MỘT SỐ THÔNG TIN MỚI TRONG ĐIỀU TRỊ BỎNG

DỊCH TRUYỀN

- HES 6%

Early fluid resuscitation with hydroxyethyl starch 130/0.4 (6%) in severe burn injury: a randomized, controlled, double-blind clinical trial

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Abstract

Introduction: There are limited data on the efficacy of early fluid resuscitation with third-generation hydroxyethyl starch (HES 130) in burn injury. Adverse effects of HES on survival and organ function have been reported.

Methods: In this randomized, controlled, double-blind trial, 48 patients with severe burn injury were assigned to receive either lactated Ringer's solution plus 6% HES 130/0.4 in a ratio of 2:1 or lactated Ringer's solution with no colloid supplement for the first 72 hours. Primary outcome parameter was the group difference of administered total fluid from intensive care unit (ICU) admission up to day 3. Secondary outcomes included kidney and lung injury and failure, length of stay, and mortality.

Results: Three-day totals of administered resuscitation fluid (medians) were 21,190 mL in the lactated Ringer's group and 19,535 mL in the HES group (HES: −1,213 mL; $P = 0.39$). Creatinine levels from day 1 to 3 (HES: +0.4 μmol/L; 95% confidence interval (CI) −18.7 to 19.5; $P = 0.97$) and urinary outputs from day 1 to 3 (HES: −58 mL; 95% CI −400 to 283; $P = 0.90$) were not different. Six patients in each group developed acute respiratory distress syndrome (ARDS) (risk ratio 0.96; 95% CI 0.35 to 2.64; $P = 0.95$). Length of ICU stay (HES vs. lactated Ringer's: 28 vs. 24 days; $P = 0.80$) and length of hospital stay (31 vs. 29 days; $P = 0.57$) were similar. Twenty-eight-day mortality was 4 patients in each group (risk ratio 0.96; 95% CI 0.27 to 4.45; $P = 0.95$), and in-hospital mortality was 8 in the HES group vs. 5 patients in the lactated Ringer's group (hazard ratio 1.86; 95% CI 0.56 to 6.19; $P = 0.31$).

Conclusions: There was no evidence that early fluid resuscitation with balanced HES 130/0.4 (6%) in addition to lactated Ringer's solution would lead to a volume-sparing effect in severe burn injury. Together with the findings that early renal function, incidence of ARDS, length of stay, and mortality were not negatively influenced by HES in this setting, balanced HES 130/0.4 (6%) plus lactated Ringer's solution could not be considered superior to lactated Ringer's solution alone.

Trial registration: ClinicalTrials.gov NCT01012648

DỊCH TRUYỀN

- ALBUMIN

Colloid Normalizes Resuscitation Ratio in Pediatric Burns

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Gregory Stoddard, MPH,† Jeffrey Saffle, MD, FACS*

Fluid resuscitation of burned children is challenging because of their small size and intolerance to over- or underresuscitation. Our American Burn Association-verified regional burn center has used colloid "rescue" as part of our pediatric resuscitation protocol. With Institutional Review Board approval, the authors reviewed children with ≥15% TBSA burns admitted from January 1, 2004, to May 1, 2009. Resuscitation was based on the Parkland formula, which was adjusted to maintain urine output. Patients requiring progressive increases in crystalloid were placed on a colloid protocol. Results were expressed as an hourly resuscitation ratio (I/O ratio) of fluid infusion (ml/kg/%TBSA/hr) to urine output (ml/kg/hr). We reviewed 53 patients; 29 completed resuscitation using crystalloid alone (lactated Ringer's solution [LR]), and 24 received colloid supplementation albumin (ALB). Groups were comparable in age, gender, weight, and time from injury to admission. ALB patients had more inhalation injuries and larger total and full-thickness burns. LR patients maintained a median I/O of 0.17 (range, 0.08–0.31), whereas ALB patients demonstrated escalating ratios until the institution of albumin produced a precipitous return of I/O comparable with that of the LR group. Hospital stay was lower for LR patients than ALB patients (0.59 vs 1.06 days/%TBSA, $P = .033$). Twelve patients required extremity or torso escharotomy, but this did not differ between groups. There were no decompressive laparotomies. The median resuscitation volume for ALB group was greater than LR group (9.7 vs 6.2 ml/kg/%TBSA, $P = .004$). Measuring hourly I/O is a helpful means of evaluating fluid demands during burn shock resuscitation. The addition of colloid restores normal I/O in pediatric patients. (J Burn Care Res 2011;32:91–97)

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Albumin Supplementation for Hypoalbuminemia Following Burns: Unnecessary and Costly!

