GENERAL PURPOSE PROTECTIVE DRESSING
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1. Diagram of the protective dressing.
2. Detailed layers of the dressing:
   - Gauze
   - Cotton layer
   - 20 layers of absorbent wadding
   - 10 layers of water repellent wadding
   - Backing fabric

3. Cross-sectional view of the dressing layers.
4. Packaged view of the dressing.

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GENERAL PURPOSE PROTECTIVE DRESSING

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4 Claims. (Cl. 128—156)

1 This invention relates to a dressing for wounds and particularly relates to a dressing for wounds resulting from burns, severe fractures, or injuries with large, soft tissue defects.

The closed dressing principle for the treatment of wounds, particularly for the treatment of extensive burns which was introduced by Allen and Koch in 1942 has been widely accepted and has resulted in great improvement in wound therapy and particularly in the therapy of wounds resulting from burns. The occlusive or closed dressing practice minimizes infection and correspondingly reduces attendant malnutrition.

Although the closed or occlusive dressing principle has been widely accepted and practiced, there have been certain inherent drawbacks which have prevented its universal employment in the treatment of wounds and particularly in the treatment of wounds resulting from burns.

Hospitals customarily supply surgeons with only small dressings which require considerable time and skill to apply; a large wound dressed with small dressings is seldom completely covered. Because of the time required to put on such dressings, wounds are frequently exposed for an excessive length of time which increases the chances for secondary infection. Wounds in general and wounds resulting from burns in particular exude substantial amounts of fluid and the exudate generally "strikes through" an occlusive dressing with small dressings; this makes their removal and replacement with fresh dressings necessary. Wounds dressed with multiple small dressings often become exposed because of the tendency of such dressings to bunch or pile up and expose the wound surface; this invites mechanical injury or bacterial infection. Considerable skill is required to dress a wound with multiple small dressings and avoid a too tight dressing which causes pain and may interfere with or even prevent proper circulation and particularly return circulation.

The objects of this invention are: (1) The provision of a dressing which may be quickly applied as a one-piece dressing to contused, lacerated, or abraded wounds, wounds caused by burns, and wounds involving loss of continuity such as compound fractures of the lower and upper limbs and chest injuries, etc., and wounds involving loss of substance; (2) The provision of a protective dressing having adequate absorption capacity to contain the total wound exudate over a period of at least 14 days; (3) The provision of a protective dressing having adequate resistance, thickness, and bulk of padding to assure uniform pressure over an injured area and prevent point pressure on body prominences or a vascular constriction and yet effectively splint an injured extremity; (4) The provision of a protective dressing which will not adhere to a burned surface, not interfere with healing if left in contact with the wound as long as 14 days, and be easily removable without disturbing normal tissue; (5) The provision of a simple large single-piece protective dressing of minimum bulk which may be employed inexpensively on a large scale, and so constructed that it may be placed on a wound rapidly by relatively unskilled personnel.

Other objects of the invention will appear from the following description and drawings, as well as from the appended claims.

In the accompanying drawings a structure has been disclosed which is designed to accomplish the various objects of the invention; however, it is to be understood that the invention is not confined to the exact features in the drawings but that various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a view in perspective of the dressing.

Figure 2 is a fragmental and exploded view in perspective of the dressing shown in Figure 1.

Figure 3 is a fragmental cross-section view on an enlarged scale taken on line 3—3 of the dressing shown in Fig. 1.

Figure 4 is a fragmental perspective view of the dressing similar to the view in Figure 1.

The objects of this invention are accomplished by a one-piece protective dressing 10 having a non-greasy inner gauze first layer 12 substantially non-adherent to wound surfaces; an absorbent filler or cotton second layer 14; an absorbent multi-ply cellulose wadding third layer 16, said second and third layers being of sufficient combined thickness and absorption capacity to contain the normal wound exudate of the healing period; a water repellant multi-ply cellulose wadding fourth layer 18; and a water repellant fabric fifth layer 20 sealed at the edges to the inner gauze first layer. Sealing of the first and fifth layers at their edges 22 may be done with an adhesive composition 24, as shown in Figure 3, or by stitching 26, as shown in Figure 4.

It is preferable that the first layer be surgical gauze of 44/36 gauge, i.e., having 44 filaments per inch in one direction and 36 per inch in the other, since this is the most economical surgical gauze which has satisfactory non-adherent properties.
to wound surfaces. Surgical gauze having a higher content of filaments may also be used, but surgical gauze of substantially less than 44/36 gauge is unsatisfactory because of its tendency to adhere to wound surfaces.

