

EFFECT OF HONEY DRESSING VERSUS POVIDINE PYODINE DRESSING IN POST-CESAREAN INFECTED WOUND HEALING

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Abstract;

Background; Wound complications are of the most common morbidities following cesarean section and it affects mother's quality of life due to stress, anxiety, delay in mother's ability and health recovery, and also they are associated with additional cost as a result of the increased need for wide spectrum antibiotics and sometimes hospitalization and repeated repair of wound. **Objective;** To compare the efficacy of honey dressing versus povidine pyodine dressing in post-cesarean infected wound healing. **Material and Methods;** A total of 62 post-cesarean surgical site wounds that were infected (discharge of pus from wound on examination) of > 7 days were deemed as positive, <15 cm and > 7 days were taken in this randomized controlled trial study. Group A (honey dressing) contains 31 cases in which honey dressing was applied daily and group B (povidine pyodine dressing) containing 31 cases in which povidine pyodine dressing was applied. In both groups, dressing was applied and each patient was followed till 3 weeks for efficacy. **Results;** Our study comprised of a 62 study cases meeting inclusion and exclusion criteria of our study. Mean age of our study cases was 29.48 ± 3.51 years (with minimum age was 22 years while maximum age was 35 years). Mean duration of wound was 14.06 ± 4.73 (with minimum duration was 8 days while maximum duration was noted to be 24 days). Mean size of wound was noted to be 10.60 ± 2.23 centimeters. BMI was in normal range in 54 (87.1%) of our study cases while obesity was seen in 8 (12.9%) of our study cases. History of diabetes was seen in 17 (27.4%) of our study cases. Efficacy was noted in 24 (38.77%) of our study cases. Both groups were compared in terms of efficacy and efficacy in group A was noted to be 61.3% while in group B only 16.1%.

Conclusion; Our study results have indicated that the efficacy of honey dressing is significantly higher compared to povidine pyodine dressing in post-cesarean infected wound healing. Post cesarean surgical site infections have major economic impact and our study results recommend the use of honey dressing as it is safe, reliable, associated with short hospital stay and cost effective for these suffering families.

Keywords; Wound Infection, cesarean section, honey dressing.

Introduction;

Many substances act as an antimicrobial agents which were utilized to cover wounds, decrease bleeding, reduce swelling, diminish pain, remove damaged tissue, treat infections, promote healing and care for thousands of years. ¹ in 19th century the discovery of chemical preservatives and disinfectants, give better understanding of the nature of infection and inflammation, allowed increased control of wound infection. ² honey is a mixture of sugars prepared from the natural sugar solutions called nectar obtained from flowers or other plant secretions ³. Honey has a long history and has been used from ancient times as medicine. In addition to its use as a food, honey has been used in medicine as dressing for wounds and inflammation both internal and external ⁴.

More recently, honey been reported to have an inhibitory effect to around 60 species of bacteria including aerobes and anaerobes, gram positives and gram-negatives⁵. An antifungal action has also been observed for some yeasts and species of *Aspergillus* and *Penicillium*, as well as all the common dermatophytes⁵. Honey's antibacterial activity is thought to be primarily due to the presence of hydrogen peroxide, generated by the action of an enzyme that the bees add to the nectar.⁶⁻⁸ Some floral sources provide additional antibacterial components by way of plant derived chemical in the nectar, such as flavonoids and aromatic acid⁷⁻⁸. Honey helps heal skin in a variety of ways; 1) Honey increased the amount of tissue re-growth in several different kinds of wounds (including incisional and burn wounds), and increased wound epithelialization, 2) Honey decreases inflammation as seen histologically and redness at the wound site⁸⁻¹⁰. Gulati S et al¹¹ in his study has shown the efficacy of honey dressing in healing infected wounds within 3 weeks as 31.82 % patients compared to 0.0 % with povidone iodine dressing.

