



## A Study to Compare Healing in Postoperative Wounds with Occlusive Gauze Dressing and after Omitting the Dressing

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### Abstract

**Introduction:** *The application of dressings to surgical wounds is a custom as old as recorded history . Many studies in the past have demonstrated the safety of exposure of surgical wounds without any complications. The aim of present study was to investigate and compare the outcome of management of clean abdominal incision wound by open that is without dressing or occlusive gauze dressing from fourth day onwards till stitch removal in obstetrics & Gynecological surgeries.*

**Patient and Methods:** *This was a case control study wherein total 100 patients who were electively operated for obstetrical and gynaecological indications were and randomly divided into two groups. Group I [case group] consisted of 50 patients in whom dressing was done from 4<sup>th</sup> day onwards till stitch removal. In group II [control group] occlusive gauze dressing was done. In all 100 patients preoperatively skin was thoroughly cleaned with savlon, betadine and spirit. At the end of surgery haemostasis was secured and all dead spaces were cautiously obliterated. Injectable antibiotics were given upto 5<sup>th</sup> postoperative day followed by oral antibiotics for next five days. In all cases after surgery dressing was done with gauze pieces and occlusive tape for 4 days. In control group occlusive dressing continued till stitch removal whereas in study group wound was left open after 4<sup>th</sup> day and only daily betadine painting with sterile gauze piece was continued. Healing of the incisional wound was compared between the two groups with respect to age, socioeconomic status, parity, built, nutrition, personal hygiene and preoperative haemoglobin status. Also incidence of postoperative complications, resuturing, duration of hospital stay and types of antibiotics used in the two groups were also studied.*

**Result:** *It was evident that in group I with open dressing 80% of wounds were healthy and only 20% cases had postoperative wound complications. Whereas in groups II with occlusive gauze dressing only 36% wounds were healthy while 64% had one or the other wound complications. However the correlation was*

*not statistically significant [pvalue=0.319] The incidence of resuturing in group I was zero where as in group II the resuturing was required was required in 12%. The difference in the hospital stay of the two groups was not statistically significant in group with 10-16 days hospital stay {p value=0.0127} but was significant in the group of patients with more than 16 days of stay [p value=0.0038]. Similarly the difference in the use of higher antibiotics was not found to be statistically significant [p value=0.0084]*

**Conclusion:** *The study concluded that 1) omitting dressing of post operative wounds has better outcome than occlusive dressing in terms of lesser complication rate and less duration of hospital stay. 2) It cost and morbidity to patient. 3) It has advantage of saving surgeons time, hospital cost and manpower.*

**Keywords:** *Wound, healing, occlusive, open.*

**MeSH terms:** *Occlusive dressing, postoperative period, wound healing.*

## INTRODUCTION

The treatment of open wounds is a worldwide, cost-consuming challenge for a variety of medical specialties. Throughout history, open wounds have been the target for many more or less intelligible local applications.

A dressing is an adjunct used for application to a wound in order to promote healing and/or prevent further harm. A dressing is designed to be in direct contact with the wound.

The application of dressings to surgical wounds is a custom as old as recorded history. The chief reasons for applying dressings are for absorbing secretions, aiding hemostasis, splinting, obliterating dead spaces, protecting against trauma, and preventing contamination.

### Purpose of dressing:

1. Stop bleeding: Help to seal the wound to expedite the clotting process.
2. Absorb exudate: Soak up blood, plasma and other fluid.
3. Ease pain: Some dressing may have a pain relieving effect and others may have placebo effect.
4. Debride the wound: The removal of sough and foreign object from the wound.

5. Protection from infection and mechanical damage
6. Promote healing through granulation and epithelisation.

Method of dressing ranges from totally occlusive where the gauze is completely covered by adhesive plaster to the light gauze dressing in which the gauze is held in place by a few tape strips while some leave the incisional wound open after merely cleaning the wound with aseptic technique. In the last few centuries, gauze mostly has been used in local wound care, mainly because of its low price and simplicity. The rationale behind this conventional wound management is to absorb exudation from the wound to keep it dry and clean enough to avoid bacterial contamination (also known as the wet-to-dry approach).

An ideal dressing is one that is sterile, breathable and encourages a moist healing environment, protect the wound from infection and reduce the scarring.

Although studies in the past have demonstrated the safety of exposure of surgical wounds, it is still a common practice to dress them postoperatively, a procedure which involves

expense in both material and nursing time. In experimental studies, the healing wound rapidly develops a coagulum of blood and fibrin within two hours of closure which is impermeable to bacteria. <sup>(1,2)</sup>. Thus if the wound can be kept free of bacteria until this coagulum has formed, infection is unlikely. <sup>(3,4)</sup>.

