Dressing Versus No Dressing

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55.1 Introduction

How important is the use of dressings in hypospadias surgery? Cromie and Bellinger (1981) gave a questionnaire to 45 hypospadias surgeons in the USA [1]:

> …85 to 95 percent felt the dressing was of importance. Its major effect is manifested by immobilization of the penis and prevention of edema. The ideal dressing would be supple and immobile, but generally a firm-immobile dressing is acceptable.

Most individuals responding to the questionnaire felt that the dressing should not be changed and that it was unrelated to the occurrence of skin slough or infection. Most dressings were left in place for more than 3 days, and immobilization with close attention to postoperative edema was strongly recommended by the respondents.

55.2 Wound Healing and Duration of Dressing

If we review the process of wound healing, within hours after the wound is closed, the wound space fills with an inflammatory exudate. Epidermal cells at the edges of the wound begin to divide and migrate across the wound surface (Chap. 16). By 48 h after closure, deeper structures are completely sealed from the external environment.

> "Dressings over closed wounds should be removed on the third or fourth postoperative day. Dressings should be removed earlier if they are wet because soaked dressings increase bacterial contamination of the wound" (Mulvihill and Pellegrini 1994) [2].

55.3 Sources of Dressing Contamination

Dressings following hypospadias surgery are likely to become wet from four different sources: urine dripping through the urethra (even if diversion is used), exudate from wound edges, soiling following bowel movements (if permeable or semipermeable dressings are used), and skin sweating, especially if impermeable dressings are used. In infants and young children, dressing is frequently contaminated with stool when the baby passes bowel motion.

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55.4 Advantages and Disadvantages of Dressing

Understandably, dressing limits the degree of edema postoperatively. However, dressing may also decrease blood flow to the penis carrying oxygen, nutrients, inflammatory cells, chemotactic substances, and growth factors which are important for healing. Surgeons are usually concerned that edema may be that severe to cut through the repair and stitches. In practice, the author has only experienced this in cases of severe infection. Otherwise, edema is unlikely to cut through the stitches.

55.5 Types of Dressings

If the use of a dressing is indeed important, as held by the many surgeons who advocate it, what is the best kind of dressing? Unfortunately, the ideal dressing for hypospadias repair remains elusive, to judge by the many varieties of dressing currently in use [3, 4].

Reviewing the type of hypospadias dressings described in the literature, a great diversity becomes apparent with regard to the degree of concealment and the type of material and technique used. Horton et al. (1980) are strong advocates of unconcealing dressing [5]. Falkowski and Firlit (1980) favored the totally concealing type of dressing [6]. However, the partially concealing dressing is the most popular type and has many variations. W. Campbell (1980, personal communication) wrapped the penis with elastic foam and passed a small intestinal straight needle transversely through the glans, resting it on top of the foam dressing. Another variation is the use of a styrofoam cup placed over the standard partially concealing dressing; this is secured by the use of the glandular traction stitch, which is then taped to the sides of the cup. Falkowski and Firlit described the X-shaped elastic dressing in 1980 [6]. Silicone foam dressings were very popular after they were first described by De Sy and Oosterlinck (1982) [7]. Currently, many surgeons use simple methods of fixation such as Tegaderm [8], Opsite® spray [4], or Dermolite II tape [9]. Duckett (1996) recommended the use of Tegaderm for 48 h in distal forms of hypospadias and for 72 h in other types of hypospadias surgery with urinary diversion [10].

In 1965, Hermann published a report of a study in which all dressings from clean wounds were removed on the second postoperative day with no evidence of an increased incidence of wound sepsis [11]:

> What then is the explanation of our observation that postoperative dressings may be removed from a wound healing per primum on the second day, without increasing the incidence of infection? The answer must lie in the fact that wound edges, carefully approximated, are sufficiently sealed by coagulum and overlying epithelial regrowth to resist contamination. Of additional importance, it would seem, is the fact that an exposed wound is a dry wound and few bacteria retain their vitality on a dry surface.

Howells and Young (1966) progressed one step further and introduced the concept of completely undressed surgical wounds [12]. They reported 105 widely varied surgical cases in which, after careful closure of the incision, the patient's gown was simply pulled down over the wound. The frequency of wound infection was 4%, comparable with the incidence of infection in clean wounds.

Law and Ellis randomized 170 consecutive patients undergoing either inguinal hernia repair or high saphenous ligation to one of three surgical options: a dry dressing of gauze, a polyurethane film dressing (Opsite®), and an immediate exposure [13]. There was no difference in dressing comfort or dressing preference among the different groups, and the quality of the final scar was also not different. There was, however, a higher infection rate in the polyurethane (Opsite®) group, although the difference did not attain statistical significance. This was probably due to the moist environment beneath the dressing [13].

In hypospadias surgery, the main purpose of a dressing is to immobilize the penis, minimize edema, and prevent hematoma formation [14].

Van Savage et al., in 2000, conducted a randomized prospective study of dressing versus no dressing for hypospadias repair [15]. They showed that the success rate for hypospadias surgery that preserves the urethral plate is indepen-

dent of dressing usage. They concluded that dressings may not be indicated for all types of hypospadias repairs.

In 2001 McLorie et al., in a prospective study, evaluated the role of dressing in hypospadias repair [16]. They showed that the surgical outcome and rate of complications were not compromised without a postoperative dressing. They concluded that "an absent dressing simplified postoperative ambulatory parent delivered home care." They recommended that dressings should be omitted from routine use after hypospadias repair.

Hadidi et al. (2003) conducted a prospective randomized study to assess the role of dressings in hypospadias surgery. The study concluded that repair of hypospadias without a dressing offers statistically significantly better results than when using a dressing ($p = 0.014$). This may confirm Hermann's idea that "an exposed wound is a dry wound and few bacteria retain their vitality on a dry surface" [11]. The study suggested that the higher incidence of complications in the dressing group may be due to the fact that the wound inevitably becomes wet due to the four potential sources, i.e., urine, ooze, sweat, and stools.

In the Hypospadias Center in Frankfurt, Germany, we use a simple dressing for 1–2 days in distal forms of hypospadias and for 7–10 days for proximal forms of hypospadias as long as it is dry. The dressing is removed earlier when it becomes wet (personal communication).

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