The Use of Natural Honey in the Management of Chronic Wounds

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Is natural honey a credible alternative to advanced wound products?

- Why is natural honey making a strong come back ?
- The use of natural honey in clinical practice .
- Natural honey versus advanced wound products in clinical practice
- Antibacterial mode of action of natural honey .
- Comparison between natural honey and advanced wound products.
- Is natural honey the ideal dressing for the future ?

Why is natural honey making a strong come back?

- Emergence of antibiotic resistant & multiple drugs resistant strains.
- Similar antimicrobial efficacy to silver . (1)
- None of the silver associated cytotoxicity issues . (1)
- No examples of resistance . (2)

Ref :

(1) DuToit DF , page BJ (2009) . J wound care 18: 383-89

(2) Cooper R , J enkins L , Rowlands R (2011) . Wounds UK 7 (1) : 24-32

The use of natural honey in clinical practice

- Honey was found in Egyptian temples BC
- Honey as a wound healing agent fell out of favor with the advent of contemporary antibacterial agents in the 1920's. (1)
- Investigators renewed their interest in the 1980's.
- Over 500 clinical case studies in the literature .
- Randomized controlled trials involved
  - Pressure ulcer (2)
  - Venous ulcer (3)
  - Neuropathic diabetic ulcers found no difference (3)
  - Burns

Ref :

(1) David S. Lee , Sammy Sinni and Amro Khachemoure . AMJ Clin Dermatol 2011:12(3):181-190.

(2) Stotts et al .J Gerontol A Bio Sci Med Sci 2001 Dec ; 56 (12) :M 795-9.

(3) Gethin & Cowmwn. J Clin Nurs 2009 Feb; 18 (3) :465-74.

Natural honey versus advanced wound products in clinical practice

- Medicated honey is a natural honey impregnated with substrates such as hydrocolloids and hydro gels . [1]
- Natural honey is as effective as intrasite gel .[2] (RCT)
- Manuka honey versus hydrogel in venous ulcers.[3]
- Honey versus povidone iodine for wagner type II diabetic foot ulcer. [4]

Ref :

(1) Molan . PC , Be HrJA. Jornal of wound care 2004 ;13: 353-356.

(2) Ingel R , Levi J , Polinder K . SAMJ 2006 , 96: 9:831-835.

(3) Gethin & Cowman .Journal of clinical nursing 2008 , 18 :3:466-474.

(4) Shukrimi et al . Med J Malaysia 2008 , 63, 1:44 – 46.

Natural honey versus advanced wound products in clinical practice

At Week 4	Manuka honey	Hydro gel	p value
% reduction of slough	67%	53%	P=0.054
Wound size reduction	34%	13%	P=0.001
Infection development	6 patients	12 patients	

Ref :

(1) Molan . PC , Be HrJA. Jornal of wound care 2004 ;13: 353-356.

(2) Ingel R , Levi J , Polinder K . SAMJ 2006 , 96: 9:831-835.

(3) Gethin & Cowman .Journal of clinical nursing 2008 , 18 :3:466-474.

(4) Shukrimi et al . Med J Malaysia 2008 , 63, 1:44 – 46.

Antibacterial mode of action of honey

- Attributed in large to methylglyoxal (MGO). [1]
- Presence of sodium polyanetholesulphonate [2]
- Osmotic gradient .
- Low ph .
- Release of hydrogen peroxide .
- Interrupts cell division of S. aureus [2] & MRSA [3]
- Honey cause
  - Loss of structural integrity
  - Changes in cell shape & surface
  - cell disruption & lysis
- M Honey disrupts biofilm (S. pyogens) by down regulation of two fibrinogen binding proteins located on the bacterial surface [4]

Ref : (1) Adams et al . Carbohydr Res 2009 , 26 : 344 (8) : 1050 – 53

(2) Henriques et al . Eur J Clin Microbiol Infect Dis , 2010 , 30 : 2: 167-42

(3) Jenkins R , Burton N , Cooper R (2011 a) . J Anticrob (hemother 66 (11) : 2536 – 42