The present study was undertaken with the aim to investigate and compare the outcome of management of clean abdominal incision wound by open that is without dressing or occlusive dressing from fourth day onwards till stitch removal in Obstetrics & Gynecological surgeries.

Besides evaluating the clinical benefits of keeping the wound open fourth day onwards the purpose of the study was to assess the benefits in terms of decreasing the cost and saving the health workers' time.

## METHODS

The study was a Case control study in which total hundred patients who were electively operated for obstetrical or gynaecological indications were enrolled randomly and then divided into group I and group II.

**Group I (Study group):** consisted of 50 patients in whom open dressing of incisional wound done from 4th day on wards till stitch removal that is the wound was kept without dressing and only daily betadiene painting was done.

**Group II (Control group):** consisted of 50 patients in whom occlusive dressing of incisional wound done from IVth day on wards till stitch removal

In all the fifty patients preoperatively, skin was cleaned with savlon, betadine and alcohol. At the end of operation haemostasis was secured and any dead space present was obliterated. Preoperatively antibiotics were given in all cases. At the end of operation incisional wound dressed with gauze piece and occlusive tape for 4 days. Then observation of both case and control groups were done from 4th day onwards till stitch removal. Stitch removal was done on 8<sup>th</sup> day. In control group occlusive dressing continued till stitch removal whereas in study group the wound was left open till the stitches were removed and only daily betadine painting was done with the help of sterile gauze piece.

Besides taking a detailed history (age, parity, socioeconomic status etc.) and doing a thorough examination (built, nutrition, personal hygiene etc.) of each patient, other parameters like preoperative Hb%, postoperative complications, incidence of resuturing, duration of hospital stay and antibiotics used in all cases were also recorded and analysed

## OBSERVATIONS

Following parameters were considered during study, recorded and tabulated.

1. Age of the patients.
2. Socioeconomic status of the patient.
3. Any significant medical history of TB, DM, Severe anaemia, Hepatitis, HIV, Chicken pox, Asthma.
4. Any significant previous surgical history - previous cesarean section, hernia repair, cholecystectomy.

**On examination**

- General condition
- Pulse rate
- Blood pressure
- Temperature
- Pallor
- Icterus
- Edema
- Built
- Nutritional status
- Skin infections
- Personal hygiene

**Nutritional status assessed by observing**

Hair changes - Thin, dry, brittle, easily pluckable  
sparse, lusterless, straight, hypopigmentation

Skin changes - Dry, scaly, inelastic, mosaic in appearance.

**Investigations**

- Hb% & CBC
- S. bilirubin
- Blood sugar
- HBsAg Australia antigen)
- HIV testing
- Urine routine and microscopy
- X-ray chest

**OBSERVATIONS****Table No. 1** Distribution according to age

Age group	Group I (n=50)		Group II (n=50)	
	No.	%	No.	%
20-25 yrs	8	16%	14	28%
25-30 yrs	12	24%	8	16%
30-35 yrs	6	12%	4	8%
> 35 yrs	24	48%	24	48%

**Table No. 2** Distribution according to socioeconomic status

Parameter	Group I (n=50)		Group II (n=50)	
	No.	%	No.	%
Poor	32	64%	36	72%
Middle class	16	32%	12	24%
High class	2	4%	2	4%

**Table No. 3** Distribution according to parity

Parity	Group I (n=50)		Group II (n=50)	
	No.	%	No.	%
Para 1	14	28%	14	28%
Para 2	16	32%	12	24%
Para 3	10	20%	12	24%
> Para 4	10	20%	12	24%

**Table No. 4** Distribution according to built

Parameter	Group I (n=50)		Group II (n=50)	
	No.	%	No.	%
Thin	14	28%	10	20%
Average	36	72%	36	72%

Obese	0	0%	4	8%
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**Table No. 5** Distribution according to nutrition

Nutrition	Group I (n=50)		Group II (n=50)	
	No.	%	No.	%
Good	10	20%	10	20%
Average	32	64%	30	60%
Poor	8	16%	10	20%

**Table No. 6** Distribution according to personal hygiene

Hygiene	Group I (n=50)	%	Group II (n=50)	%
Poor	20	40%	18	36%
Good	30	60%	32	64%

**Table No. 7** Distribution according to Preoperative Hb%

Hb%	Group I (n=50)		Group II (n=50)	
	No.	%	No.	%
8-10 gm%	11	22%	6	12%
> 10 gm%	39	78%	44	88%

**Table No. 8** Incidence of postoperative wound complications

Parameter	Group I (n=50) Open dressing		Group II (n=50) Occlusive dressing	
	Induration	2	4%	10
Serous discharge	4	8%	12	24%
Purulent discharge	2	4%	4	8%
Wound gaping	2	4%	6	12%
Healthy wound	40	80%	18	36%