As these infected wounds are not only associated with increased morbidity of patients but also put economic burden on patients by buying expensive antibiotics for sake of their wounds to be healed. So, we decided to conduct this study to compare the efficacy of honey dressing versus povidone iodine dressing in post cesarean infected wound healing in local population.

Material and Methods;

A total of 62 post-cesarean surgical site wounds that were infected (discharge of pus from wound on examination) of > 7 days were deemed as positive, <15 cm and > 7 days were taken in this randomized controlled trial study. Patients having Hb less than 8 g/dl and with complete wound disruption in which resuturing was required were excluded from our study. These patients admitted in the department of Obstetrics & Gynecology, Nishtar Hospital, Multan fulfilling the inclusion/exclusion criteria were selected. After taking informed, written consent for the participation in the study, all the patients were randomized in double blind fashion in two groups. Each patient was offered to pick up a slip from total mixed up slips (half containing letter A while remaining half containing letter B) and she was placed in the respective group. Group A (honey dressing) contains 31 cases in which honey dressing was applied daily and group B (povidone iodine dressing) containing 31 cases in which povidone iodine dressing was applied. In both groups, dressing was applied by the researcher itself. Each patient was followed till 3 weeks at which efficacy (measured at the end of 3rd week post-therapy; If there was no pus and closure of wound on examination) was noted in both groups. All the data was entered and analyzed by using SPSS version 20.

Results;

Our study comprised of a 62 study cases meeting inclusion and exclusion criteria of our study. Mean age of our study cases was 29.48 ± 3.51 years (with minimum age was 22 years while maximum age was 35 years). Mean age of patients in group A was 28.97 ± 3.93 years (with minimum age was 24 years while maximum age was 34 years) while mean age of patients in group B was 30.00 ± 3.02 years (with minimum age was 22 years while maximum age was 35 years). Our study results have indicated that majority of our study cases i.e. 50 (80.6%) belonged to age group of 26-35 years. Mean duration of wound was 14.06 ± 4.73 (with minimum duration was 8 days while maximum duration was noted to be 24 days). Our study results have indicated that majority of our study cases i.e. 37 (59.7%) had duration of wound ranging from 7 – 15 days.

Mean size of wound was noted to be 10.60 ± 2.23 centimeters, while majority of our study cases i.e. 33 (53.2%) had size of wound more than 10 centimeters. BMI was in normal range in 54 (87.1%) of our study cases while obesity was seen in 8 (12.9%) of our study cases. History of diabetes was seen in 17 (27.4%) of our study cases. Poor socioeconomic status was noted in 37 (59.7%), middle income in 25 (40.3%) of our study cases while none of them reported with high income. Efficacy was noted in 24 (38.77%) of our study cases. Both groups were compared in terms of efficacy and efficacy in group A was noted to be 61.3% while that of group B was only in 16.1%. This difference in efficacy was statistically significant i.e. $p=0.001$.

Table No. 1 Stratification of mean duration of wound with regards to efficacy. (n=62)

Efficacy	Duration of wound		P – value
	Mean	Standard deviation	
Yes (n=24)	12.29	3.92	0.018
No (n=38)	15.18	4.90	

Table No. 2 Stratification of mean Size of wound with regards to efficacy. (n=62)

Efficacy	Size of wound		P – value
	Mean	Standard deviation	
Yes (n=24)	10.13	2.41	0.947
No (n=38)	10.16	1.49	

Discussion;