(4) Maddocks et al . 2012 , Microbiol (158) : 781 – 90

Safety profile of honey

- Honey favors cell proliferation & has no key to toxicity human keratinocytes & fibroblasts compared to silver dressings [1]

- Studies showing cytotoxicety of silver :

- Du Toit & page (2009) [1]
- Burd et al (2007) [2]
- Fraser et al (2004) [3]
- Poon & Burd (2004) [4]
- Lam et al (2004) [5]
- Paddle – Ledinek (2006) [6]
- Tshukudu (2010) [7]
- No difference but the experience was for 40 hours !!!

- Honey by compression cells proliferation & was not shown to be cytotoxic (Du Toit 2009)

Ref :

(1) Du Toit DF , page BJ . 2009 . J wound care Sept : 18 (9) 383-9

(2) Burd et al . Wound repair regon 2007 . Jan – Feb 15 (1) 94 – 104.

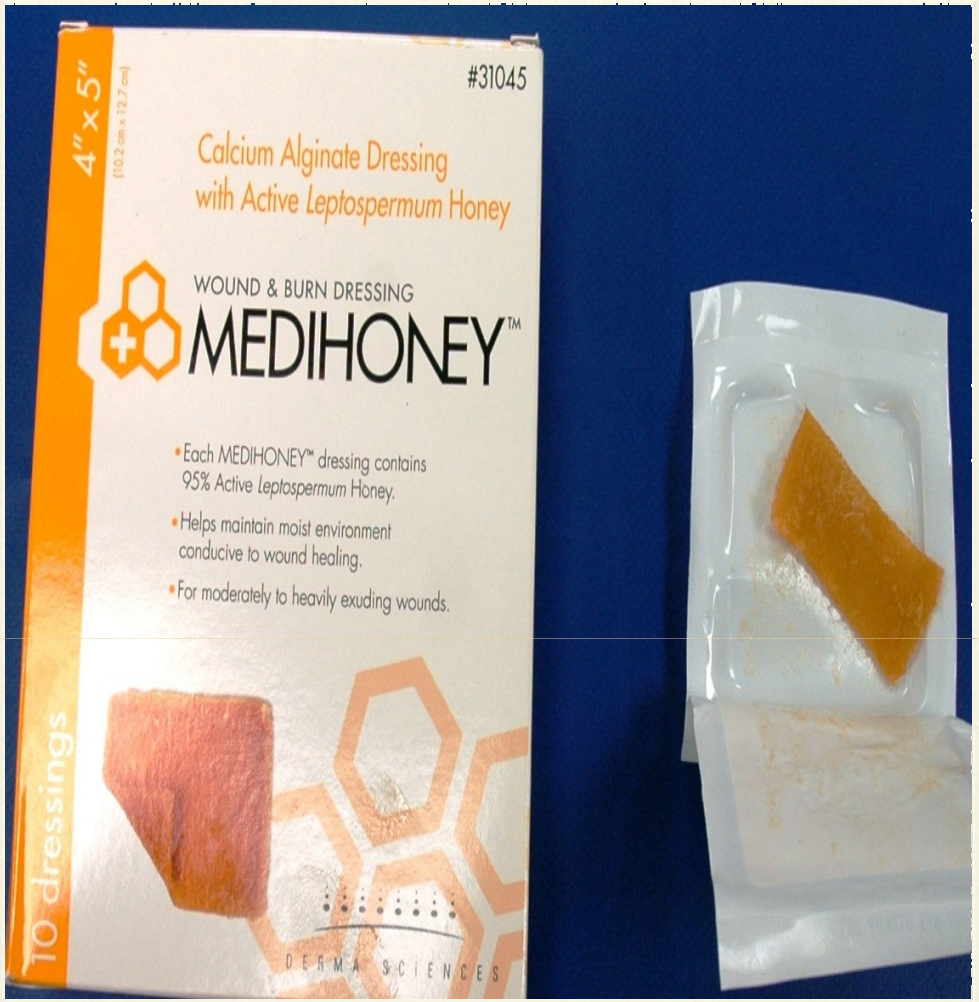
(3) Fraser et al . 2004 .ANZ J Surg 7 u (3) : 139 – 42

(4) Poon V , Burd A 2004. Burns 30 : 140 – 47.

