

## Comparison of Outcome of Perianal Surgery Wound When using Silver Colloidal Solution Spray V/S Povidone Iodine Sitz-Bath at a Tertiary Centre

Md. Quamar Zubair<sup>1</sup>, Mohamed Ashraf Ali<sup>2</sup>, A. K. Jha Suman<sup>3</sup>, Md Mazharul Haque<sup>4</sup>

<sup>1</sup>Senior Resident, Department of surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India.

<sup>2</sup>Senior Resident, Department of surgery, Katihar Medical College and Hospital, Katihar, Bihar, India.

<sup>3</sup>Associate Professor, Department of surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India.

<sup>4</sup>Associate Professor, Department of surgery, Katihar Medical College and Hospital, Katihar, Bihar, India.

Received: 27-11-2023 / Revised: 13-12-2023 / Accepted: 10-01-2023

Corresponding Author: Dr. Mohamed Ashraf Ali

Conflict of interest: Nil

### Abstract:

**Background:** Perianal surgery refers to surgical procedures performed in the region around the anus. The present study was conducted to compare the outcome of perianal surgery wound when using silver colloidal solution spray v/s povidone iodine sitz-bath.

**Materials & Methods:** 84 patients of perianal surgery with ASA I or II of both genders were divided into 2 groups of 42 each. In group I, silver colloidal solution spray was given and in group II, a twice-daily sitz bath along with povidone iodine was given. Parameters such as healing time, adverse events, post-operative pain, patient satisfaction and outcome were compared.

**Results:** The age group 20-40 years comprises 20 and 24 and 40-60 years 22 and 18 patients in group I and II respectively. There were 25 males in group I and 23 in group II and 17 females in group I and 19 in group II. The satisfaction rating scale showed satisfaction in 24 in group I and 26 in group II and dis-satisfaction in 18 in group I and 16 in group II. The difference was significant ( $P < 0.05$ ). The outcome was excellent in 20 in group I and 23 in group II, adequate in 18 in group I and 17 in group II, and poor in 4 in group I and 2 in group II. The difference was non-significant ( $P > 0.05$ ).

**Conclusion:** Povidone-iodine with sitz bath may be effective in preventing surgical site infection following perianal surgery in contrast to silver colloidal solution spray.

**Keywords:** Povidone-Iodine, Sitz Bath, Perianal Surgery.

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

Perianal surgery refers to surgical procedures performed in the region around the anus. This area includes the perianal skin, anal canal, and surrounding tissues. There are various reasons why someone might undergo perianal surgery, and the specific procedure will depend on the underlying condition or medical issue [1]. Perineal wounds from abdominoperineal resections (APRs) have long been regarded as problematic [2]. In Miles' initial account, the perineal incision was left open to heal secondary intention, a tactic that left the wound chronic and long-lasting. In order to speed post-operative treatment, more dependable perineum closure was required due to the modern usage of chemotherapy and postoperative radiation. Even with primary closure, nevertheless, it is important to take into consideration the high incidence of wound infection (11–16%) and delayed wound healing [3].

Povidone-iodine, often known as Betadine, is an antiseptic solution with bactericidal activity against a wide range of infections. It is made up of polyvinylpyrrolidone, water, iodide, and 1% accessible iodine. Silver has been used for at least 4,000 years to cure a variety of illnesses and stop the spread of infections. Applications in medicine are recorded in the literature from the 17th and 18th centuries. Silver's bactericidal properties are well known [4]. Throughout the 1800s, silver nitrate was applied topically to treat burns, ulcerations, and infected wounds. After World War II and the introduction of antibiotics, its use decreased, but in 1968, Fox brought it back to life with the introduction of silver sulfadiazine [5,6].

**Aims and Objectives:** The present study was conducted to compare the outcome of perianal

surgery wound when using silver colloidal solution spray v/s povidone iodine sitz-bath.

**Materials & Methods**

The present prospective, randomized, observational study consisted of 84 patients of perianal surgery with ASA I or II of both genders attending out-patient departments (OPD), Department of Surgery, Katihar Medical College and Hospital, Katihar, Bihar, India and Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India. All gave their written consent to participate in the study. The institutional ethical committee granted ethical approval. The study period was from January 2018 to June 2020.

Keeping power (1-beta error) at 80% and confidence interval (1-alpha error) at 95%, the minimum sample size required was 60 patients; therefore, we included 84 (more than the minimum required number of cases) patients in the present study.

**Inclusion criteria:** Age between 20 - 60 years and perianal surgery with ASA I or II included in present study.

**Exclusion criteria:** Age <20 and >60 years, pregnant women, patients suffering from systemic illness and perianal surgery with ASA III or IV excluded from present study.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 42 each. In

group I, silver colloidal solution spray was given and in group II, a twice-daily sitz bath along with povidone iodine was given. Parameters such as healing time, adverse events, post-operative pain, patient satisfaction and outcome were compared.

