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Wound Care Management in Infants with Congenital Abnormalities at the Wound and Stoma Clinic RSUD dr Soedarso Pontianak

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Abstract

Introduction: Management of wound with congenital abnormalities in infants requires persistence and appropriate treatment techniques. Wounds that occur in infants with congenital abnormalities in this case occur in the head area with exposed bone. If a sharp debradement is performed, it requires anesthesia which is risky for the baby's condition. What can be used is autolytic debridement with cutimed gel and the use of cuticel. One of the dressings that can be applied is zalf sulfadiazine silver where the formula is like a cream that is gentle on the baby's skin surface, besides its availability is easy to obtain. **Case presentation:** The Washing of wound using antiseptic soap and NaCL 0,9%, by applying pressure when irigation NaCL on the wound, this is intended to reduce the bacteria around the wound. The debridement technique used was autolitic debridement using cutimed gel. The primary dressings used were classic cutissel and zalf sulfadiazine silver to help accelerate granulation, maintain wound moisture and silver content to treat infection. The secondary dressing used is sterile gauze. In this case, the exsudate is minimal to be moderate so that the use of sterile gauze is effective enough to prevent maseration and keep the wound moist. From one month of treatment, from November 24, 2021 until December 24, 2021, it was shown that the use of zalf zulfadiazine silver showed a significant effect on wound healing. **Conclusion:** There was good wound healing by giving zalf sulvadiazine silver.

Keywords: Wound Care; Infants; Congenital Abnormalities

Abstrak

Pendahuluan: Penatalaksanaan luka dengan kelainan kongenital pada bayi memerlukan ketekunan dan teknik pengobatan yang tepat. Luka yang terjadi pada bayi dengan kelainan kongenital dalam hal ini terjadi pada daerah kepala dengan tulang yang terbuka. Jika dilakukan debradement yang tajam, diperlukan anestesi yang berisiko bagi kondisi bayi. Yang bisa digunakan adalah autolitik debridement dengan cutimed gel dan penggunaan kutikel. Salah satu dressing yang bisa diaplikasikan adalah zalf sulfadiazine silver dimana formulanya seperti krim yang lembut di permukaan kulit bayi, selain itu ketersediaannya juga mudah didapat. **Presentasi kasus:** Pencucian luka dengan sabun antiseptik dan NaCL 0,9%, dengan memberikan tekanan saat irigasi NaCL pada luka, hal ini dimaksudkan untuk mengurangi bakteri di sekitar luka. Teknik debridement yang digunakan adalah autolitik debridement menggunakan cutimed gel. Dressing utama yang digunakan adalah classic cutissel dan zalf sulfadiazine silver untuk membantu mempercepat granulasi, menjaga kelembapan luka dan kandungan perak untuk mengobati infeksi. Pembalut sekunder yang digunakan adalah kasa steril. Dalam hal ini eksudat minimal sampai sedang sehingga penggunaan kasa steril cukup efektif untuk mencegah maserasi dan menjaga kelembapan luka. Dari satu bulan

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pengobatan, mulai 24 November 2021 hingga 24 Desember 2021, terlihat bahwa penggunaan zalf zulfadiazine silver memberikan pengaruh yang signifikan terhadap penyembuhan luka. **Kesimpulan:** Terdapat penyembuhan luka yang baik dengan pemberian zalf sulvadiazine silver.

Kata kunci: Perawatan Luka; Bayi; Kelainan Bawaan

INTRODUCTION

Congenital abnormalities can occur because of abnormalities in organs and organ systems in early fetal life. The term congenital refers to structural defects at birth. Congenital abnormalities can occur in early fetal growth or during fetal growth (Rodeck & Pandya, 2001). Structural abnormalities in the prenatal phase are classified into malformations, deformities or disruptions. Abnormalities of deformity are abnormalities of position, size, body shape that arise in a fetus that originally grew normally due to mechanical factors. This abnormality occurs when a genetically normal fetus undergoes structural changes due to an abnormal intrauterine environment.

Major congenital abnormalities can b occur in 3-4% of live births and 10% of these disorders have no known cause. It is estimated that 2-3% of major congenital abnormalities are caused by drugs and 1% are caused by environmental pollution (Karen, 2019). A study in Iran reported the prevalence of congenital abnormalities of 29.4 of 1000 live births which are functional disorders with or without structural defects (Aziz & Abdul Rasool Hassan, 2017). A study in Brazil from July 1999 to March 2001 found 1.7% of all live births with minor malformations with 66% of all congenital abnormalities (Costa et al., 2006). While the incidence in India from January 2005 to July 2007 occurred 0.32% of malformations in live births (Taksande et al., 2010).

Abnormalities that occur in Baby MZ who was born in maternity clinik is a congenital abnormalities that occur because the scalp does not develop so that it looks like open wound in the scalp area. For more details, see the following figure:

Figure 1. Congenital abnormalities, that it looks like open wound in the scalp area (Nov 24th 2021)

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The skin of babies and children is different from the skin of adults. Although the structure is complete, there are differences in the completeness, maturity and function. The skin of infants and toddlers is thinner, the intercellular tissue is looser and the innate and adaptive immune systems in the skin are not yet mature enough to cause the skin barrier and protective function against infection to be weak (IDAI, 2013).