(5) Lam et al . Br J Biomed Sci 2004 , 61 (3) : 125 – 7

(6) Paddle – Ledineck et al . Plast reconstr Surg 2006 . June 117 (7 suppl) 110S-118 S

(7) Tshukudu et al . Burns . 2010 , Nov ; 36(7):1036-41


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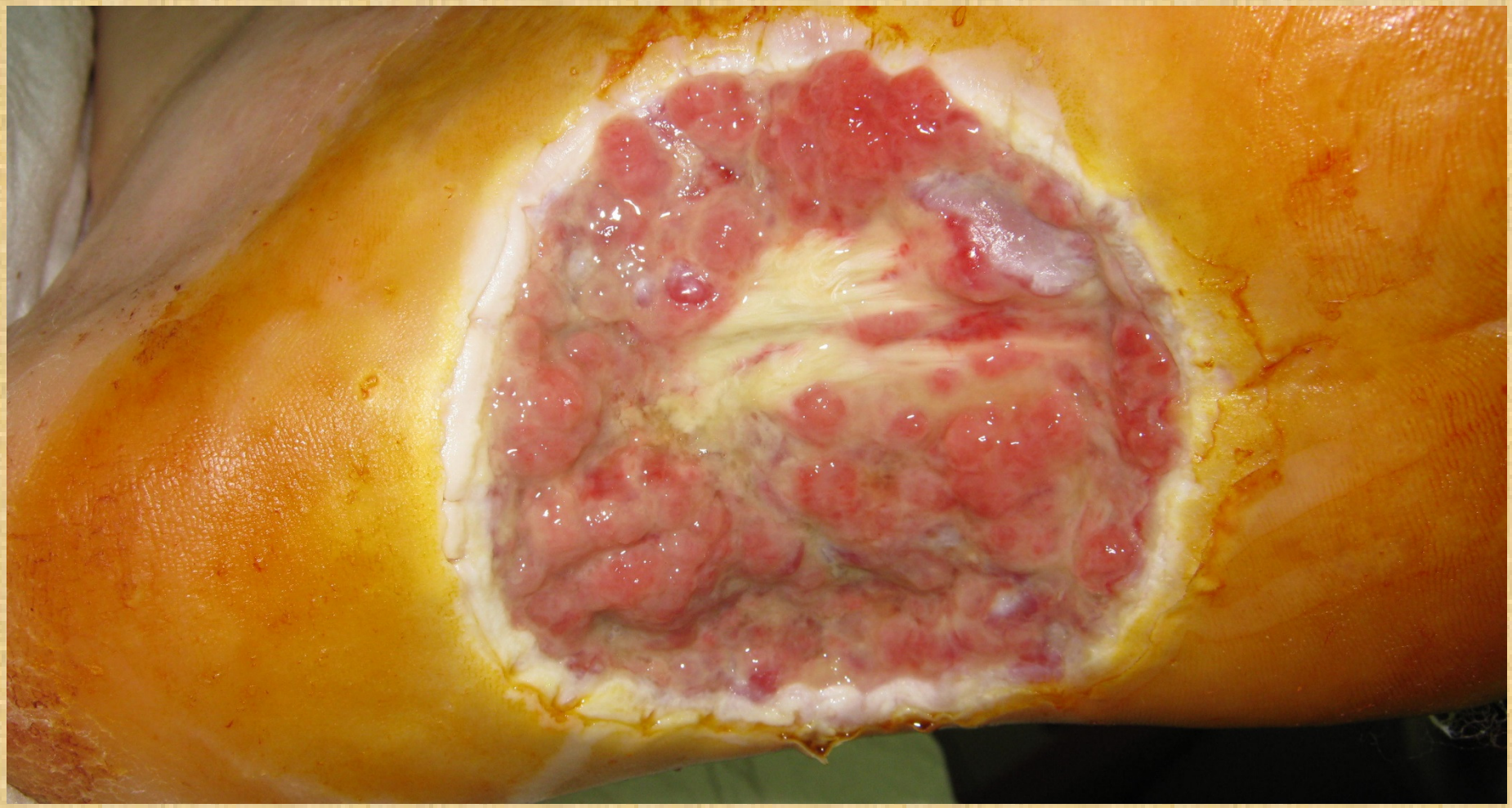
Case (1)