**Statistical analysis:** Data thus obtained were subjected to statistical analysis by using statistical package SPSS (Statistical Package for the Social Sciences) version 22.0. Pearson correlation test was used to find the correlation of two continual variables. . P value < 0.05 was considered significant.

**Results**

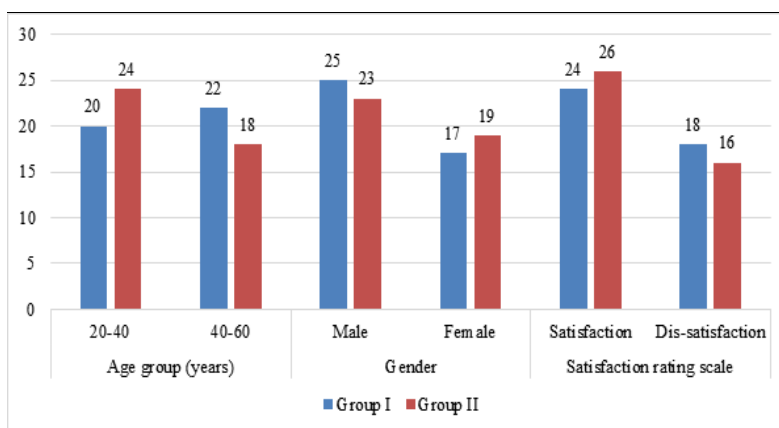
The present prospective observational study included 84 patients of perianal surgery with ASA I or II of both genders. Difference in The mean age of patients in group I was 52.46±10.60 years, whereas in group II it was 54.80±9.75 year, respectively, which was statistically significant (p-value = 0.001).

Our study showed that there was no significant difference in age, gender distribution between the two groups. No significant difference in postoperative mean pain score between groups (P <0.05) was found. 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 I).

**Table 1: Assessment of parameters**

Parameters	Variables	Group I (n=42)	Group II (n=42)	P value
Age group (years)	20-40	20	24	0.84
	40-60	22	18	
Gender	Male	25	23	0.91
	Female	17	19	
Post-operative pain		6.52±1.25	5.46±0.89	0.65
Satisfaction rating scale	Satisfaction	24	26	0.12
	Dis-satisfaction	18	16	
Mean age (years)		52.46±10.60	54.80±9.75	0.001

Table I, graph I shows that the age group 20-40 years comprises 20 and 24 and 40-60 years 22 and 18 patients in group I and II respectively. There were 25 males in group I and 23 in group II and 17 females in group I and 19 in group II. The satisfaction rating scale showed satisfaction in 24 in group I and 26 in group II and dis-satisfaction in 18 in group I and 16 in group II. The difference was significant (P< 0.05).

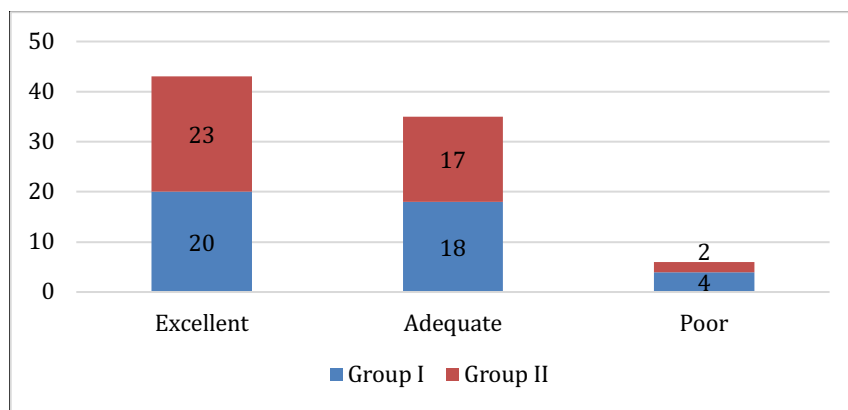


**Graph 1: Assessment of parameters**

**Table 2: Comparison of outcome**

Outcome	Group I	Group II	P value
Excellent	20	23	0.75
Adequate	18	17	
Poor	4	2	

Table 2, graph II shows that the outcome was excellent in 20 in group I and 23 in group II, adequate in 18 in group I and 17 in group II, and poor in 4 in group I and 2 in group II. The difference was non-significant ( $P > 0.05$ ).

