

## A Hospital Based Prospective Study to Compare the Outcome of Perianal Surgery Wound when Using Silver Colloidal Solution Spray V/S Povidone Iodine Sitz-Bath

Manoj Kumar Singhal<sup>1</sup>, Samarveer Singh<sup>2\*</sup>

<sup>1</sup>Principal Specialist, Department of General Surgery, District Hospital, Dholpur, Rajasthan, India

<sup>2</sup>Junior Specialist & HOD, Department of General Surgery, District Hospital, Dholpur, Rajasthan, India

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### Abstract

**Background:** The pain of anal ulcer is intolerable and always disproportionate to the severity of the physical lesion. Many different wound irrigation solutions, including soaps, antibiotics and antiseptics, have been used to reduce surgical site infection. The aim of this study to compare the outcome of perianal surgery wound when using silver colloidal solution spray v/s povidone iodine sitz-bath. **Materials & Methods:** A hospital based prospective study done 50 patients of perianal surgery with ASA I or II, attending the district hospital Dholpur, in our surgical unit over a period 1 year. Critically ill patients and patients with underlying bone osteomyelitis or malignancy were excluded. Fifty patients were randomly assigned to receive silver colloidal solution spray (Group A) or a twice-daily sitz bath along with povidone iodine (Group B). Weekly pain score and patient satisfaction score were evaluated on visual analogue scores. **Results:** Our study showed that there was no significant difference in age, gender distribution and the number of excised haemorrhoid piles between the two groups. No significant difference in postoperative mean pain score between groups ( $P > 0.05$ ) was noticed. The satisfaction score was higher in the sitz bath group with povidone iodine when compared with the silver colloidal solution spray group; however, it did not reach a statistically significant level. **Conclusion:** We concluded that povidone-iodine with sitz bath may be effective in preventing surgical site infection as compare to silver colloidal solution spray. However, more studies, especially double-blind RCTs, should be conducted to determine the “ideal” solution of povidone-iodine irrigation as well as specific risks associated with its use.

**Keywords:** Perianal surgery, Povidone-iodine, Silver colloid solution, Pain.

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### Introduction

The perineal wound resulting from an abdominoperineal resection (APR) has always been considered troublesome. Miles' original description of the treatment of the perineal incision involved leaving it open to heal by secondary intention, a strategy resulting in a long-term chronic wound[1]. Modern use of chemotherapy and postoperative radiation called for more reliable closure of the perineum to expedite post operative care. However, even when primary closure is instituted, high rates of both wound infection (11-16%) and delayed wound healing can be apparent[2,3].

The pain of anal ulcer is intolerable and always disproportionate to the severity of the physical lesion. It may be so severe that patients may avoid defecation for days together until it becomes inevitable. This leads to hardening of the stools, which further tear the anoderm during defecation, setting a vicious cycle. The fissures can be classified into 1] Acute or superficial and 2] Chronic fissure in ano. It has long been recognized that superficial fissures can be cured conservatively[4]. Warm water sitz bath with or without adding boric powder, povidone iodine solution, or potassium permanganate in the water. This treatment soothes the pain and relaxes the spasm of the internal sphincter for some time[5].

Postoperative infection often requires repeat surgery and prolonged hospitalization, and it may compromise ultimate surgical outcomes[6]. In addition to sterile procedures and patient warming, prophylactic antibiotics have been shown to reduce surgical site infection[7]. Despite the widespread use of prophylactic antibiotics, however, surgical site infection continues to occur and is devastating for patients[6]. Many different wound irrigation solutions, including

soaps, antibiotics and antiseptics, have been used to reduce surgical site infection[8,9]. Wound irrigation with povidone-iodine, an antiseptic solution, may be useful for reducing infection, but it is of uncertain efficacy and risk.

Povidone-iodine (Betadine) is an antiseptic solution consisting of polyvinylpyrrolidone with water, iodide and 1% available iodine; it has bactericidal ability against a large array of pathogens [10]. Although a vast amount of literature exists regarding its use as a topical antibacterial agent in surgery, its use as a prophylactic irrigation solution against surgical site infection has been examined to a lesser degree.

The use of silver for the treatment of various maladies or to prevent the transmission of infection dates back to at least 4000 b.c.e. Medical applications are documented in the literature throughout the 17th and 18th centuries. The bactericidal activity of silver is well established. Silver nitrate was used topically throughout the 1800s for the treatment of burns, ulcerations, and infected wounds, and although its use declined after World War II and the advent of antibiotics, Fox revitalized its use in the form of silver sulfadiazine in 1968[11]. The aim of this study to compare the outcome of perianal surgery wound when using silver colloidal solution spray v/s povidone iodine sitz-bath.

### Materials & Methods

A hospital based prospective study done 50 patients of perianal surgery with ASA I or II, attending the district hospital Dholpur, in our surgical unit over a period 1 year. Critically ill patients and patients with underlying bone osteomyelitis or malignancy were excluded. In all patients, wound size was measured before treatment initiation.

