USE OF TINCTURE BENZOIN SEAL IN POST OPERATIVE WOUND COVER.

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Abstract:

Context: A wide range of dressings and antibacterial solutions are available.

Aims: The objective of the study was to evaluate the outcome of post operative wounds after use of tincture benzoin seal and assess its efficacy, safety and cost effectiveness. The results were compared with the conventional povidone iodine adhesive dressing.

Settings and Design: A prospective study was conducted to evaluate the role of tincture benzoin seal dressing in post-operative wound care.

Methods and Material: Fifty patients were randomly selected for tincture benzoin dressing and fifty patients were given conventional gauze dressing post operatively.

Statistical analysis used: Data was analysed and standard error of difference of proportion was calculated to assess difference in wound infection and skin reaction.

Results: Statistically no difference was found in the incidence of wound infection between the both groups (S.E. = 0.45, p = 0.05, C.I. = 1.96). Patients with conventional gauze adhesive dressing had more incidence of skin reaction.

Conclusions: Tincture benzoin seal is as effective as conventional dressings for post operative wound cover. It is a safe and cost effective alternative dressing and has excellent patient tolerance.

Key-words: Tincture Benzoin Seal, Post operative, Wound cover

Key Messages: Tincture benzoin seal dressings can be used for clean and clean contaminated post operative wound care for adequate wound healing.

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Introduction –

In 1867,Lister had introduced antiseptic dressings by soaking lint and gauze in carbolic acid.[1]

Since then , various types of dressings have undergone modifications to improve wound care, fasten the healing process and reduce the bacterial contamination.

In our study, we have evaluated the role of tincture benzoin seal dressing in post operative wound care and compared the outcome with that of conventional gauze dressing with povidone iodine solution.

Materials and methods –

The present study is a prospective study of 100 patients conducted at tertiary care hospital and research centre. The protocol of the study was submitted to the ethics committee of the hospital and approved by the same. This study was conducted for a period of one year. Study comprised of hundred patients undergoing surgery. Fifty patients were randomely selected for tincture benzoin dressing and rest fifty were given conventional gauze dressing post operatively.

Criteria for eligibility:

- Patients undergoing elective and emergency cases
- All age groups were considered

- Type of surgical wound :1) clean (no viscus opened)

2) Clean contaminated (viscus opened but minimal spillage)[2]

These patients were posted for surgery after taking detailed history and all investigations done as required for surgery. All the patients with diabetes were evaluated for blood sugar levels and taken for surgery after normalising the blood sugar levels. Appropriate theatre technique and discipline followed. Antiseptic baths were given and optimal scrubbing done. These patients were given appropriate antibiotic prophylaxis at induction of anaesthetia as considered optimal. At the of surgery, fifty patients were randomly selected and given tincture benzoin seal over surgical wound. In these patients,surgical wound was covered with a thin layer of sterile cotton which is then dabbed with another cotton soaked in tincture benzoin. This is allowed to dry for two-three minutes. Patients were then evaluated after forty-eight hours for soakage and skin excoriation. Patients were assessed for ambulation.

Fifty patients in control group were given conventional dressing. In these patients, povidone iodine solution was applied over surgical wound and covered with a layer of gauze. Adhesive plaster was then applied over this dressing. Dressing was opened after 48hrs and wound was examined for any discharge or reaction.

All the data was tabulated and statistical analysis was conducted by SPSS 16.0 version. Standard error of difference of proportion was calculated. Comparison between study and control groups was done to assess level of safety, ease to use, cost effectiveness and patient compliance. The incidence of wound infection, skin reaction and level of ambulation between the study and control groups was compared.

Result –

In this study, hundred patients were selected as per criteria. Fifty patients were given post operative wound cover with tincture benzoin seal and fifty patients were given conventional

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dressing. The observations and results of our study were tabulated and analysed. Out of fifty patients in study group, two patients developed wound infection while in control group three patients developed wound discharge.

Table1: Incidence of wound infection in both the groups

TYPE OF DRESSING	WOUND DISCHARGE PRESENT	WOUND DISCHARGE ABSENT
TINCTURE BENZOIN SEAL	2	48
CONVENTIONAL ADHESIVE DRESSING	3	47

In study group, no patient developed skin reaction, while ten patients in control group developed skin reaction. It was observed, that the incidence of skin reaction with conventional dressing was 20%.

Table 2: Incidence of skin excoriation and blistering in the two groups.

TYPE OF DRESSING	SKIN REACTION PRESENT	NO SKIN REACTION
TINCTURE BENZOIN SEAL	0	50
CONVENTIONAL DRESSING	10	40

The efficacy of both the dressings in preventing wound infection was assessed statistically. There was no statistical difference in wound infection between the two groups. In our study, tincture benzoin seal dressing was found to be as safe as conventional dressing in preventing wound infection.

Incidence in skin reaction was compared statistically by standard error of proportion which revealed significant difference. Patients with conventional gauze adhesive dressing had more incidence of skin reaction.