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Following fluid resuscitation, patients with major burns frequently develop prolonged hypoalbuminemia. It is not known whether this should be corrected by albumin supplementation. The purpose of this study was to determine whether there are any benefits associated with albumin supplementation to correct hypoalbuminemia in burned adults. We conducted a retrospective comparison of patients with burns ≥20% TBSA admitted to an adult regional American Burn Association–verified burn center, from May 1, 2009, to September 30, 2010, where we did not routinely supplement albumin (control group), with patients admitted from October 1, 2010, to May 30, 2011, where we had instituted a protocol in which 5% human albumin was provided to maintain serum albumin levels >20 g/L (albumin group). Comparisons were made from postburn (PB) day 2 to day 30 inclusive. There were no significant differences between control (n = 26) and albumin (n = 17) in age (48 ± 15 vs 45 ± 21 years; $P = .56$), burn size (33 ± 13 vs 34 ± 13 %TBSA; $P = .831$), or full thickness burn size (19 ± 19 vs 23 ± 19 %TBSA; $P = .581$). Inhalation injury was significantly more frequent in the albumin group than in controls (71% vs 31%; $P = .01$). The groups did not differ significantly in need for admission escharotomy, admission Sequential Organ Failure Assessment (SOFA) score, number of surgical procedures/first 30 days, or 24 and 48 hours fluid resuscitation volume requirements. The overall mean daily serum albumin level from PB day 2 to 30 in the albumin group (26.9 ± 3.0 g/L) was significantly greater than in controls (21.9 ± 4.4 g/L; $P < .001$). There were no significant differences between the groups in daily SOFA score/first 30 days, peak SOFA score, ΔSOFA, hospital length of stay, time to wound healing, duration of mechanical ventilation, or 30-day and in-hospital mortality. The cost of routinely supplementing 5% albumin between PB day 2 to 30 in the albumin group was more than four times that for the controls where we did not routinely provide albumin (Can $65.50 vs Can $16.57 per patient per day). We conclude that routine supplementation of 5% human albumin to maintain a serum albumin level ≥20 g/L in burn patients is expensive and provides no benefit. (J Burn Care Res 2013;34:8-17)

CẮT LỌC VÀ GHÉP DA

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Burns 32 (2006) 145–150

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Meta-analysis of early excision of burns

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Abstract

Aims: This meta-analysis sought to establish if early excision and grafting is better or equivalent to the conservative treatment of burns in both children and adults with minor or major burns. The outcomes of interest are mortality, wound healing time, duration of sepsis, operating hours, complications of surgery, length of hospital stay, blood transfusion requirements and long term morbidity like joint contractures and hypertrophic scarring.

Methods: We searched MEDLINE (1966–July 2004), EMBASE (1980–August 2004) and the Cochrane Central Register of Controlled Trials (CENTRAL) with the keywords 'early excision' and 'burns'. This yielded 441 articles of which 15 were randomized controlled trials. Only six trials met the inclusion criteria.

Results: There was a significant reduction in mortality with early excision of burns when compared with traditional treatment only in patients without inhalational injury (RR 0.36, 95% CI 0.20 to 0.65). The blood transfusion requirement is significantly higher in the early excision group but the length of hospital stay was significantly shorter (WMD −8.89, 95% CI −14.28 to −3.50). There was no conclusive evidence on the difference between the two groups in terms of duration of sepsis, wound healing time and skin graft take.

Conclusion: Early excision of burns is beneficial in reducing mortality (in patients without inhalational injury), length of hospital stay. The only drawback is the greater volume of blood loss.

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Early excision and skin grafting versus delayed skin grafting in deep hand burns (a randomised clinical controlled trial)

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ABSTRACT

Introduction: Early excision and grafting (E&G) of burn wounds has been reported to decrease hospital stay, hospital costs and septic complications, and some purport reduced mortality while decreasing hospital costs.

In today's practice, all burn wounds unlikely to achieve spontaneous closure within 3 weeks are excised and grafted. Early studies did not demonstrate dramatic differences in cosmetic or functional results. This is particularly true with burns of the face, hands and feet. In this study, early excision and skin grafting was compared with delayed skin grafting in deep hand burns.

Materials and methods: From September 2006 to February 2008, 50 patients with hand burns and average burn size less than 30% total body surface area (TBSA) deep second- and third-degree were randomly divided into early E&G group (group I) and delayed grafting group (group II).

Gradual and careful limb and digit range of motion was started on about 10th–14th postoperative day. We used a questionnaire based on the Disabilities of the Arm, Shoulder and Hand (DASH) questionnaire to evaluate final functional outcome. Further, hypertrophic scar formation, contracture and deformities were followed and managed accordingly.

Results: The most common site of involvement was the metacarpophalangeal (MCP) joint with frequency of 39% and 40% in groups I and II, respectively. There were no statistically significant differences between both groups regarding deformity severity, scar formation, sensation, major activities and overall satisfaction.

Discussion: In treating burns of the hand, the primary goal should always be to restore the

Quy trình kĩ thuật Bộ Y tế

- Rạch giải áp khi:
  - Bỏng hết chu vi của chi
  - Bỏng cổ, ngực, bụng, lưng gây khó thở
  - Có hội chứng chèn ép khoang

Quy trình kĩ thuật Bộ Y tế

- Cắt lọc khi toàn trạng thoát sốc ổn định, các xét nghiệm trong giới hạn cho phép phẫu thuật.
- Che phủ nền tổn thương sau cắt lọc:
  - Cắt lọc tiếp tuyến: thuốc băng bỏng hoặc vật liệu thay thế da tạm thời, chờ ghép da khi có đủ mô hạt tiêu chuẩn
  - Cắt lọc toàn bộ mô hoại tử: ghép da tự thân, vật liệu thay thế, thuốc băng bỏng

