Burns scar outcomes with medical grade honey compared to standard treatment in a developing setting.

SMITH-ORR VALERIE C. TRIPLE B CARE PROJECTS, INC., ZAMBALES, PHILIPPINE ISLANDS.

TripleBCare PROJECTS, INC.
www.triplebcareprojects.org

SWINFEN CHARITABLE TRUST · TELEMEDICINE LINKS

INTRODUCTION

Healing burns satisfactorily can be a challenge in any facility especially with the increasing global emergence of antibiotic resistance (Cooper R: Honey in Modern Wound Management). Personal observation of presented cases showed that disfigurement and poor function are outcomes of sub-optimal care. Few modern day burns and wound care products are available in the hospitals where these case studies presented for initial treatment. Medical grade honey is available and imported under medical licence. Poverty stricken patients are subject to a 'pay up front' policy which leads to a 'no money no treatment' situation in government and private hospitals.
A select few in middle-high income bracket have medical insurance, which provides limited cover for burns treatment.

METHOD

Eight patients were selected from those who presented to a registered NGO facility for burns care and/or scar management between January 2013 and December 2015. Four had received standard burns care in either government or private hospital and four had received burns care with medical grade honey with or without standard care.

INCLUSION CRITERIA

- Those with burns with a healing time > 14 days,
- Male or female, adult ≤ 40 years of age, children ≥ 1 year of age,
- Burn type: scald or flame burn with kerosene or gasoline, non accidental injury,
- Written or verbal consent to use data and medical illustrations for research and education purposes.

EXCLUSION CRITERIA

- Burns which took ≤ 14 days or less to heal,
- Healed burns ≥ 3 years since initial injury,
- Infants < 1 year, adults > 40 years,
- No written or verbal consent.

ABOUT VAL SMITH-ORR

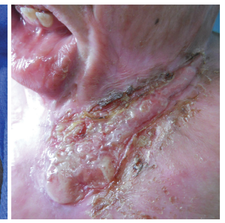
Val is a British trained RN, ENB Burns and Plastic Surgery Nurse Specialist who set up Triple B Care Projects to care for the poor and less fortunate with burns in the province of Zambales. She is a volunteer with no income or salary and has dedicated her life and skills to the poverty stricken with burns in a developing country. Val has used the SCT telemedicine link service since 2009. **triplebcareprojects.org**

STANDARD CARE IN A DEVELOPING SETTING

CASE 1

Oct 28 2014 - 1st visit to clinic 20 months after injury. Male 7 years. NAI,. SSD still being applied!

Overgranulated, colonised.



Severe contractures of lip and neck.

SSG 2:1 mesh ANZ Interplast November 2014.

Scar Management.

January 2016.

CASE 2

Male 5 years old, scald immersion in cauldron of hot coffee May 2015.

1st visit (Interplast). November 3 2015 for brachial fossae contracture release.

Extensive hypertrophy of all TBSA.

NB Right thigh is donor site for SSG (ANZ Interplast).

Post op care with Triple B Care Projects.

Donated pressure garments.

CASE 3

Injury July 29th 2014 flame burn from de-natured alcohol (squeezable bottle sold as "BBQ lighting fuel"). 1st seen at Triple B Care Projects March 28th 2015 - 8 months after initial injury.

MEBO applied to face and neck every 4-6hrs, SSD changed 6 hourly.

8 months pregnant at time of burn including abdomen. After 1st G.A. for debridement; July 31st. A 2nd G.A. 6 hours later for cesarian section - baby in foetal distress. Further G.A. Aug 3rd for aggressive debridement.

No contracture prevention Daily dressings continued with SSD (tramadol for pain) till mid-Sept 2014 at discharge.

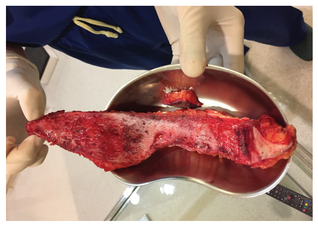
Aquacel AG applied [incorrectly] 8 months after initial injury. The lady (a physical therapist) is addicted to tramadol.

November 2015: 16 months after initial injury keloid scars have formed on all upper body TBSA. Cost of treatment 1 million pesos+ (£15,000). Professional fees waived as her husband is a Dr working in the ER dept of admitting hospital.

CASE 4

Male 10 years. Kerosene burn 14 February 2015. Squeezable bottle sold as BBQ lighting fuel. 1st visit to Triple B Care Projects June 5th 2015. Seen briefly in hospital March 23rd, child still on bed rest. Up to toilet only prior to discharge March 25th.

Debridement with Morphine in ER Feb 14th 2015. 10 subsequent debridements under G.A. MEBO to face every 2 hours, SSD BD all other TBSA. No occlusive dressing + Tangential excision chin/abdomen and SSG chin at 17 days and rpt chin SSG at 20 days as 1st failed.