Discussion

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A surgical wound is a cut made in the skin during an operation. These wounds are usually closed with sutures, clips or skin glues to bring the skin edges together to seal. Following this the wound is covered or dressed. Various types of dressings are available to enable appropriate wound care. Wound dressings are an important aspect of post-operative care in surgery. The object of proper care is to minimise the possibility of infection and scarring. Purpose of a dressing is to:

- Absorb any leakage or smell from the wound
- Provide ideal conditions for healing
- Prevent infection
- Protect the area until the wound is healed
- Prevent the clips or stitches catching on cloth

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An ideal dressing plays an important role in wound healing[3]. Most surgical wounds heal without causing any problems. However, one of the most common complications encountered with surgical wounds is wound infection. There are various factors which influence wound healing. These include age of the patient, nutritional status, infection, blood supply, position of wound and technique of wound closure.[4]

Various types of dressing are available which more or less meet the criteria (requirement) of an ideal post operative dressing. These may be broadly classified as moist and dry, adhesive and non-adhesive dressings. A number of antibacterial products are available. Topical antimicrobial agents have been used in wound care since thousands of years. During the 19th century the discovery of chemical preservatives and disinfectants[5], as well as a better understanding of the nature of infection and inflammation, has led to increased control of wound infection These

include iodine (povidone iodine), tincture benzoin solution, alcohols, boric acid, chlorhexidine gluconate, sodium bicarbonate(5%), acriflavin[6], sodium hypochlorite (Dakin's solution), triclosan[7].

In our study we have evaluated the role of tincture benzoin cotton seal dressing in post operative wounds and compared the outcome with that of conventional gauze adhesive dressing.

Benzoin is a a compound naturally derived from plants referred to as gums or balsams[8]. Its a balsamic oleo resin which is mixture of resins and volatile oils [9]. Compound tincture of benzoin is made up of four naturally occurring resins: benzoin, allo, storax and tolu balsam in alcohol which is derived from bark of trees of species styrax benzoin[10]. Tinctue of benzoin consisits of 10% benzoin in alcohol [11].

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Table 3: Composition of tincture of benzoin.

SUBSTANCE	QUANTITY(%)
Benzoin	10
Aloe	2
Storax(styrax)	8
Tolu balsam	4
Alcohol 95% q.s.ad	

Compound tincture of benzoin has been used since 15th century in Egyptian and Greek times as a balsam[12]. It has both fungicidal and bacteriostatic properties[13]. Alcohol and benzoin both hold anti septic properties. It also adheres well to skin and mucus membranes. It can be used easily to dress difficult areas like angle of mouth, peri anal areas or nipples [11, 12]. It has been used as a skin toughening agent and to help prevent blister formation[14, 15]. Tincture benzoin helps to

protect vulnerable skin and also defends from further damage. Since ages it is used as small wound dressing. It is technically a “medical varnish”, forming a sealing “film” to protect wounds from invasion of bacteria. This compound is fluid impermeable and physically prevents drying of skin, retaining suppleness and flexibility.

Conventionally surgical wound is covered by gauze soaked with povidone Iodine and applied with adhesive tapes. Povidone iodine is a polyvinyl pyrrolidone surfactant/iodine complex (PVP-I) [16]. It is one of the most accepted antibacterial solution and widely used in post operative wound care [17].

In our study, fifty patients were given tincture benzoin cotton seal post operatively while fifty patients were given adhesive gauze iodine dressing. It was observed that two patients with tincture benzoin seal developed wound infection while three patients in the other group developed wound discharge. In both the groups, there was no significant difference in rate of wound infection. Both the dressings were found to be equally safe for post operative wound care.

Patients in both the groups were examined for skin reaction around the wound due to dressing. It was observed that ten patients in control group developed skin reaction and excoriation due to adhesive tapes which was not seen with tincture benzoin seal (Figure 1). It was observed that post operative discomfort due to dressing was much less in patients with tincture benzoin seal. They were ambulated faster than those with bulky conventional dressings. Post-operative dressing of wound with tincture benzoin seal was found to be more cost effective. It was found to be more durable and stayed over wound for a longer period as compared with the other group. It was easy to evaluate for presence of any wound discharge in case of tincture seal as there was no need to open the dressing as with conventional dressings. It was also observed

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that patients with conventional dressing experienced pain while removal or change of dressing which was not the case with study group.

Povidone iodine soaked with gauze sometimes forms a bulky dressing. Moreover, adhesive tape is known to cause skin reaction and blistering at surgical wound site. Most of the times, patient complain of itching and erythema. This has lead to the need of a post operative dressing which can provide appropriate wound care and also prevent these complications.

Choice of dressing has a major impact on healing of post-operative wound and prevention of infection. With the evolution of wide range of antiseptic solutions and availability of various types of dressings, it has become essential to provide better wound healing with better patient acceptance. Tincture benzoin dressings have been used worldwide since ancient times. As evaluated in our study, it can be used for clean and clean contaminated post operative wound care for adequate wound healing.

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Legends:

Figure 1: Erythema and blistering due to conventional adhesive dressing.



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