The use of dressings must be adjusted to the patient's condition. In baby MZ, the first use is by giving cutimed gel and cuticel to remove necrotic. After all the tissue has granulated, sulfadizine silver is given.

CASE PRESENTATION

In this case study, the patient was born normally at the maternity clinic on October 22, 2021, with birth weight 2460 grams. This baby was born with a congenital abnormality with slowed growth of the baby's scalp so that it looks like a open wound. At first the wound tissue with 80% necrosis, 20% granulation with moderate exudate. Neurosurgeons perform surgery to remove necrotc tissue. After that, the wound care was handed over to the wound nurse for management wound care.

management wound is washed using antiseptic soap and NaC 0,9% by applying pressure when irigation NaCL on the wound, this is intended to reduce bacteria around the wound. The debridement technique used was autolitic debridement using cutimed gel. The primary dressings used were cutissel clasic and zalf sulfadiazine silver to help stimulate granulation and maintain wound moisture and silver content to treat infection. The secondary dressing used is sterile gauze. In this case, the exudate is minimal to be moderate so that the use of sterile gauze is effective enough to prevent meseration and keep the wound moist. From one month of treatment, from November 24, 2021 until December 24, 2021, it was shown that the use of zalf zulfadiazine silver showed a significant effect on wound healing. For overview of wound healing can be seen from the following figure 2.

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A B

Figure 2: Wound healing using autolytic debridement.
A: Dec 3rd 2021; B: Dec 10th 2021

After treatment using cutimed gel and cuticle, the necrotik tissue reduced and increased granulation tissue. In this situation, a biofilm occurs in the wound area, so we changes of the wound dressing. The next dressing used is zalf sulfadiazine silver to eliminate contamination and prevent infection. Wound healing there was significant improvement so that, zalf sulfadiazine silver continued to be given until wound healed. The progress can be seen in the following figure 3.

A B C

Figure 3: Wound progress until it heals.
A: Dec 17th 2021; B: Dec 24th 2021; C: Jan 5th 2022

In wound healing process, the healing occurred for 2 weeks so that on January 5, 2022, the patient's wound had completely healed.

DISCUSSION

The goal of healing process is if the wound can heal completely and regenerate tissue quickly. Wound healing process is often difficult to heal because the healing process is influenced by local factors and systemic factors. Wound healing process can be obstructed by several factors, including infection, diet, age, vitamin C deficiency, disease and others. Wound care should be able to improve the wound healing process. The use of dressing is very important in handling wound care. The treatment given is to provide a moist environment. Moisturizing dressings can provide a supportive environment for cells to heal and prevent further damage or trauma.

In this case, it was first necrotic tissue. Even though a sharp debridement have been done in the operating room, there are still occurs necrotic, To overcome this, dressings are given using cutimed gel. Cutimed gel is a hydrogel containing glycerin and carbomer 940 which can help remove the necrotic from wounds (Aziz & Abdul Rasool Hassan, 2017).

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After given for 1 week, from December 3, 2022 to December 10, 2022, that there was a biofilm growth in the wound area. To overcome this, wound care was replaced by using sulfadizine silver. Sulfadizine silver is a mutually reinforcing component to overcome antimicrobial agents in general.

The action of sulfadizine silver is not clearly defined as to whether it has broad spectrum antimicrobial activity or not. Sulfadiazine has the ability to inhibit enzymes for cellular respiration and denaturation of bacterial DNA molecules. Silver absorbs exudate from granulation tissue. Silver is known to be effective in increasing the effectiveness of sulfadizine in inhibiting the growth or colonization of broad-spectrum bacteria, fungi and viruses (Aziz & Abdul Rasool Hassan, 2017). This combination is an excellent combination to inhibit bacterial growth. Sulfadiazine silver is not without effect. The cytotoxic effect of sulfadizne silver which will affect fibroblasts and keratinocytes in vitro and can cause inhibition of wound healing in vivo (Qian et al., 2017). In a study comparing silver and non-silver use, it was found that topical silver worsened the healing process in terms of thickening of the burned skin. Side effects that cause argyria, leukopenia and hepatic and renal toxicity disorders and allergies (Adhya et al., 2014).

A study using mice that compared placebo with three doses found that the administration of 1% resulted in inhibition of the re-epithelialization process caused by cytotoxic substances for epithelial cells. Meanwhile, at a dose of 0.1%, there was an increase in re-epithelialization, the mechanism of which was still not explained. This delay in wound closure causes hypertrophic scars (Qian et al., 2017).

In a study by Putri (2018) it was found that within 10 days more granulation tissue was formed with honey is 90% when compared to sulfadizine silver as 20% (Putri, 2018). Hypertrophic scars were found in sulfadizne more, 74% when compared to honey, which was 29%. Bacterial contamination of wounds given honey on the tenth day was 20% compared to 95% sulfadizne silver (Hoseizadeh et al., 2016). Although in the above study, sulfadizine silver was less effective than honey, but honey could not be used because of bone exposure.

CONCLUSION

There was good wound healing with using zalf sulvadiazine silver

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