**Graph 2: Comparison of outcome**

## Discussion

Anal ulcers cause excruciating discomfort that is never commensurate with the extent of the physical damage [7]. Patients may be unable to defecate for days at a time until it becomes necessary due to the severity of the condition. This causes the stools to become harder, which creates a vicious cycle by tearing the anoderm even more as feces are passed [8]. There are two types of fissures in ano: (1) Acute or superficial fissures and (2) Chronic fissures. It has long been known that conservative treatment is an effective way to treat superficial fissures [9]. Boric powder, povidone iodine solution, or potassium permanganate can all be added to a warm water sitz bath [10]. This procedure temporarily relieves the pain and relaxes the internal sphincter spasm [11]. The present study was conducted to compare the outcome of perianal surgery wound when using silver colloidal solution spray v/s povidone iodine sitz-bath.

We found that the age group 20-40 years comprises 20 and 24 and 40-60 years 22 and 18 patients in group I and II respectively. There were 25 males in group I and 23 in group II and 17 females in group I and 19 in group II. The satisfaction rating scale showed satisfaction in 24 in group I and 26 in group II and dis-satisfaction in 18 in group I and 16 in group II. Singhal et al. [12] studied 50 patients of perianal surgery with ASA I or II, 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. The 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 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.

We found that the outcome was excellent in 20 in group I and 23 in group II, adequate in 18 in group I and 17 in group II, and poor in 4 in group I and 2 in group II.

J García-Aguilar et al. [13] found that 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.

**Limitations of the study:** The limitation of the study is the small sample size and short duration of study.

## Conclusion

Authors found that Povidone-iodine with sitz bath may be effective in preventing surgical site infection following perianal surgery in contrast to silver colloidal solution spray.

**Acknowledgment:** The authors would like to acknowledge the entire faculty and residents of the

Department of Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India, and the Department of Surgery, Katihar Medical College and Hospital, Katihar, Bihar, India, for their valuable support and time-to-time suggestions in undertaking the present study. Special thanks to Dr. A. K. Jha Suman, Associate Professor, Department of Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India, and Dr. Md Mazharul Haque, Department of Surgery, Katihar Medical College and Hospital, Katihar, Bihar, India, for their valuable suggestions during the study.

#### References

- Hedrick TL, Anastacio MM, Sawyer RG. Prevention of surgical site infections. *Expert Rev Anti Infect Ther.* 2006; 4:223-33.
- Hedrick TL, Anastacio MM, Sawyer RG. Prevention of surgical site infections. *Expert Rev Anti Infect Ther.* 2006; 4:223-33.
- Sindelar WF, Mason GR. Efficacy of povidone-iodine irrigation in prevention of surgical wound infections. *Surg Forum.* 1977; 28:4 8-51.
- Sindelar WF, Mason GR. Irrigation of subcutaneous tissue with povidone-iodine solution for prevention of surgical wound infections. *Surg Gynecol Obstet.* 1979; 148:227-31.
- Zamora JL. Chemical and microbiologic characteristics and toxicity of povidone-iodine solutions. *Am J Surg.* 1986; 151: 400-6.
- Amani D, Politano, Kristin T. Campbell, Laura H. Rosenberger, Robert G. Sawyer. Use of Silver in the Prevention and Treatment of Infections: Silver Review. *Surg Infect (Larchmt).* 2013; 14(1):8–20.
- Mc Candlish R, Bowler U, Asten H, Berridge G, Winter C et al. A randomized controlled trial of care of the perineum during second stage of normal labour. *BJOG: an international journal of obstetrics & gynaecology.* 1998; 105 (12):1262-1272.
- Sleep J, Grant A, Garcia J, Elbourne D, Spencer J et al. West Berkshire perineal management trial. *Bmj.* 1984; 289 (6445): 587-590.
- Pravin J Gupta. Warm sitz bath does not reduce symptoms in post haemorrhoidectomy period: A randomized, controlled study. *ANZ Journal of Surgery.* 2008; 78(5):398-401.
- El-Gazzaz G, Kiran RP, Lavery I. Wound complications in rectal cancer patients undergoing primary closure of the perineal wound after abdominoperineal resection. *Dis Colon Rectum.* 2009; 52(12):1962–1966.
- Matsuda K, Hotta T, Takifuji K et al. Long-term comorbidity of diabetes mellitus is a risk factor for perineal wound complications after an abdominoperineal resection. *Langen becks Arch Surg.* 2009; 394(1):65–70.
- Manoj Kumar Singhal, Samarveer Singh. 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. *International Journal of Health and Clinical Research,* 2022; 5 (1):477-479.
- J García-Aguilar, CS Davey, CT Le, AC Lowry, DA Rothenberger. Patient satisfaction after surgical treatment for fistula-in-ano. *Dis Colon Rectum.* 2000; 43(9):1206-12.