

WOUND HEALING/EXPERIMENTAL

The Effect of Honey on Granulating Tissue of The Mandibular Bone

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Background: For many years, ancient civilizations used honey to heal wounds. Rediscovery of honey by modern physicians its use in conventional medicine. Few detailed descriptions of honey in healing difficult surgical wounds have been previously published.

Methods: We report patient, male, 16 years old, who suffered acute lymphocytic leukemia and extensive mandibular eschar and had presented half of mandible bone exposed after escharectomy. Given the difficulty of closing the defect due to poor general condition of the patient, we advocated to applicate honey dressing on mandible bone to promote granulation tissue, to prevent infection and to promote epithelialization.

Results: Due to honey's effect are anti inflammatory and antimicrobial activity, promotes debridement, reduces malodor, maintains moist wound environment, and stimulates healing, in a month, all mandible exposed had been covered by granulation tissue, followed by skin grafting.

Conclusion: In this case, honey had been proven effectively to stimulate granulation tissue growth on mandible bone both before and after surgery.

Keywords: honey, mandible bone exposed, granulation tissue

Latar belakang : Sejak masa peradaban kuno, madu telah digunakan untuk menyembuhkan luka. Penemuan kembali madu oleh kedokteran modern digunakan sebagai terapi konvensional. Terdapat beberapa penelitian mengenai peran madu dalam penyembuhan luka operasi yang sulit.

Metodologi: Melaporkan satu pasien, lelaki, 16 tahun, penderita leukemia limfositik akut, memiliki eskar luas di mandibula dengan setengah dari tulang mandibula terlihat pasca eskarektomi. Kesulitan menutup defek karena keadaan umum pasien yang buruk, kami menggunakan madu pada mandibula untuk merangsang jaringan granulasi dan epitelisasi, serta mencegah infeksi.

Hasil : Berkat efek anti inflamasi dan anti mikroba dari madu, yang juga merangsang debridement, mengurangi bau, mempertahankan suasana luka yang lembab dan merangsang penyembuhan luka, dalam satu bulan seluruh tulang mandibula yang terlihat telah tertutup dengan jaringan granulasi, kemudian dilakukan tandur kulit.

Kesimpulan: Dalam kasus ini, madu telah terbukti efektif merangsang jaringan granulasi pada mandibula, baik sebelum maupun setelah operasi.

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PATIENTS AND METHODS

16 years old male, suffering acute lymphocytic leukemia, with mandibular eschar sized 12x15 cm and maximum mouth opening

1,5 cm. Escharotomy was done until part of parasymphysis as the base of the wound & also performed removal of periosteal layer. The wound was found through and through the oral cavity (Figure 1 and 2).

Honey wound care was chosen, applied once a day. Granulation tissue closed half of the defect of mandible on 15 days of care. After 30 days of care, all the bone defect was closed by granulation tissue and intra oral through and through wound was closed (Figure 3). Maximum mouth opening reached 4 cm.

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Figure 1. Extensive mandibular eschar



Figure 2. Post escharotomy, intra oral through and through wound



Figure 3. After 30 days of honey wound care



Figure 4. STSG take was 85%, raw surface managed with honey

On second surgery (debridement and STSG), it was found STSG take 85 % (Figure 4). We managed the raw surface with honey. One month after the second surgery and honey wound care, all the raw surface was epithelialized without exudation (Figure 5). In four months follow up after second surgery, maximum mouth opening was 5 cm and mandible was vital confirmed by radiologic examination. (Figure 6, 7)

RESULT

The patient was in severe illness due to infection and malignancy (underweight with BMI was 13 (weight 34 kg, height 162 cm), Hb 3,3, L 800). Malignancy caused wide tissue destruction include soft and hard tissue of the face, connecting intra oral cavity with free air and saliva's proteolytic enzyme exposure. The

problem in performing reconstruction surgery was infection. Simple surgery was the best choice and must be performed in short time.

There were two options to close the defect, we could perform defect closure with flap or skin graft. Using flap, we need to remove wide tissue to close the defect, it would take long duration of surgery, difficult to be applied in inflammatory region and the flap have to consisted of two layers, outer and inner lining. Other option is skin graft, whereas to apply it, we need to provide proper wound bed preparation, no exudation and need to be given substance that effective for intra oral bacteria. The substance must be easy to get, cheap and does not interfere the main disease.



Figure 5. One month following STSG and wound care



Figure 6. In four months follow up, maximum mouth opening was 5 cm



Figure 7. Radiologic confirmed vital mandible

CONCLUSION

Honey had been proven effective to stimulate anti inflammatory activity, to promote debriding, to reduce malodour, to maintain moist wound environment and to stimulate healing/granulation over mandible.

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