

A Systematic Review of Wound Care in the Management of Old World Cutaneous Leishmaniasis

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Introduction

Cutaneous leishmaniasis (CL) typically presents as one or several chronic, infiltrative lesions on exposed parts of the body, and is treated pharmacologically to accelerate cure, reduce scarring, and to prevent parasite dissemination (i.e., mucosal leishmaniasis) or relapse.

There are effective wound care initiatives for other conditions, such as diabetic foot ulcers and burn patients, but an evidence-based approach to wound care in cutaneous leishmaniasis has not been established.

Limited data support the role of local wound care for the management of uncomplicated Old World CL (OWCL), though the scope of such benefit and to which patient populations wound care should be applied remains undetermined due to the absence of synthesized data on the subject.

We aim to synthesize the literature around the role of wound care in the management of OWCL to inform treatment guidelines and evidence-based therapeutic strategies.

Methods

Medline (Ovid), Embase (Ovid), and PubMed (NCBI) and LILACS (VHL) were searched from inception to February 2019 without language restriction using combinations of the search terms “leishmania” and “wound care”.

For the systematic review, we included case reports, case series, cohort studies, observational studies, as well as clinical trials assessing wound care interventions.

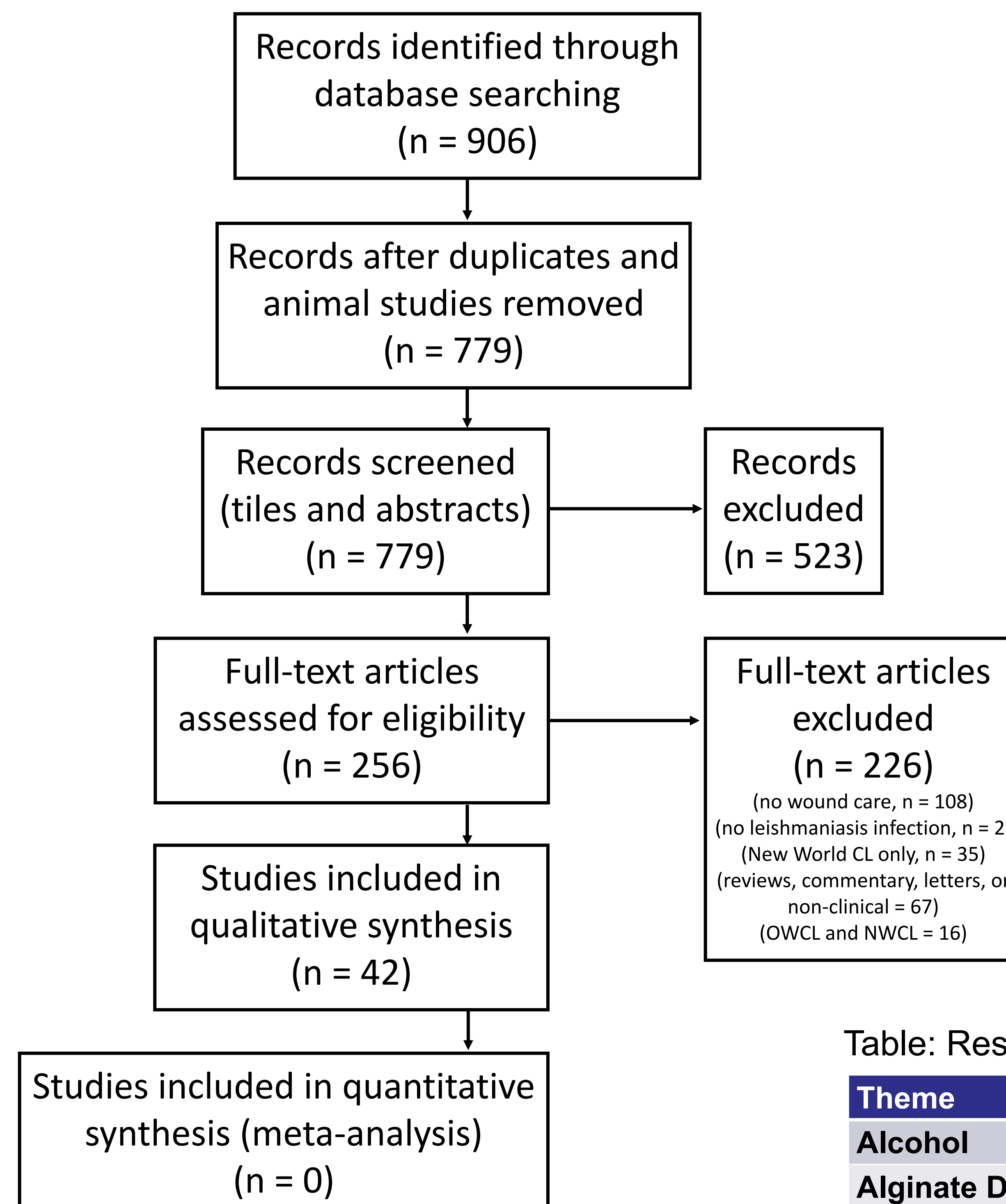
Results

906 articles were identified with the initial search (see figure). After screening titles and abstracts, 256 articles were selected for full text review. 108 of these articles did not mention either wound care or leishmania and were further excluded. 42 articles were incorporate into the syntheses.