**Table No. 9** Incidence of resuturing in both groups

Parameter	Group I (n=50) Open dressing	Group II (n=50) Occlusive dressing
Resuturing	0	6

**Table No. 10** Comparison of duration of hospital stay

Parameter	Group I (n=50) Open dressing		Group II (n=50) Occlusive dressing	
9-10 days	46	92%	32	64%
10-16 days	2	4%	8	16%
> 16 days	2	4%	10	20%

**Table No. 11** Antibiotics used in both groups

Parameter	Group I (n=50)		Group II (n=50)	
Ampeillin Gentamycin	28	56%	14	28%
Metronidazole				
Taxim GM Metronidazole	18	36%	26	52%
Linid & Tazobactum	4	8%	10	20%

## Results

- It is obvious from the table no.1 that almost half of the cases (48%) in both the groups were more than 35 years old.
- Table no. 2 shows that most of the patients in group I (64%) and group II (72%) belonged to the poor class i.e had low socio-economic status.
- There was no specific distribution of the patients as far as parity was concerned. (Table no.3)
- Majority of patients had average built 72% in each group (Table no. 4) and average nutritional status 64% in group I and 60% in group II (Table no. 5).
- Personal hygiene was found to be good in 60% patients of group I and 64% patients of group II ( Table no. 6)
- In the table no. 7 it is shown that in group I i.e. study group most of the patients operated (78%) had Hemoglobin more than 10gm% whereas 22% had between 8-10gm%. In the control group 88% patients had hemoglobin more than 10gm% and only 12% had between 8-10gm%.
- As far as the healing process is concerned it was found to be better when wound was left open because in group I (omit dressing) 80% wounds were healthy and complications like induration, serous discharge, purulent discharge and wound gaping occurred in 20% cases only whereas in group II (occlusive dressing) only 36% wounds were healthy and complications occurred in 64% cases. However the correlation was not statistically significant (pvalue=0.319). (Table no.8).
- Resuturing was required in six patients (12%) in group II whereas none of the patients of group I needed resuturing. (Table no. 9)
- Taking 9-10 days as the reference, the difference in the hospital stay of the two groups was not statistically significant in group with 10-16 days hospital stay ( p value=0.0127) but was significant in the group of patients with more than 16 days of stay (p value= 0.0038). (Table no.10).
- In table no. 11, though higher antibiotics (Linid and Tazobactum) were used in 10 patients (20%) of group II as compared to only 4 patients (8%) of group I, again the difference was not found to be statistically significant ( p value=0.0084).

## Discussion

- In our study we found that the patients in the study and control group were comparable as far as the parameters like age, parity, socioeconomic status, built, nutrition, personal hygiene and preoperative hemoglobin was concerned.
- Healing was clinically found to be better in group I where the wound was not covered

daily with dressing after the fourth postoperative day as compared to group II where occlusive gauze dressing was omitted only after stitch removal. Though this difference was not found statistically significant, it indicates the importance of easy daily inspection of wound by the surgeon which leads to immediate rectifying measures to be taken at the earliest indication before any complication occurs.

- As the difference in duration of hospital stay of more than 16 days between the two groups is found to be statistically significant it emphasizes the fact that frequent inspection of open wounds, detection of onset of healing problem before actual occurrence of wound complication and hence omission of frequent dressings and longer hospital stay with omission of dressing has added advantage of saving surgeons or health workers' time, hospital cost, patient load over hospital which are very important factors in the developing country like India. Similarly, Howells and Young and Law - Ellis found that exposure of clean surgical wound does not lead to any increased risk of wound infection but rather saves the health workers' time in addition to minimizing cost.<sup>(3,5)</sup>
- Dunphy and Jackson found postoperative wound coverage important in minimizing infection during healing period while Lawrence and Jackson reported that

wound healing was not affected if dressing was omitted.<sup>(6)</sup>

- A study for comparison of wound healing with or without dressing was conducted by Heifetz et al whose purpose was to determine whether the application of a dressing per se had any significant effect on wound healing. According to them healing wound rapidly develops a coagulum of blood and fibrin within two hours of closure which is impermeable to bacteria and exposed (open) wounds are dry and accelerate coagulum formation.<sup>(7)</sup>

## CONCLUSION

Thus our study concluded that omitting dressing of post operative wounds has better outcome than occlusive dressing in terms of lesser complication rate and less duration of hospital stay. It is also beneficial for the patient as it reduces cost and morbidity. Keeping the wound open also has added advantage of saving surgeons time, hospital cost and manpower. Further studies and large clinical trials may be beneficial in establishing these facts with evidence.

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