Letter to the Editor

# A Bulky Dressing Immobilization for the Congenital Hand Differences in Children

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## DEAR EDITOR-IN-CHIEF

Congenital hand differences are the most common limb anomalies, which surgical management is recommended to improve the appearance and function for these patients before school age. Regardless of surgical procedure, the postoperative dressing and immobilization are critical to ensure prompt wound healing and recovery of function. However, young children are not mature enough to cooperate with the dressing care, as they are willing to remove anything that covers the hand, and their small hands are difficult to immobilize[1]. It therefore is challenging to perform an effective dressing change and immobilization for pediatric patients postoperatively. There have been several studies on postoperative bandaging and dressing change for hand surgery patients[1-5]. For example, Batchelor and his colleagues reported the "boxing glove" dressings to reduce skin graft maceration for hand in 1983[2]. Yen et al devised Sushi hand roll dressing for thumb polydactyly.[1] Vadodaria and Page presented a dressing immobilization method following syndactyly releasing in 2000[3].

Based on these methods, we have proposed a bulky postoperative dressing immobilization with a relatively long duration of dressing change, and extended the indication to other pediatric hand differences, such as polydactyly, macrodactyly, brachydactyly, trigger thumb, hypoplastic thumb. In this short communication, we share the experience and present the details of our dressing method.

The bulky dressing immobilization includes three steps. First, after wound closure, mupirocin 2% ointment, erythromycin ointment, or Vaseline gauze is applied to cover the incision and/or skin graft. Second, multiple layers of fluffy sterile gauze pressed together are molded into the web spaces and around the digits to keep them in a stable abduction position. If the thumb is involved in the reconstruction, it will be maintained in the abduction. Then the hand is swathed with sterile gauze bandages. The fingertip is left out of the dressing to observe the blood supply in the first 24 hours postoperatively. Third, the hand was enclosed and fixed by Elastoplast, an elastic adhesive bandage, which is trimmed to the suitable length and width (Figure 1).

The dressing immobilization method is secure for a pediatric hand, and the bulky dressing provides an effective barrier against exogenous

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**Figure 1:** The bulky postoperative dressing immobilization was applied for the 1.5-year-old boy with the thumb duplication



**Figure 2:** The wound healed well when the dressing was removed at 4 weeks after surgery



**Figure 3:** Because it was soft, light and comfortable, the dressing did not affect most daily activities of the pediatric patient

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microbes. Prolonged duration of dressing change will not increase the incidence of postoperative wound infection[6, 7]. Consequently, we put off the first dressing change. If there is no bleeding, exudation, and fluid contamination, or infection signs, the dressing will be kept as long as 3 to 4 weeks after surgery (Figure 2). The bulky dressing for a relatively long duration can experience less tensile stretch, which could minimize wound-healing complications,[7] and retain the hand in the position without fear of incorrect bandage in dressing management due to lack of cooperation of the children. For example, maintaining web separation can prevent postoperative adhesion, and maintaining the digits in position will prevent additional shear of skin graft after syndactyly correction[2, 4]. The bulky dressing with Elastoplast for immobilization that keeps the involved digits in three dimensions is tough enough to restrain the motion of the hand for young children as an external fixation. It is soft, light, and highly comfortable without intruding on the daily activity of the children, and thus eases the burden of postoperative care of the parents (Figure 3).

We have used this method for more than three years without significant complication. However, there are some notes. First, a gentle pressure from dressing helps minimize oedema, but too-tight constriction will produce a tourniquet effect. The tip of the finger should be kept out of the dressing for observation at least for the first day. Second, the parents or guardians should be educated to avoid dressing pollution by water or urine, and observe whether the dressing emits an unpleasant smell. If any of these occur, the child should be taken to the hospital so the wound can be checked. Third, great care should be taken to avoid injuring the hidden digits when the scissors are used to open the outer bandage and Elastoplast. Likewise, the inter gauze should be removed slowly and layer-by-layer to avoid pulling out the K-wire if used.

Ethical approval to report these cases was obtained from by the hospital's Ethics Committee. The IRB number is 20220628018.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interests.

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