A COMPARATIVE STUDY OF OPEN VERSUS CLOSED DRESSING METHOD OF SURGICAL WOUND

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ABSTRACT:
AIM: To compare and find out better option of dressing methods in terms of preventing wound infection, local site pain and acceptance of patients.
MATERIAL AND METHOD: We studied 200 patients and divided them in 2 groups randomly. In one group (n=100), the dressing kept in situ till the time of removal of sutures approximately after 7 to 10 days. In other group (n=100), we have removed dressing on 3rd post-operative day and after cleaning it, sprayed with solution (mixture of cetrimide 0.5%, polyvinyl polymer 2.52%, benzocaine 0.36%).
OBSERVATION: Wound infection rate in open dressing was 10%, in closed dressing it was 20% (RR=0.5%). Local site pain in open dressing was 4% while in closed dressing it was 8% (RR=0.5%). Patient’s Non acceptance in open dressing was 15% while in closed dressing method it was only 1% (RR=15%).
CONCLUSION: Though the utilization of method of dressing depends upon the choice of Surgeon but Closed dressing method is better option to prevent wound infection and local site pain with truth of less acceptance by patients in compare to closed dressing method.
KEY WORDS: Wound dressing method, open method, closed method.

INTRODUCTION:
Injury to any of the tissues of the body especially that caused by physical means and with interruption of continuity is defined as a wound. Wound can be classified as clean, clean contaminated, Contaminated and infected. Wound healing is a natural and spontaneous Phenomenon. Before any kind of wound dressing is applied, the wound should be appropriately prepared to enhance both the effectiveness of the dressing and the self-healing ability of the wound. To achieve optimal healing, wounds must be non-infected, they should contain as much vascularized wound bed as possible, and they should be free of exudates and accurate skin apposition is required. After suturing of wound, there are many different types of dressing materials and methods are available to dress it. There are two circumstances in first, most surgeon like to apply dressing with gauze until the suture have been removed and healing take place, in this method there may chances of growth of bacteria underneath of dressing. In second circumstance, surgeons like to keep wound open after 3rd post-operative day to get benefit of daily observation and to save dressing expense and nursing time but in this condition wound remain exposed to infected environment. So here, we are studying two different methods of dressing and to see its effectiveness.

MATERIAL AND METHOD:
We have selected 200 patients for our study done in Dhiraj General Hospital (Sumandeep University), Piparia. We have included only clean and clean-contaminated stitched wounds while Contaminated, Infected or open wounds were excluded. We have applied this study in both sexes, all ages of patient, all types of incision and different clean surgeries. We have taken informed written consent of patients and relatives. In all patients (n=150), in Operation Theater after taking skin stitches with interrupted manners, we applied gauze over stitched wound and cover it with adhesive elastic bandage. We have taken care for hemostasis, to minimize negative space, and to prevent undue tension of stitches on skin margin. In one group (n=100), the dressing kept till the time of removal of stitches approximately after 7 to 10 days. During this period we’ve observed for sign of wound infection like pyrexia, local pain or soakage of dressing. If wound get infected we’ve removed dressing and after cleaning it and re-applied it further in same manner with gauze and elastic adhesive bandage till stitches had been removed. In other group (n=100), we have removed dressing on 3rd post-operative day and after cleaning it, sprayed with solution (mixture of cetrimide 0.5%, polyvinyl polymer 2.52%, benzocaine 0.36%)[6]. The wound keep undressed till the time of stitch removal. If wound get infected dressing done and re-application of same spray is done and wound keep open till the time of stitch removal. Post operatively we have observed for wound infection, local pain, patient’s acceptance, and for acceptance we have done questioner and get answer in "yes" or “no".
OBSERVATION:

**TABLE 1: DIFFERENT WOUNDS**

<table>
<thead>
<tr>
<th>Different wounds</th>
<th>Open dressing (n=100)</th>
<th>Closed dressing (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benign swelling</td>
<td>35</td>
<td>30</td>
</tr>
<tr>
<td>Hernia repair</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Hydrocele surgery</td>
<td>07</td>
<td>06</td>
</tr>
<tr>
<td>Appendectomy</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Laparotomy</td>
<td>08</td>
<td>10</td>
</tr>
<tr>
<td>Mastectomy</td>
<td>15</td>
<td>17</td>
</tr>
</tbody>
</table>

In our study we have included different types of wounds of various surgeries. In open method, we’ve done 35 benign swelling excision, 25 Hernia repair, 7 Hydrocele surgeries, 10 Appendectomy, 8 Laparotomy, and 15 Mastectomies. And in closed dressing method, we’ve done 30 Benign swelling excisions, 25 Hernia repair, 6 Hydrocele surgeries, 12 Appendectomy, 10 Laparotomy, 17 Mastectomy.

**TABLE 2: POST OPERATIVE COMPLICATION**

<table>
<thead>
<tr>
<th>Post operative Complication</th>
<th>Open wound Dressing (n=100)</th>
<th>Closed wound Dressing (n=100)</th>
<th>Relative risk (rr %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound Infection</td>
<td>10(10%)</td>
<td>20(20%)</td>
<td>0.5%</td>
</tr>
<tr>
<td>Local site Pain</td>
<td>04(4%)</td>
<td>08(8%)</td>
<td>0.5%</td>
</tr>
<tr>
<td>Patient’s Non acceptance</td>
<td>15(15%)</td>
<td>1(1%)</td>
<td>15%</td>
</tr>
</tbody>
</table>

Wound infection rate in open dressing was 10%, in closed dressing it was 20% (RR=0.5%). Local site pain in open dressing was 4% while in closed dressing it was 8% (RR=0.5%). Patient’s Non acceptance in open dressing was 15%, while in closed dressing method it was only 1% (RR=15%). So in statistically observation we found open wound dressing method is 50% less likely to cause wound infection and pain, but 15 times more likely to be unaccepted compare to closed wound dressing method.

**DISCUSSION**

The main purpose of dressing is to protect the wound against bacterial contamination that remains a significant source of postoperative morbidity. In standard or widely used method of Dressing is to cover wound with gauze and Adhesive bandage. Under normal circumstances the Dressing applied in the operation theater need not to be disturbed until the time of stitch removal.

In this condition, the wound remains unexposed to bacterial environment. This may save the Nursing time and Dressing expense. But in this method of closed wound dressing there is decrease in evaporation of sweat from skin and exudate from the wound and this encourages the Growth of bacteria in moist micro atmosphere beneath the closed wound dressing. As well as if Wound gets infected we’ve to do repeated dressing and cover it that increase Nursing time and Dressing expense and pain to patients. In other method of open wound dressing, the surgical wound remain open after 3rd postoperative day, the principle lies behind that wound edges, Carefully approximated, are sufficiently sealed by coagulum and overlying epithelial regrowth to resist contamination after 48 hrs. The open wounds remain dry and that decrease growth of bacteria. This method has advantage of daily repeated observation; decrease Nursing time and Dressing material expense.

In our study, we found that in open wound dressing method is less likely to cause wound infection and pain due to dry dressing atmosphere and less frequent change of dressing, but more likely to be unaccepted compare to closed wound dressing method due to frighten of being touched to open wound.

**CONCLUSION:**

Though the utilization a method of dressing depends upon the choice of Surgeon but Closed dressing method is better option to prevent wound infection and local site pain with truth of less acceptance method in compare to closed dressing method.

**REFERENCES:**