Excision of 'necrotic' abdominal tissue at 17 days. Customary to show excised body part to relatives for proof of surgery and picture taking.

Scar from abdominal excision, movement now restricted. This child was treated in an exclusive private hospital in Manila. Cost for 5 weeks stay, 5 million pesos (£76,000). Parents have means to buy good quality pressure garments. Private insurance cover inadequate for burns care.

STANDARD TREATMENTS IN A DEVELOPING COUNTRY

TREATMENT	A & E (E.R)	WARD (GOVT OR PRIVATE)	OPERATING ROOM/ THEATRE	FREQUENCY OF TREATMENT	OUTPATIENT DEPT/HEALTH CENTRE
Debridement	- On presentation- With or without analgesia	N/A	- Sharp, aggressive - Under G.A.	- Alternate days /multiple and/or - Prior to SSG	- On presentation
Analgesia (PO/ IM/IV)	If scripted and can be purchased by family*	If scripted and can be purchased by family	If scripted and can be purchased by family	- Nil - BD – QDS - Continuous IV	Nil
Bath using: antiseptic soap / Bayabas^^	No	Yes	No	1 -3 daily	No
Local burn products depending on ability to purchase*	(a) SSD** (b) MEBO^* (c) Bayabas^^	- SSD -MEBO - Bayabas	- SSD - MEBO - Bayabas	- Daily - BD - TDS - QDS - Every 2 hours	- SSD
Bandage type (Nil = open wound)	- Nil - Gauze swab - Non-conforming bandage	- Nil - Gauze swab - Non-conforming bandage	- Nil - Gauze swab - Non-conforming bandage	- Nil - Daily - BD	- Nil - Gauze swab - Non-conforming bandage
Split skin grafting (SSG)	N/A	N/A	If funds to pay available	- Rarely ≤5days - Mostly ≥22days	N/A
Discharge from care facility	Immediate if no money for treatment	Early or late depending on ability to pay hospital/doctor fees	N/A	N/A	Immediately / after one follow up
HAMA* Home Against Medical Advice**	Yes	Yes	N/A	N/A	Nil if HAMA
Scar management	Nil	Nil	Nil	N/A	Limited availability of quality scar management products. High cost prohibitive for the poor.

*I.e. patient or family can afford the medication.
**SSD:=Silver sulfadiazine cream applied BD, TDS, QDS; ^*MEBO = Botanical drug consisting of multiple, botanic components and other ingredients; limited clinical trial data on efficacy, applied 2/4/6 hourly,
^^Bayabas = Local guava leaf infusion-traditional remedy, no clinical data.
***Common reasons for HAMA include inability to pay hospital or doctors' fees, to purchase medication or pay clinical equipment hire fees.

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BURNS TREATMENT SCHEDULE AT TRIPLE B CARE PROJECTS BURNS CLINIC

TREATMENT	CLINIC (INCLUDES A & E / E.R., OPD)	TREATMENT ROOM (LIMITED IN-PATIENT FACILITY)	FREQUENCY
Debridement	- Gentle wound cleaning only - Aseptic technique	As per 'clinic'	1st visit if debris separates easily. MGH^ tulle has autolytic debriding properties. Less stress for patient.
Analgesia	- Immediately on arrival - Before each dressing change - Dose calculated mg/kg	- Ibuprofen and Paracetamol - Nubain - Valium - Dose correct mg/kg	- Stat max dose for dressing change - IM/SC/Oral - Recommended mg/kg 4-6 hourly
Bath	- When epithelialisation has occurred - Advised to keep dressing dry	- Shower area in treatment room (W.C.)	- To assist with dressing change and/or when fully healed ≥4 days
Burn products	- Medical grade honey in tube, infused tulle or alginate format which have antimicrobial and autolytic debridement properties	In treatment area of clinic	- Every 3-4 days, depending on exudate levels - Increased frequency if green colour appears on bandage (*Pseudomonas* infection)
Bandage type	Fully occlusive dressing includes: - super absorbent secondary dressing - conforming bandage, plastic food wrap - early compression	Fully occlusive dressing includes: - super absorbent secondary dressing - conforming bandage, plastic food wrap - early compression	- As required ≤4 days - ≥4 days if no infection and tissue is granulating well
Split skin grafting (SSG)	Not available in clinic, no operating suite or equipment. Have to wait for Burns mission.	N/A	Annually each November with ANZ Interplast
Discharge from clinic	- When burn is fully healed - Follow up for scar management ≥2years	- When burn is fully healed - Follow up for scar management ≥2years	- Monthly for first 6 months - Every 2 months for 6 months -6 monthly (x2)
Scar management	- early compression as tolerated - Compression garments* when fully epithelialized (*Donated: ready- made/ recycled /samples)	All TBSA ≥21 days to heal	- 24/7 - Removed for meals/bath/ laundering
	- Silicone gel sheet	- Face as a priority - Other hypertrophic areas as funding allows	- 12 hourly as tolerated - Need to de-sensitize to sheets gradually
	- Silgel Fluid** (**Donated by SCT)	- All hypertrophic areas after bath before pressure garment	- BD massage in till dry
	- Moisturising and massage (E45, Diprobase, Nivea etc)	- Daily on healed areas - Lotions not applied with silicone gel sheet or silgel	≥BD Small firm circular movements

^MGH = Medical Grade Honey.