Phác đồ bệnh viện Chợ Rẫy

- Phẫu thuật sớm
- Chọn lựa đầu tiên: cắt lọc sớm từ 3-7 ngày sau bỏng, ghép da ngay

CẮT LỌC VÀ GHÉP DA SỚM (so với ghép da trì hoãn)

- Ưu điểm:
  - Giảm tỉ lệ tử vong
  - Giảm thời gian nằm viện
- Nhược điểm:
  - Tăng tình trạng rối loạn huyết động
  - Điều trị quá tay

- Không cải thiện:
  - Tỉ lệ nhiễm trùng
  - Thời gian mổ
  - Thời gian lành vết thương
  - Tỉ lệ sẹo phì đại
  - Cử động, cảm giác các ngón tay

limb tourniquets, significant blood loss continues to plague early tangential excision of the burn wound [5,6], especially between 2 and 16 days after burn [7]. The surgeon is struggling on two problems. First, fast termination of the surgery to prevent severe hemodynamic disturbance due to copious bleeding and second, accurate differentiation of deep burned areas in a severely bleeding environment to excise them and save the superficial parts. Deciding on which parts should be excised in a severely bleeding area in a very short time is a difficult job and may lead to over or under excision of burned tissues and unfortunately accuracy of depth estimation is sometimes sacrificed in favor of decreased operative time. And according to our investigations on burn registry data, the percentage of mean grafted area per mean burned area has increased significantly (32.35% in the EE&G era compared to 21.72% in the delayed grafting era) in the last few years which EE&G has become the standard method in our burn center and unfortunately this simply means increasing the severity of injury in a severely injured patient which seeks our help.

To overcome these unwanted catastrophic faults, we recommend:

1. Preoperative clinical and Laser Doppler (if available) assessment and marking of burned areas as superficial and suspicious zone (not to be excised) and deep zone (to be excised) by experienced senior burn surgeons rather than intra-operative hasty inaccurate decision. The suspicious area should never be excised. It should be followed and managed based on next few days findings.
2. Planning staged EE&G and limit each operative session to excise 20% TBSA as far as possible, for better concentration on accuracy rather than speed of operation, especially in the low experienced (EE&G) centers, despite adoption of all efforts at decreasing blood loss.
3. EE&G is not the only method of burn management and delayed grafting method is still worthy in many burn patients. Since the most important advantage of EE&G is decreasing mortality rate in extensive burns, it is rational for low experienced burn surgeons to be more conservative in less extensive burns with mostly partial thickness or unidentifiable burn depth to avoid harming the patient with over-excision of burned areas and also imposing more donor site deformity.

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Mảnh ghép từ trung bì lợn

- Thực hiện tại Viện Bỏng quốc gia từ 2007
- Che phủ tạm thời vết bỏng sâu từ độ 3 sau cắt lọc, tránh tình trạng nhiễm trùng, mất nước
- Tự bong sau 2-3 tuần

Stratagraft

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Phase I/II Clinical Evaluation of StrataGraft: A Consistent, Pathogen-Free Human Skin Substitute

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- Neonatal Immortalized Keratinocyte S (NIKS)
- Nghiên cứu giai đoạn I/II (15 BN, theo dõi 2 tuần)
- Nghiên cứu giai đoạn III (30 BN, theo dõi 12 tháng) STRATA2011
- Hiện tại nghiên cứu 70 BN, theo dõi 24 tháng, kết thúc 12/2019
- Đề tài ở người lớn >18 tuổi, bỏng độ IIb

ReCell

A Comparative Study of the ReCell® Device and Autologous Split-Thickness Meshed Skin Graft in the Treatment of Acute Burn Injuries

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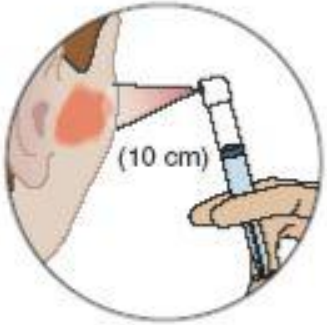
Early excision and autografting are standard care for deeper burns. However, donor sites are a source of significant morbidity. To address this, the ReCell® Autologous Cell Harvesting Device (ReCell) was designed for use at the point-of-care to prepare a noncultured, autologous skin cell suspension (ASCS) capable of epidermal regeneration using minimal donor skin. A prospective study was conducted to evaluate the clinical performance of ReCell vs meshed split-thickness skin grafts (STSG, Control) for the treatment of deep partial-thickness burns. Effectiveness measures were assessed to 1 year for both ASCS and Control treatment sites and donor sites, including the incidence of healing, scarring, and pain. At 4 weeks, 98% of the ASCS-treated sites were healed compared with 100% of the Controls. Pain and assessments of scarring at the treatment sites were reported to be similar between groups. Significant differences were observed between ReCell and Control donor sites. The mean ReCell donor area was approximately 40 times smaller than that of the Control ($P < .0001$), and after 1 week, significantly more ReCell donor sites were healed than Controls ($P = .04$). Over the first 16 weeks, patients reported significantly less pain at the ReCell donor sites compared with Controls ($P \leq .05$ at each time point). Long-term patients reported higher satisfaction with ReCell donor site outcomes compared with the Controls. This study provides evidence that the treatment of deep partial-thickness burns with ASCS results in comparable healing, with significantly reduced donor site size and pain and improved appearance relative to STSG. (J Burn Care Res 2018;39:694–702)

- Dùng enzym để phân tách các liên kết của các tế bào da, chất cố định
- Nghiên cứu trên 83 BN, theo dõi 12 tháng
- Đề tài ở người lớn, bỏng độ IIb

Step-1

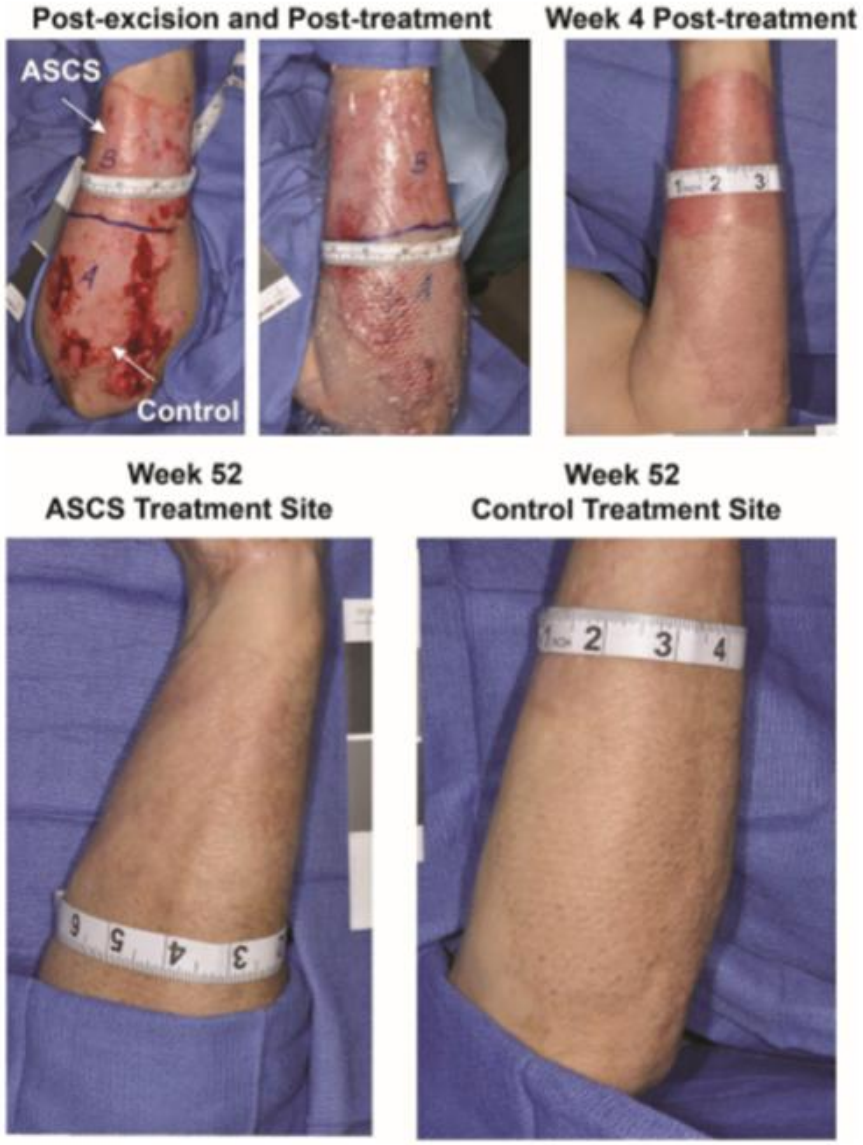
Step-2

Steps 3-5



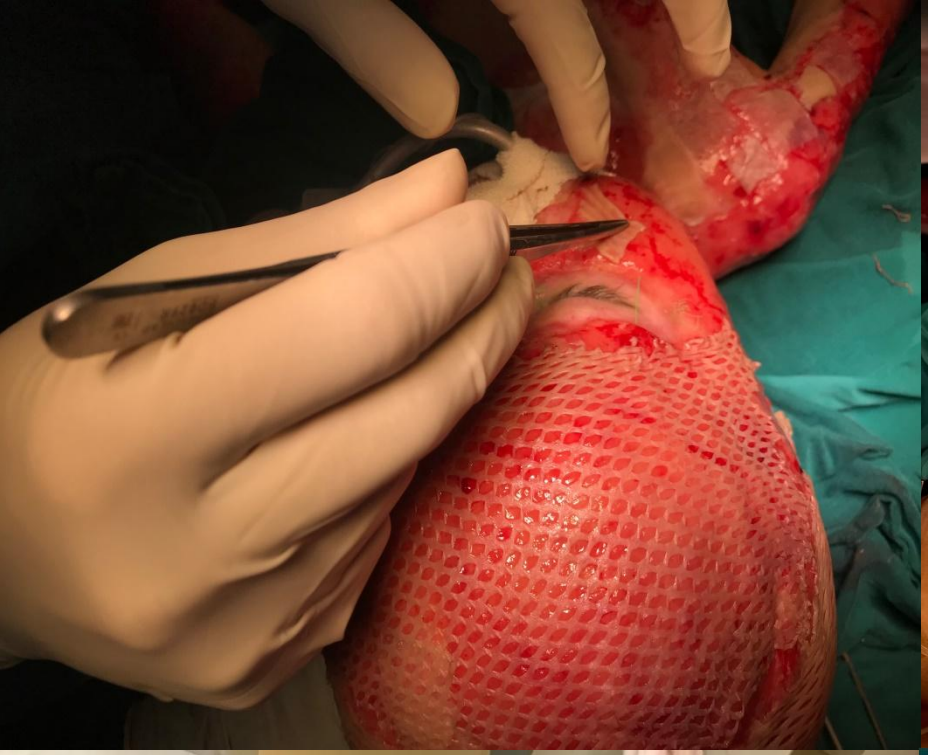
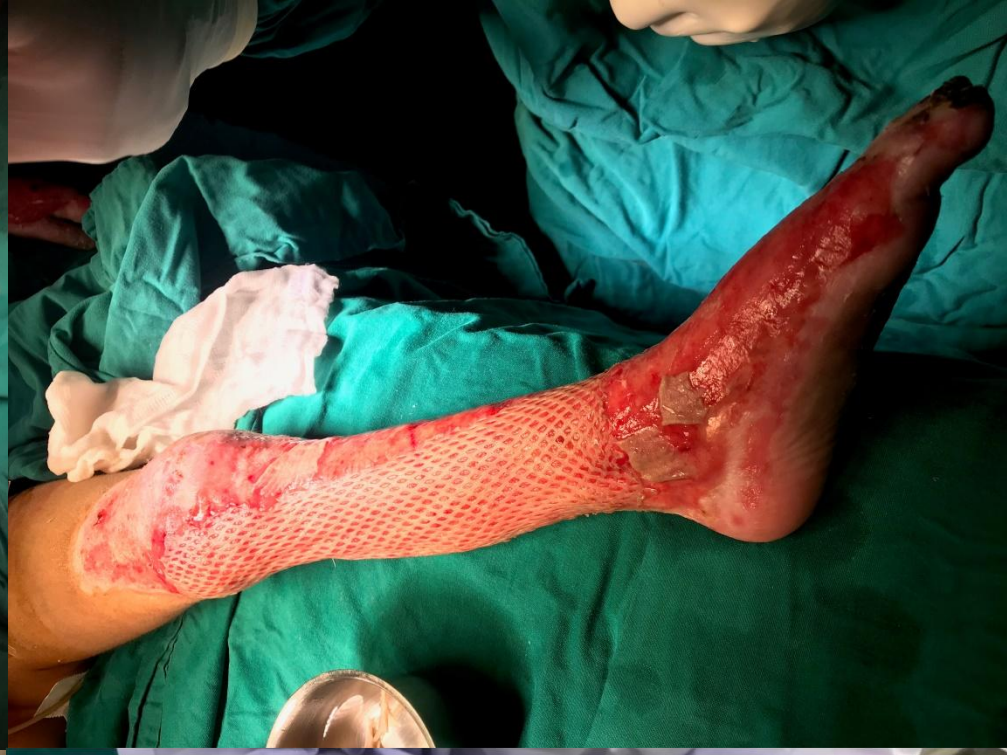
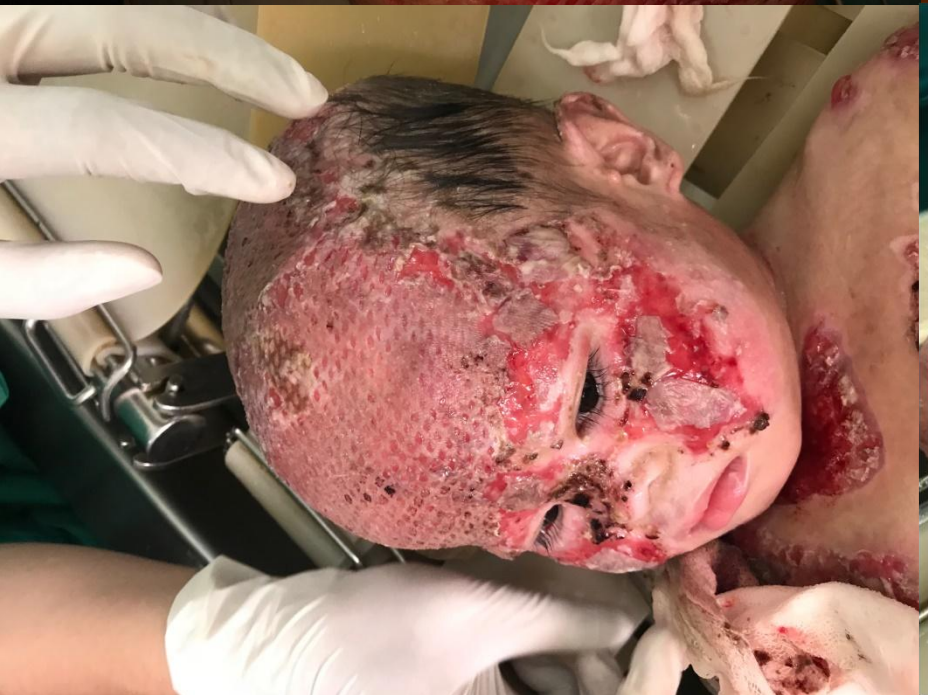
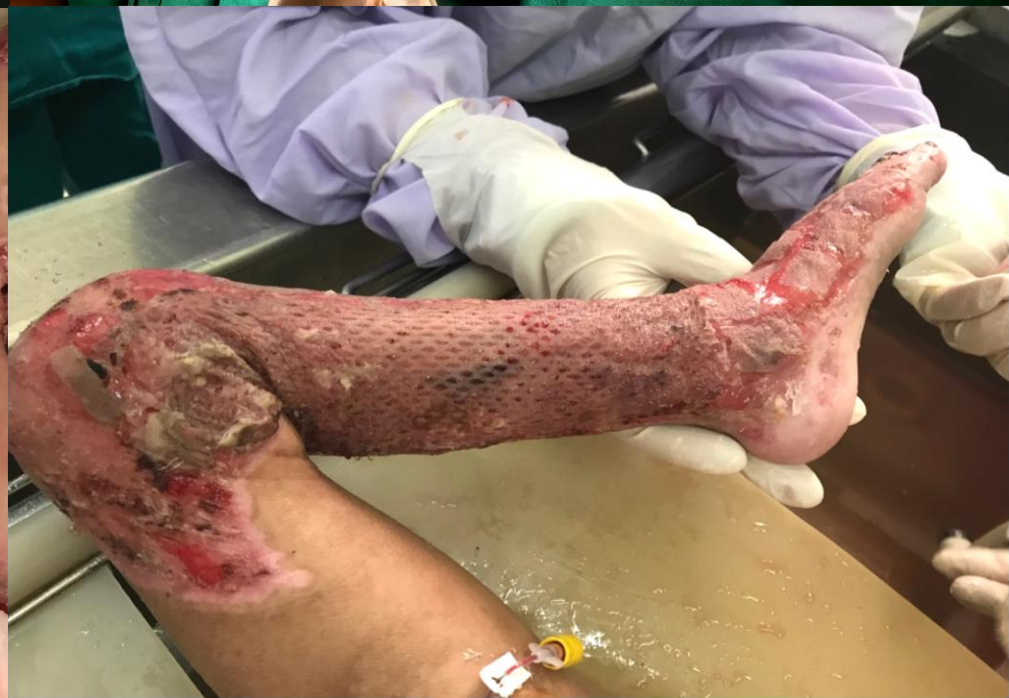
Step-6

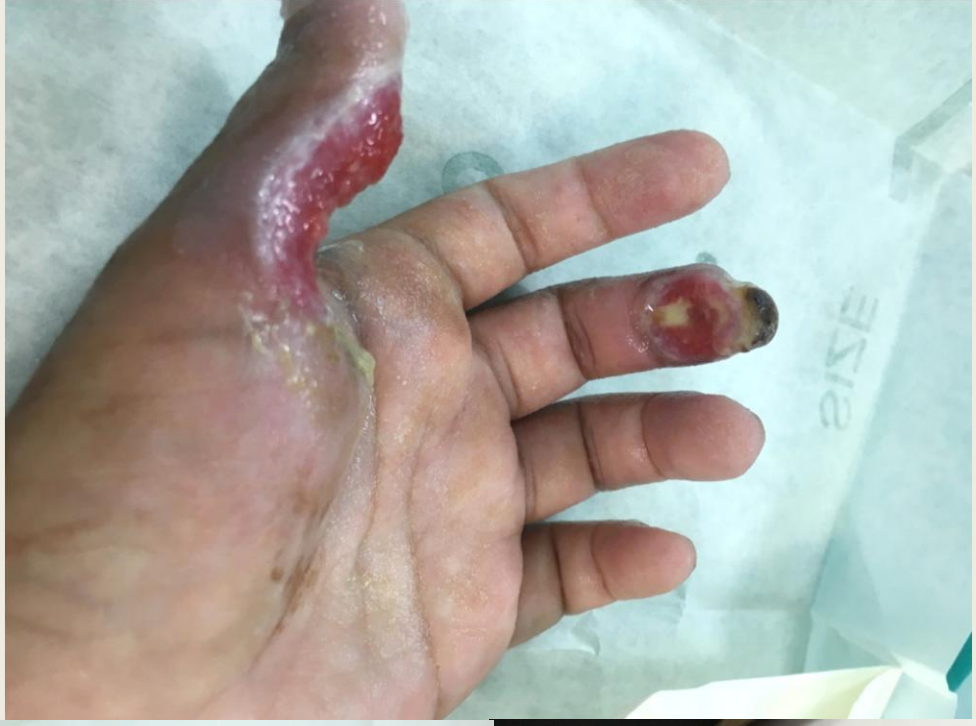
ReCell®

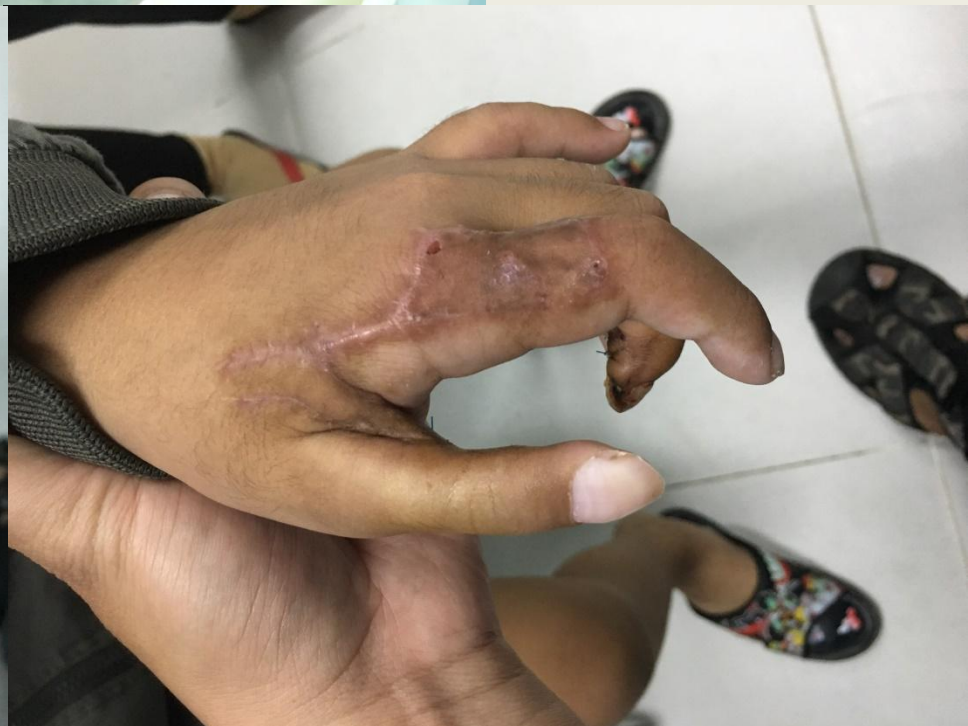

Post-excision and Post-treatment
Week 4 Post-treatment
ASCS
Control
Week 52
ASCS Treatment Site
Week 52
Control Treatment Site

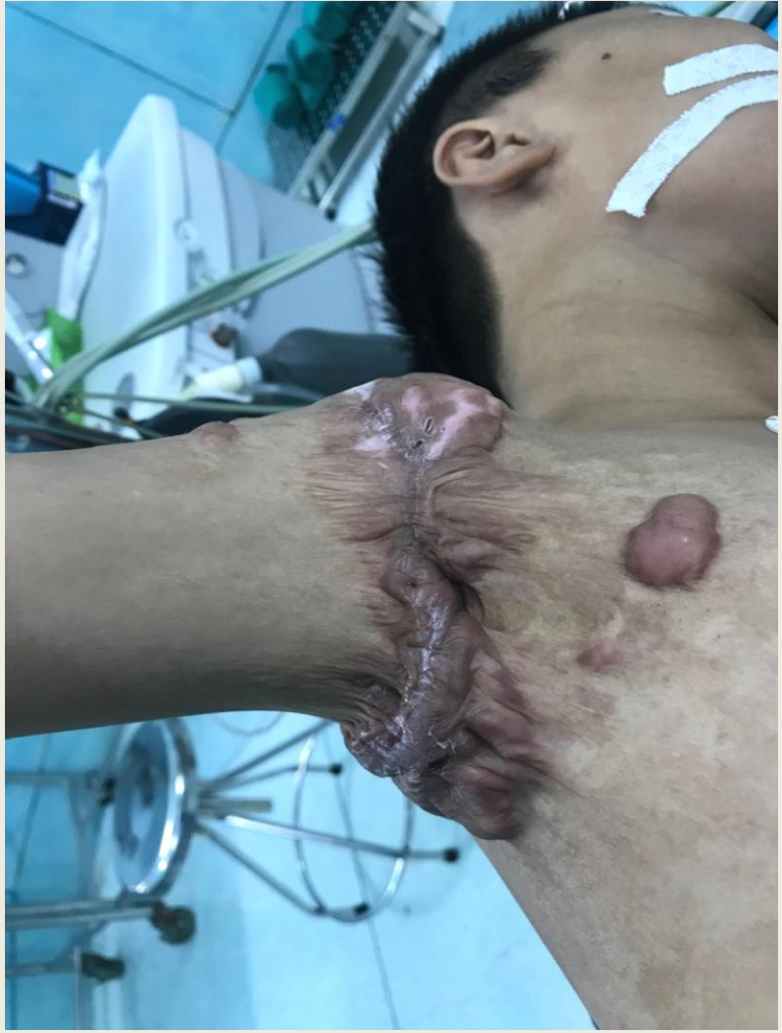
Tại bệnh viện Nhi Đồng 2

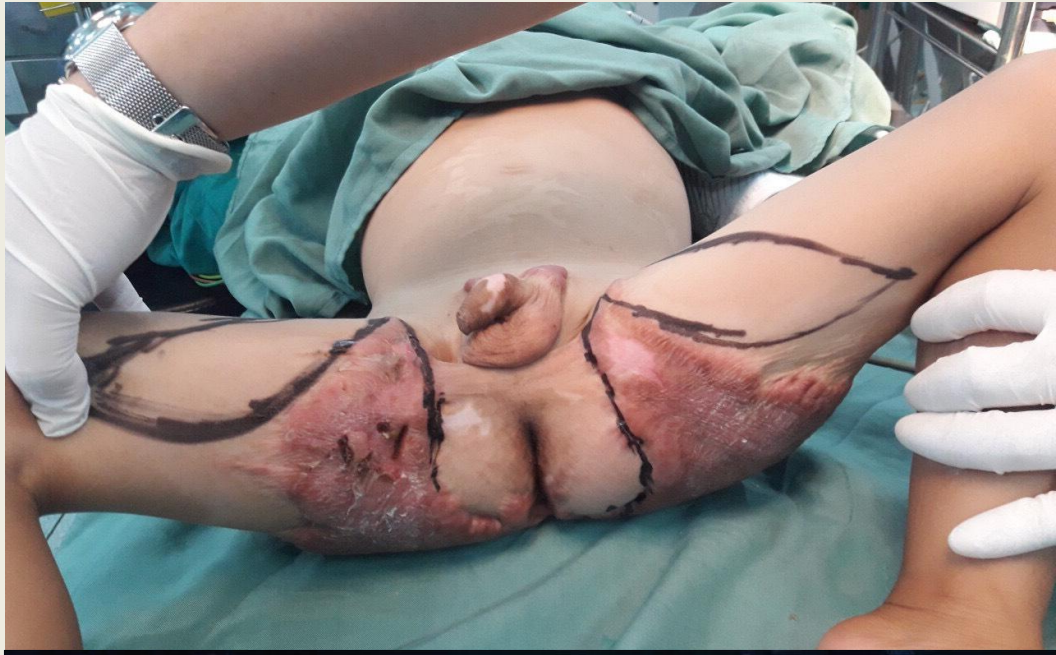
- Ghép da đồng loại từ cha BN, da ghép sống đến sau ghép 3 tuần
- Vạt da tự do sau bỏng điện cẳng bàn tay
- Vạt da diều bay sau bỏng điện ngón 1 bàn tay
- Vạt da chéo ngón sau bỏng điện các ngón tay
- Các vạt da xoay điều trị sẹo bỏng

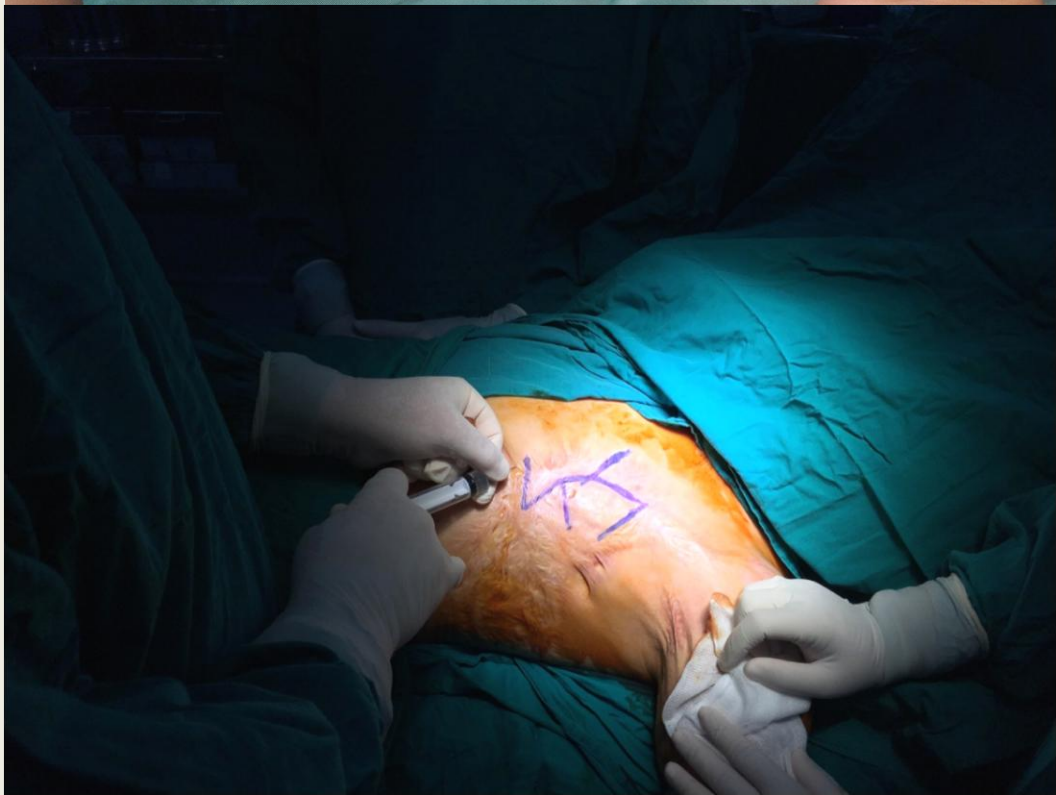















XIN CẢM ƠN