65 years old diabetic male presenting with post malignant melanoma excision



Ref : Mohamed et al . Journal of Lymphoedema 2012. Vol 7 . No. 1 p 11-15

Week 3



Ref : Mohamed et al . Journal of Lymphoedema 2012. Vol 7 . No. 1 p11-15

Week 13



Ref : Mohamed et al . Journal of Lymphoedema 2012. Vol 7 . No. 1 p11-15

Week 14



Ref : Mohamed et al . Journal of Lymphoedema 2012. Vol 7 . No1. p 20-24

Week 16



Ref : Mohamed et al . Journal of Lymphoedema 2012. Vol 7 . No.1 p 20-24

Before & After





Ref : Mohamed et al . Journal of Lymphoedema 2012. Vol 7 . No1 p. 20-24

Case (2)

60 years old diabetic female with thermal burn



Ref:mohamed et al ,journal of tissue viability,2013,http;//dx.doi.org/10.1016/j.jtv.2013.06.001

Two weeks post ambulation



Ref:mohamed et al ,journal of tissue viability,2013,http;//dx.doi.org/10.1016/j.jtv.2013.06.001

4 weeks post natural honey application & sharp debridement



Ref:mohamed et al ,journal of tissue viability,2013,http;//dx.doi.org/10.1016/j.jtv.2013.06.001

6 weeks later: 80% healing



Ref:mohamed et al ,journal of tissue viability,2013,http;//dx.doi.org/10.1016/j.jtv.2013.06.001

8 weeks later complete healing



Case (3)

50 years old diabetic male with necrotic toes and osteomyelitis



Ref.Mohamed et al,Wound Practice &Research,Nov2012,vol20,4,24-28

Post debridement showing exposed distal phalanx of second toe



Ref.Mohamed et al,Wound Practice &Research,Nov2012,vol20,4,24-28.

One week later



Ref.Mohamed et al,Wound Practice &Research,Nov2012,vol20,4,24-28

Complete healing 3 weeks later



Ref.Mohamed et al,Wound Practice &Research,Nov2012,vol20,4,24-28.

Case (4)

35 y old male ,DPN,T2DM 10y



Sharp debridement, removal of callus & creating a healthy base



After one week 30% reduction in size of ulcer



70% reduction in size after 3 weeks



100% healing after 4 weeks



Case (5)

65 y old male with superficial painful varicose vein ulcer (interrupted bandaging)



One week later 50% reduction in size and reduced edema



Four weeks later there is complete healing



Case (6)

55 y old , T2DM , HTN , chronic heavy smoker, D.F.U X 3 y with main general hospital