Study characteristics including number of participants, wound care strategy/ intervention (types and frequency), outcomes (size of ulcer, scar formation, re-epithelialization), time to outcome, study location, and species identification, was extracted from eligible studies and analyzed (Table: Results).

Grading of evidence was assessed using the GRADE approach and Joanna Briggs Institute critical appraisal tools (Table: Evidence).

Figure: PRISMA 2009 Flow Diagram



Discussion

We attempt to map the literature and synthesize the current state of knowledge and topical wound-oriented management practices in OWCL in order to inform optimal adjunctive clinical approaches and guidelines.

No prior literature has primarily outlined wound care strategies in OWCL.

OWCL has many morphologies including wet open ulcers to dry crusted lesions. No studies collected qualitative information on the types of lesions. Wound care practices might need to be tailored to the type – wet or dry – OWCL lesions.

How wounds are treated (e.g. debrided, debrided, dressed, covered, occluded, creams and ointments applied, etc.) should be explicitly stated in all leishmaniasis studies. From our review, less discussion about wound care occurs in studies where oral treatment regimens are employed. There could be a large difference in the way wound care is being carried out between studies that employ oral treatment regimens compared to topically oriented treatment regimens.

It is hard to discern from the current literature what the current topical treatments are targeting – eradication of parasites, healing of the lesions, or both. If we could separate what is killing parasite from what is helping wound healing, we could use combination therapies to improve outcomes.

Non-anti-leishmanial (non-anti-parasitic) treatments, such as those treatments explicit for wound care (e.g. debriding, debriding, dressing, covering, occluding, creams and ointments, etc.) in OWCL lesions, should be studied in clinical trials with comparison groups comprised of participants receiving placebo or no wound care treatment, ceteris paribus.

The effect of bacterial colonization or the effect of certain types of bacteria on the healing of OWCL lesions is not ascertainable from the current literature.

There is very low quality of evidence to support any one type of wound care intervention in OWCL. Further directed studies are needed.

Table: Results

Theme	Summary of Results
Alcohol	Not explicitly studied.
Alginate Dressing	Not explicitly studied.
Antiseptic	Described as a theoretical concept to decrease microbiological load.
Bacterial Infection	Not explicitly studied. Commentary that prophylactic does not alter outcome.
Bicarbonate	Not explicitly studied.
Chlorhexidine	One RCT. Query better results, confounded.
Chlorite or NaClO2	One RCT. DAC N-055 promoted tissue regeneration.
Cream	Not explicitly studied (vehicle the active treatment ingredient was delivered)
Curettage or Shave	Not explicitly studied. Many studies use curettage in combination with other treatments.
Debride or Debulk	Not explicitly studied. Topical treatments usually occurred after removal of dry crusts.
Dressing	Term used loosely throughout most papers (some occlusive dressing: some impregnated)
Foam	Not explicitly studied (vehicle the active treatment ingredient was delivered)
Garlic (cream)	One RCT, no effect.
Gel or Hydrogel	Not explicitly studied (vehicle the active treatment ingredient was delivered)
Honey	Antimicrobial effect. Change speed of wound healing.
Hydrocolloid	Not explicitly studied.
Imiquimod	2 RCTs. Alone – inc. risk of relapse. Combination, trend towards decr. relapse.
Iodine	Not explicitly studied.
Irrigation	Not explicitly studied.
Lotion	Not explicitly studied (vehicle the active treatment ingredient was delivered)
Moist Wound Therapy	Not explicitly studied.
Morphine or Opium	3 studies, no effect.
Occlusion	The term occlusion was used inconsistently throughout the literature.
Ointment	Not explicitly studied (vehicle the active treatment ingredient was delivered)
Polyhexanide or PHMB	No OWCL papers identified its use.
Salicylic	Not explicitly studied.
Saline	Normal saline is often used as a placebo. One study - effect with hypertonic saline
Silver or Flamazine	2 RCTs with no effect.
TCA or Trichloroacetic acid	Not explicitly studied.
Urea	Not explicitly studied. As combination no effect.
Zinc Oxide	Not explicitly studied.

Table: Evidence

No. of Studies	Study Design	Risk of bias	Inconsistency	Indirectness	Imprecision	Quality
17	Randomized Trials	Moderate risk of bias, however, none of the studies directly studied wound care (all were focusing on different interventions)	Lack of consistent measurement of effect within and across studies. Poor statistical methods in the majority of the studies.	Generalizability and external validity of WC interventions is very low because co-interventions were not separated from WC interventions.	Moderate sized samples; wide confidence intervals	⊗○○○ Very Low
14	Case Reports/Series	Very severe risk of bias. Most of the reports failed to address potential confounders.		Co-interventions and consistency of provider interventions were not accounted for	Some statistical tests were attempted, but validity is questionable	⊗○○○ Very Low
5	Non-Random Experimental					⊗○○○ Very Low
4	Descriptive					⊗○○○ Very Low
2	Comment					⊗○○○ Very Low