BURNS TREATMENT USING MEDICAL GRADE HONEY IN A DEVELOPING SETTING

CASE 1

Female 28 years. Injury February 23 2013. NAI. De facto massaged petrol to head and upper body and set alight. 1st seen by Triple B Care Projects Feb 27. Adult surgery ward, open wounds, SSD BD.

Doctors advised ears had to be amputated. No money for surgery Triple B Care Projects used MGH and occlusive dressing.

March 2nd 2013, after 1st dressing with MGH, Autolytic debridement occurring.

April 15th, 52 days post burn MGH every 3-5days. Added hydrocortisone 1% to over-granulated areas.

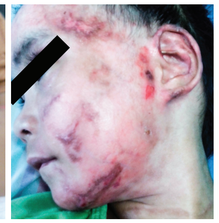
May 6th 2013: donated Pressure garment and collar. Pt not consistent with use.

August 4th 2015, SSG to neck (ANZ Interplast November 2014). Ears intact, minimal tissue loss.

CASE 2

Female 5 years. Scald immersion in large pot of noodles. Dec 31st 2014. Seen by Triple B Care Projects in Jan 1st 2015 (5th birthday No PICU).

1st dressing change Jan 5th 2015. Medical Grade Honey with occlusive dressings every 3-5 days till healed. Discharged from hospital Jan 6th 2015.


Feb 21st 2015 pre-auricular area unhealed.

Sept 11th 2015. Donated pressure garment worn 24/7. Removed for eating, bathing and laundering.

October 31st 2015 3M's: Massage, moisture, movement (stretches, facial exercises).

Dec 19th 2015. Using a silicone gel patch after school and overnight.

CASE 3

Female 2 years Kersosene burn Aug 6th 2015 1st seen by Triple B Care Projects Aug 15th. Child in General surgery ward, had 1 debridement under G.A. open wounds, SSD BD (not consistent).

Occlusive dressing with MGH Discharged from hospital Aug 18th 2015 Bill paid by Triple B Care Projects and visiting U.K G.P. otherwise 'clinical detention'.

Aug 26th 3rd Birthday Outpatient at Triple B Care Projects. MGH dressings every 3 -5 days occlusive.

September 12th 2015.

September 30th 2015.

February 2016 Case 3 patient-left and with sibling-right see case 4 below.

CASE 4

Male 14 months, sibling of case 3 Scald with boiling coffee Aug 19 2015 1st seen by Triple B Care Projects August 26th 2015. Parent did not bring on day of accident as 'too busy' preparing sibling for Triple B Care Projects clinic visit and it was 'only coffee'.

Aug 26th: Extensive area, chin to genitalia. Child in poor condition, dehydrated (dry teeth, no tears). Parent elected not to take to hospital as no money for treatment. MGH Tulle with occlusive dressing to body. MGH tube to genitalia after each nappy change.

September 19th 2015 MGH tulle and occlusivedressing every 3-5days. This child and sibling case 3 now in protective custody at 'Children's recovery Unit' Cubi.

Basic tubigrip vest for pressure.

October 21st 2015 Donated pressure garments 24/7 From September.

Jan 6th 2016 silicone gel scar sheet 12hrs + daily since November 2015. See Case 3 image, above right.

MEDICAL GRADE HONEY

Medical grade honey products are used very successfully for burns treatment in a registered NGO clinic primarily treating the poor and needy. The author found that in a developing setting, medical grade honey was highly effective in providing antimicrobial cover and autolytic debridement in burns -without antibiotics, frequent dressing changes or multiple debridements under general anaesthesia.
MGH honey is purchased from a licenced distributor in the Philippines, with donated funds from family and friends.
No fees are charged for MGH dressings or clinic/ RN services for children (with priority to ≤ 5years). Adults are encouraged to donate an amount equal to the cost price of products.

CONCLUSION

Medical grade honey offers a practical and affordable alternative to standard treatment in a developing setting where standard of care for burns is sub-optimal.
In the selected cases, healing and scarring results with medical grade honey suggest better scar outcomes when compared to standard care scar outcomes in a developing setting.
The author acknowledges that use of the Vancouver Scar Scale and The Patient and Observer Scar Assessment Scale (POSAS) would be beneficial in further studies as would cost analysis of MGH v Govt hospital and private hospital costs.

SWINFEN CHARITABLE TRUST

Doctors and health professionals in 75 medically under-served countries have free access to 693 expert consultants, across all clinical and surgical specialities; via an internet telemedicine link. Val has used the SCT telemedicine link service since 2009.

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