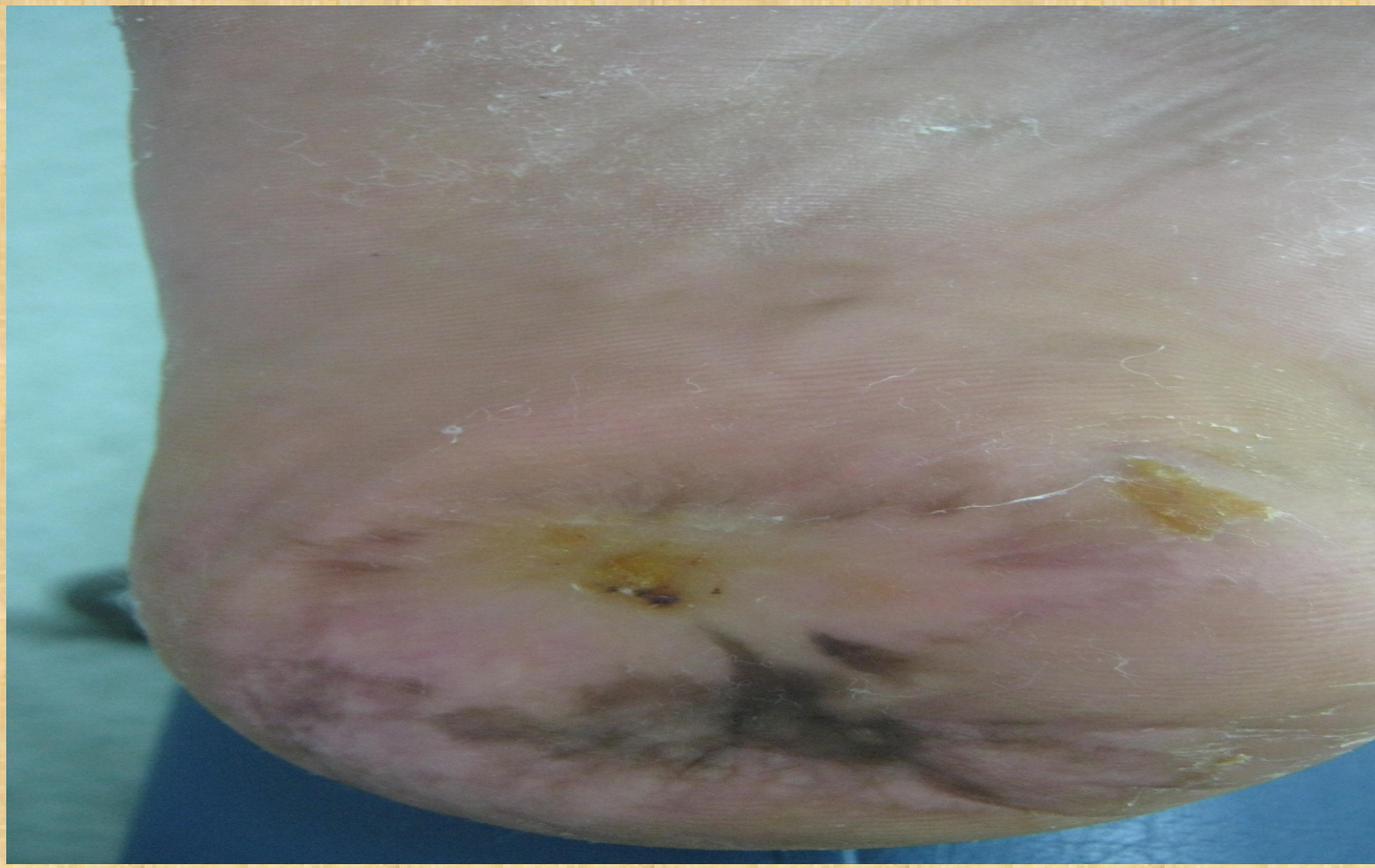
50% reduction after 3 week and filling of the ulcer from down upwards



70 % reduction 8 weeks later (superficial ulcer)



Complete healing by 12 weeks



Case (8)

50y old , T2 DM sustained contact dermatitis + second degree burn after whirlpool bath + volcanic stone scrubbing



1 week later after application of natural honey + ciprofloxacin



3 weeks later , hyperemia is reduced and new skin formation is evident



Complete healing 8 weeks later



Case (9)

65 y old lady came from Egypt with mid Charcot foot +D.F.U (rocker bottom)



8 weeks later complete healing



Case (10)

65 y old presented with mid anterior tibial region ulcer following immersion of his leg in a fish tank



Type of fish



1 week later 70% reduction the size



Complete healing 2 weeks later



Thank You

