear computerized sequential randomization and allocation concealment. Use of a sitz bath had no

significant effect on overall intensity of pain (one study), post-operative pain (two studies).

A study by Jensen [15] showed that in patients with a first episode of acute posterior anal fissure, simple measures such as warm sitz baths combined with a dietary intake of unprocessed bran may relieve symptoms significantly better than the application of lignocaine or hydrocortisone ointment to the anal canal.

Cross *et al* [2] have reported level 1, Grade A evidence that conservative treatment will heal a significant proportion of acute anal fissures. Recurrence rates were reduced from 68 % to 16 % at one year following continued conservative management [16].

One study [13] has reported that patients in the sitz bath group expressed greater satisfaction than the patients in control group at the end of 4 weeks. Two patients reported a perianal rash after sitz bath. A review [4] of three studies assessing patient satisfaction had conflicting views about the same. One of the studies reported no significant difference between sitz bath and control groups. Our study showed significant patient satisfaction with warm sitz bath. There were no complications. Tejririan *et al* [5] have reviewed the literature on the use of sitz baths in anorectal disease and have concluded that there is no conclusive scientific evidence and studies on its effect. Although the Clinical Practice Guidelines recommend the use of hot water sitz baths for the treatment of anal pain for its known effect on the resting anal pressure, popular belief encourages the use of cold water sitz baths. This has also been reported by Maestre *et al* [3]

The current study has attempted to evaluate the effectiveness of sitz bath in the management of acute anal fissure. The results have been statistically significant especially with reference to pain relief and patient satisfaction. It is noted that a lot of apprehension exists in the mind of patients about the feasibility of the sitz bath. Space limitations and effort involved in preparing the sitz bath are issues often raised by them. Proper counseling about the correct technique and potential benefits of sitz bath will go a long way in removing the misconceptions.

Conclusion:

The temperature of sitz bath is an important factor in determining the outcome of the use of this treatment method. Warm sitz bath provides significant analgesia. An overall improvement in symptomatology is evident with the use of warm sitz bath, thereby giving more patient satisfaction. In an era of industry driven treatment 'packages', it is definitely worthwhile considering the potential of use of a natural source like water in the management of common surgical ailments.

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