### Methods

Fifty patients were randomly assigned to receive silver colloidal solution spray (Group A) or a twice-daily sitz bath along with povidone iodine (Group B). Weekly pain score and patient satisfaction score were evaluated on visual analogue scores. All patients were followed as per standard post-application treatment

\*Correspondence

**Dr. Samarveer Singh**

Junior Specialist & HOD, Department of General Surgery, District Hospital, Dholpur, Rajasthan, India.

E-mail: [pmoghdholpur@yahoo.in](mailto:pmoghdholpur@yahoo.in)

protocol. Healing time, follow up period was noted. All patients were followed up for adverse events. Patient satisfaction was strongly associated with fistula recurrence, difficulty holding gas, soiling of undergarment, and accidental bowel movements.

#### Statistical analysis:

Statistical analysis was performed with the help of statistical package SPSS (Statistical Package for the Social Sciences) version 21. Pearson correlation test was used to find the correlation of two continual variables. Significance was defined by P values less than 0.05 using a two-tailed test.

#### Results

Our study showed that there was no significant difference in age, gender distribution and the number of excised haemorrhoid piles between the two groups. No significant difference in postoperative mean pain score between groups ( $P > 0.05$ ) was noticed. The satisfaction score was higher in the sitz bath group with povidone iodine when compared with the silver colloidal solution spray group; however, it did not reach a statistically significant level (table 1). Overall outcome was reported as "excellent" or "good" in 66% of patients, "adequate" in 28%, and "poor" in 6% in our study (table 2).

**Table 1: Characteristics in between groups**

Characteristics	Group A (N=25)	Group B (N=25)	P value
Age (yrs)	48.56±8.23	50.23±9.92	>0.05
<b>Sex</b>			
Male	17	15	>0.05
Female	8	10	
<b>Co-morbidity</b>			
No	15	13	>0.05
Yes	10	12	
<b>Post operative pain</b>			
Mean±SD	6.72±1.16	5.56±0.98	<0.05*
<b>Satisfaction rating scale</b>			
Satisfaction	10	12	>0.05
Dissatisfaction	15	13	

**Table 2: Outcome in between groups**

Outcome	Group A (N=25)	Group B (N=25)	P value
Excellent or good	15	18	>0.05
Adequate	8	6	
Poor	2	1	

#### Discussion

A Sitz or hip bath is a warm water bath used for healing or cleansing purposes. The patient sits in the bath and the water containing saline or medication covers only the hips and buttocks. Sitz bath is a European tradition in which only the pelvis and abdominal areas are immersed in water, with the upper body, arms, legs, and feet out of the water. The water can be warm or cold and one or two tubs maybe used[12].

Warm Sitz bath is one of the easiest and more effective ways to ease pain and lessen discomfort associated with a painful condition in the pelvic area. It was first introduced by Louis Kuhne in the late 19th and early 20th centuries in his detox bath methods including the friction Sitz bath[13]. The efficacy of Sitz bath cannot be underestimated in the relief of pains, improvement of healing, amelioration of comfort. Reduction of inflammation has also been associated to its use. Pravin J Gupta[14] found that there was no significant difference in age, gender distribution and the number of excised haemorrhoid piles between the two groups. No significant difference in postoperative mean pain score between groups ( $P = 0.234$ ) was noticed. Likewise, no relevant differences in analgesic requirements between sitz bath and no sitz bath group ( $P = 0.435$ ) were seen. The satisfaction score was higher in the sitz bath group when compared with the control group; however, it did not reach a statistically significant level. They concluded that sitz bath does not offer pain relief, wound healing or reduction in consumption of analgesics and thus there is no evidence to prescribe sitz bath in the post-haemorrhoidectomy period. The satisfaction score was higher in the sitz bath group with povidone iodine when compared with the silver colloidal solution spray group; however, it did not reach a statistically significant level in our study also.

J Garcia-Aguilar et al [15] found patients with fistula recurrence reported a higher dissatisfaction rate (61 percent) than did patients with anal incontinence (24 percent), but the attributable fraction of dissatisfaction for incontinence (84 percent) was greater than that for

fistula recurrence (33 percent). Patient satisfaction was not significantly associated with age, gender, history of previous fistula surgery, type of fistula, surgical procedure, time since surgery, or operating surgeon. Overall outcome was reported as "excellent" or "good" in 66% of patients, "adequate" in 28%, and "poor" in 6% in our study.

While all the available options are explained to the patient with complete information about the method, cure rates, complications, and reversibility of the disease, the surgeon should analyze the optimum treatment for the particular patient in order to make a good and safe choice and then offer to the patient the result of the best of judgment of his own.

#### Conclusion

We concluded that povidone-iodine with sitz bath may be effective in preventing surgical site infection as compare to silver colloidal solution spray. However, more studies, especially double-blind RCTs, should be conducted to determine the "ideal" solution of povidone-iodine irrigation as well as specific risks associated with its use.

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