As infection continues to be a common postoperative complication in both the developed and developing world, there is a need to implement SSI surveillance during and after surgeries so as to obtain a standardised incidence. The delivery of high-quality services with early interventions to reduce wound infections is an important aspect of patient safety measures¹²⁻¹⁸. Our study comprised of a 62 study cases meeting inclusion and exclusion criteria of our study. Mean age of our study cases was 29.48 ± 3.51 years (with minimum age was 22 years while maximum age was 35 years). A study conducted by Jama et al¹⁷ reported 31 ± 3.4 years mean age of patients having post cesarean wound infection. These findings are close to our study results. Another study by Nikpour et al¹⁵ has reported 27.70 ± 4.97 years mean of these patients which is close to our study results. Mean age of patients in group A was 28.97 ± 3.93 years (with minimum age was 24 years while maximum age was 34 years) while mean age of patients in group B was 30.00 ± 3.02 years (with minimum age was 22 years while maximum age was 35 years). Our study results have indicated that majority of our study cases i.e. 50 (80.6%) belonged to age group of 26-35 years. Jido et al¹⁹ also reported post cesarean wound infections being more prevalent in this age group of 26 – 35 years of age which is in compliance with that of our study results.

Mean duration of wound was 14.06 ± 4.73 (with minimum duration was 8 days while maximum duration was noted to be 24 days). Our study results have indicated that majority of our study cases i.e. 37 (59.7%) had duration of wound ranging from 7 – 15 days. A study conducted by Jido et al¹⁹ reported 16.6 ± 5.7 days mean duration of wound which is close to our study results. Mean size of wound was noted to be 10.60 ± 2.23 centimeters, while majority of our study cases i.e. 33 (53.2%) had size of wound more than 10 centimeters. BMI was in normal range in 54 (87.1%) of our study cases, Obesity was present in 8 (12.9%). Dhar et al¹³ has reported obesity in 8.53 % which is close to our study results. Jama et al¹⁷ reported obesity in 25.2% patients which higher than our study findings.

Diabetes has been reported to be a major risk factor post operative wound infection among targeted population. History of diabetes was seen in 17 (27.4%) of our study cases. A study from Saudi Arabia by Habib et al²⁰ has reported similar results. Dhar et al¹³ reported 16 % diabetes in these patients with post cesarean wound infection. Jama et al¹⁸ reported diabetes in 11.2 % patients with wound infection after cesarean section which is quite low than that of our study results. Poor socioeconomic status was noted in 37 (59.7%), middle income in 25 (40.3%) of our study cases while none of them reported with high income.

The discovery of antibiotics and the improved technology behind using honey was forgotten until recent years when the studies on animal and some clinical trials revealed the role of honey in wound healing enhancement. The comparison between honey and local antiseptics on the post-surgical infected wounds indicated that using honey resulted in rapid healing, the decrease in hospitalization, scar size and the need for antibiotics. Also using honey led to wound site sterilization within 3-10 days. In another research, honey was replaced with re-suturing in cases with incision disruption so that the outcomes were excellent within 2 weeks. In contrast, some review studies have not gained proven results for honey effects on wounds. In a systematic review of 19 trials, the results showed acceleration in superficial and moderate burns healing with honey. Another review article concluded that using honey as a useful treatment for superficial wounds is of little confidence^{11,15}. In our study, efficacy was noted in 24 (38.77%) of our study cases. Both groups were compared in terms of efficacy and efficacy in group A was noted to be 61.3% while that of group B was only in 16.1%. Similarly a study conducted by Nikpour et al¹⁵ reported 86 % efficacy with honey dressing in such patients. Gulati S et al¹¹ in his study has shown the efficacy of honey dressing in healing infected wounds within 3 weeks as 31.82 % patients compared to 0.0 % with povidine pyodine dressing, these findings show less efficacy than our study results.

Conclusion;

Our study results have indicated that the efficacy of honey dressing is significantly higher compared to povidine pyodine dressing in post-cesarean infected wound healing. Post cesarean surgical site infections have major economic impact and our study results recommend the use of honey dressing as it is safe, reliable, associated with short hospital stay and cost effective for these suffering families. No side effects were observed with its use in our study. Post cesarean wound infection was significantly associated with increasing age, poor socio-economic status and urban residential status. Majority of the patients were having poor socioeconomic status who are unable to purchase expensive drugs, so honey dressing which has acceptable efficacy provides a good alternate for these patients in our culture.

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