The second or absorbent cellulose filler layer may be bleached picker laps made from new or reworked cotton, full-bleached cotton linters, garnetted white cotton waste, picker drops, card strips, or other suitable fully bleached cotton waste materials and/or cellulose pulp or mixtures of these. This layer may have a thickness of from about one-fourth inch to one inch.

The third or absorbent multi-ply cellulose wadding layer may be paper or fiber made absorbent by any conventional treatment. A preferred material for this layer is a wadding such as a high crepe tissue of relatively open formation of which 480 24/36 inch sheets have a weight ranging from 9 to 12 pounds, and this layer preferably contains 15 to 30 plies.

The fourth layer may be made of the same type of wadding as used in the third layer and in which the sheets have been treated to give them water repellency. If the same high crepe tissue is used, as is preferred for the third layer, the fourth layer preferably contains 4 to 10 plies. Any conventional treatment may be used in giving the fourth layer water repellancy, such as impregnating cellulose fibers in the heater with resin soap followed by adjusting the liquid in the heater to an acid pH to precipitate the resin on the fabrics.

The outer-most or fifth layer of the dressing may be any woven or non-woven water repellant fabric, but it is preferred that this layer consist of a non-woven intermittently resin-bonded water repellant fabric. Any conventional procedure for rendering fabrics water repellent may be used on the outer-most layer, such as impregnation of the fabric with a wax emulsion.

In making the dressing, the layers are assembled in order, then the first and fifth layers are securely and continuously sealed at the edges of the dressing. Sealing of the edges of the first and fifth layers may be accomplished by stitching, as shown in detail in Figure 4 or by bonding with an adhesive composition, particularly with a heat sensitive adhesive composition, shown in detail in Figure 3.

The dressing of this invention may be made in a variety of sizes, but a dressing 34 by 10 inches has been found satisfactory for use on the upper extremities of the body, and a dressing 34 by 45 inches has been found satisfactory when it is desired to cover the entire lower extremities of the trunk of an adult. The smaller of these two bandages may be used for dressing extensive wounds of children as well as wounds of the upper extremities of adults.

A dressing 34 by 45 inches may be applied over an entire lower limb from the toes to the groin and secured in place by any suitable bandage.

In applying the dressing to wound surfaces, it is preferred that the edges overlap slightly, since if they are merely opposed, there is a possibility of the exudate soaking through where the edges meet. After the dressing is in place around the extremity or the torso, it is held in place by a bandage. An adhesive bandage may be used for this purpose, but a six inch bandage has been found particularly satisfactory.

Experience has demonstrated that a dressing according to the above description admirably meets the requirements for a general purpose protective dressing. Superficial second degree burns have been found to heal rapidly with a minimum adherence when the dressing has been left in place without changing for as long as 14 days. Even in extensive third degree burns when the amount of exudate has been large, there has been no evidence of "striking through" over a period of 14 days. The dressing described above can be applied rapidly by untrained personnel, is relatively inexpensive, and can be manufactured from available materials in large quantities. Such a dressing when properly employed also adequately splints most fracture sites, particularly when used as an emergency transport dressing.

It will be apparent to those skilled in the art that the principal objects of the invention have been accomplished and that numerous and various changes and modifications may be made in the embodiments of the invention herein described, without departing from the spirit and scope of the appended claims.

What is claimed is:

1. A surgical dressing comprising: a first layer of gauze not substantially less than 44/36 gauge; a second layer of absorbent cellulose material; a third layer of absorbent multi-ply cellulose wadding; a fourth layer of water-repellent multi-ply cellulose wadding; and a fifth layer of water-repellent fabric, the edges of the first and fifth layers being sealed together.

2. A surgical dressing comprising: a first layer of gauze not substantially less than 44/36 gauge; a second layer of absorbent cellulose material; a third layer of absorbent multi-ply cellulose wadding; a fourth layer of water-repellent multi-ply cellulose wadding; and a fifth layer of water-repellent fabric, the edges of the first and fifth layers being sewn together.

3. A surgical dressing comprising: a first layer of gauze not substantially less than 44/36 gauge; a second layer of absorbent cellulose material; a third layer of absorbent multi-ply cellulose wadding; a fourth layer of water-repellent multi-ply cellulose wadding; and a fifth layer of water-repellent fabric, the edges of the first and fifth layers being sealed with a heat-sensitive adhesive composition.

4. A surgical dressing comprising: a first layer of gauze of approximately 44/36 gauge; a second layer of absorbent cotton linters; a third layer of absorbent high crepe tissue of relatively open formation, of which 480 24/36 inch sheets have a weight within the range of from 9 to 12 pounds; a fourth layer of water-repellent high crepe tissue; a fifth layer of water-repellent non-woven, intermittently resin-bonded fabric, the edges of the first and fifth layers being sealed with a heat-sensitive adhesive composition.

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