Occlusive dressing vs palmar pedicular island flap in fingertip amputation.  
A randomized controlled trial.

Purpose
Fingertip amputation is a very common injury encountered in the emergency setting. It is reported to account for 4.8 million visits per year in the US(1, 2). However, there is currently no consensus on the ideal management of these patients. The mechanism, geometry of injury, level of amputation, and degree of contamination guide the treatment strategy (2). Management is also often influenced by the caretaker’s beliefs, training and setting. There is a myriad of treatment options, from conservative management, including healing by secondary intention with occlusive dressing, to surgery including local flap reconstruction (V-Y advancement flaps, full-thickness skin graft, composite graft, cross-finger flap, first dorsal metacarpal artery flap), or free flaps/toe transfer(3).  
Conservative management is minimally invasive, but the reported aesthetic patient satisfaction score of 8/10(3), was lower than the reported mean score of overall satisfaction, including aesthetic and functional outcomes of 8.7/10 after reconstruction with a palmar bipedicled island flap (modified Tranquilli-Leali flap). Surgery implies local anesthesia, but operative time was shown to be low (mean 27 minutes). Patients usually recover good sensation with both techniques.  
An optimal treatment will achieve high patient satisfaction with complete recovery of the initial cosmetic appearance and function of the finger, including mobility and sensation, with minimal length of disability and time off work.  
Our study aims to prospectively compare outcomes of conservative management with occlusive dressing to minimally invasive surgical management with a palmar bipedicled island flap (modified Tranquilli-Leali flap) in the management of Allen zones II-III-IV fingertip injuries in long fingers. Based on these results, we intend to help provide guidelines to optimize the management, and eventually the satisfaction of these patients.
Methods

Based on current data, we cannot hypothesize that conservative or surgical management will be superior to one another. Therefore, we intend to conduct a pilot study to orient further research. All the details concerning patients enrolled between December 2020 and December 2022 will be collected and stored in the division of Plastic and the Hand Surgery of CHUV, Lausanne.

Patients will be randomized into the occlusive dressing group or the surgical group on their first visit to the Hand Surgery department. Both groups will have a 6 month and 1-year follow-up appointment, including Ultrasound evaluation and a satisfaction questionnaire.

Sample size would be 50 patients, 25 in each group

We will only focus on patients > 18 years old, presenting to the Emergency or Hand Surgery departments with Allen zones II-III-IV long finger amputation, within 24 hours of trauma, > 1cm2 in size, with a transverse or dorsal geometry.

We will collect demographic data and information about the injury including age, sex, medical history and daily medications, occupation, dominant hand, active smoking, mechanism of injury, associated injuries, time from injury to management, size and geometry (volar/transverse/dorsal) of defect, level of amputation (Allen classification), injury and repair of the nail bed. These data will be all recorded in secured and depersonalized excel files that will be located on the CHUV server (CPR/Formation) protected by a password and on redcap.

Statistical analysis and multi-variate logistic regression analysis will be performed using Excel and Statview including Student Ttest.

Plan :

- November 2020 : Swiss Ethical Committee
- November 2020 : Clinical Trial application
- December 2020 : Start of the Study
- December 2022 : End of the Study

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References: