KRONIK YARA KAVRAMI

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KAVRAM

- Öngörülen sürede iyileşmeyen yaralar
  - 4 haftadan uzun, hiçbir iyileşme gözlenmeyen
  - 8-12 haftadan uzun sürede belirgin iyileşme saptanmayan yaralar

- 2020'de yaklaşık 32 milyar dolarlık bir yük

- Gelişmiş ülkelerde bile popülasyonun %1'I
  - Kuzey Amerika'da 6.5 milyon insan

KAVRAM

- Akut yara bazen kronikleşebilir ama
- Çoğu hastada altta yatan diğer hastalıklara bağlı

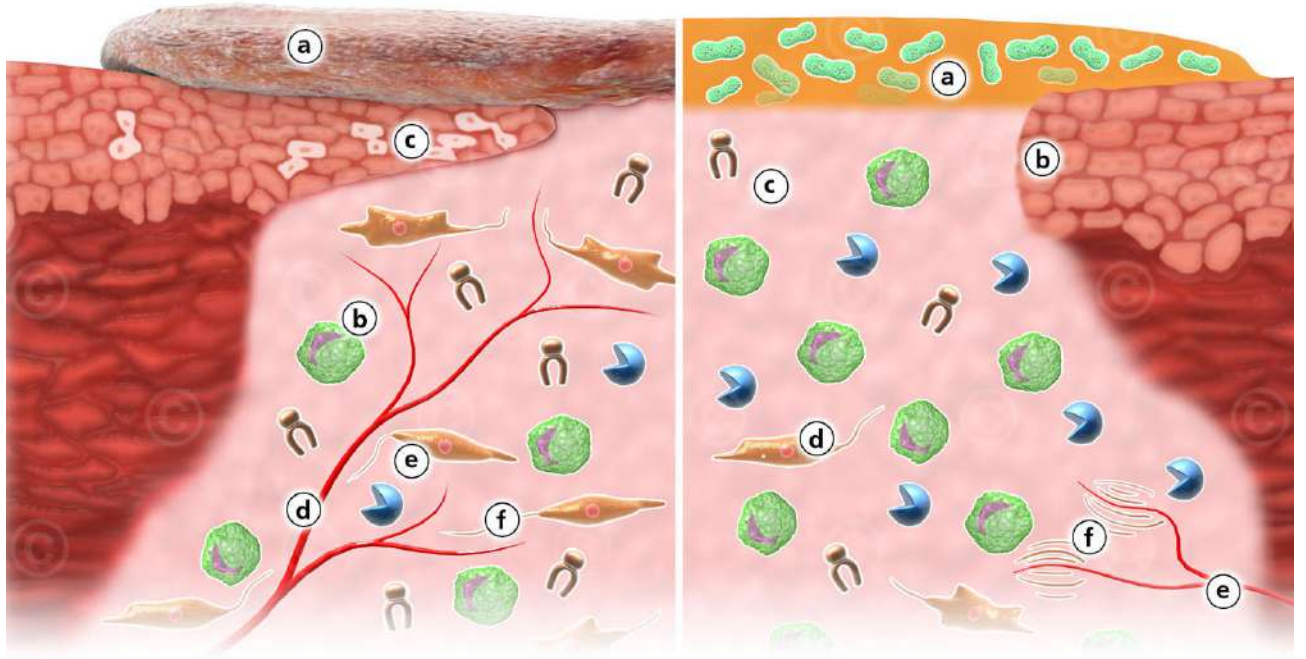
- Dört ana sınıf

  - Kronik hastalığa bağlı yara
  - Bası yarası
  - İyileşmeyen cerrahi yaralar
  - Cilt veya yumuşak doku tümorleri

PATOFİZYOLOJİ

- Hipoksi – <30 mmHg → %80 yara iyileşmesinde azalma
- Ödem – Kapillerler ve hücreler arasındaki uzaklığı arttırıyor
  - Oksijen diffüzyonu daha az
- Biyo-yük
  - Açık bir yara 48 saat içinde kontamine / kolonize olur
- Kronik inflamasyon
- İskemi-reperfüzyon
- Yaşlanma
- Malnutrisyon

- Çoğunlukla inflamatuvar fazda hapsolmuş
- Uzun süre iyileşmeyen yaralar
  - Duygusal
  - Fiziksel
  - Ekonomik yük



Normal healing process in acute wounds

Initial phase:
- a. Scab formation
- b. Immune cell Infiltration

Healing phase:
- c. Re-epithelialisation
- d. Angiogenesis
- e. Fibroblast migration
- f. Collagen deposition

Impaired healing process in chronic wounds

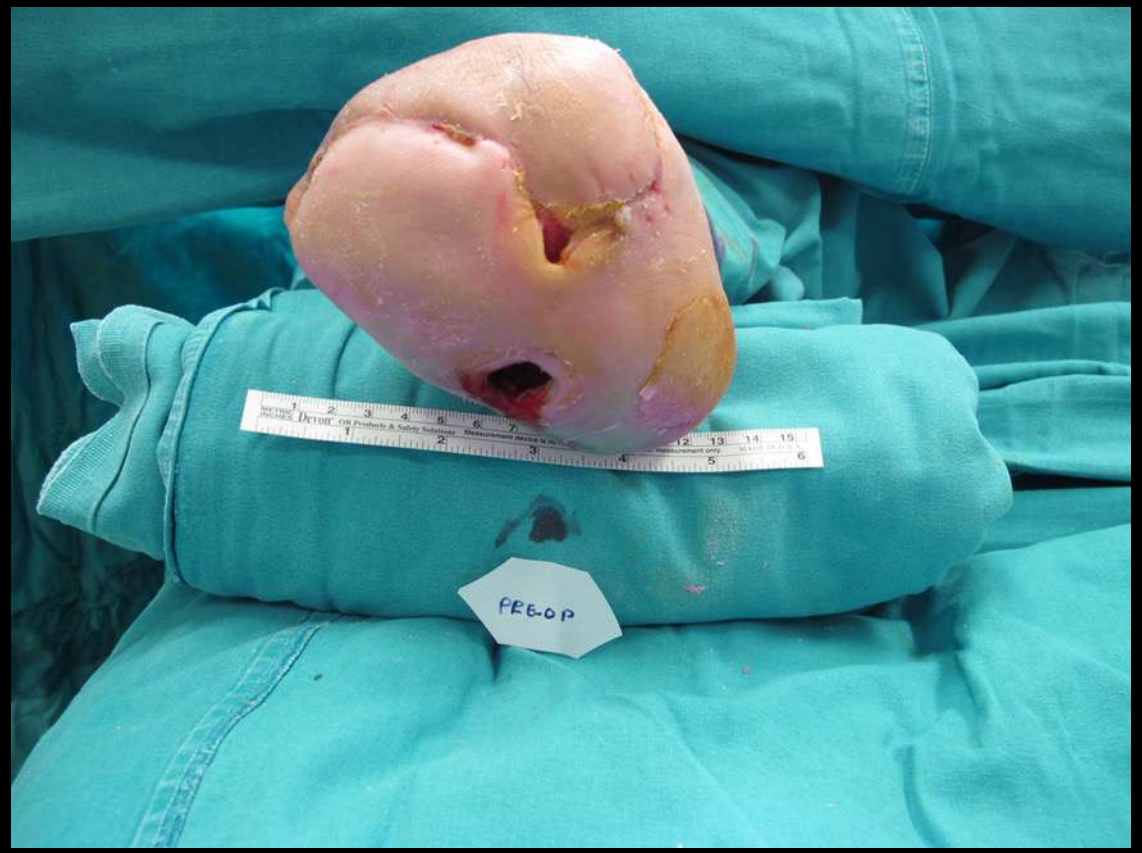
Chronic wound abnormalities
- a. Colonization, infection
- b. Hyperproliferative epidermis
- c. persistent inflammation, exudate
- d. Fibroblast senescence
- e. Impaired angiogenesis
- f. Fibrin cuffs (barrier to oxygen)
- g. Elevated MMPs

KLİNİK DEĞERLENDIRME

- Yara yatağı
  - Granülasyon
  - Epitelizasyon
  - Nekroz
- Yara ölçümü-boyutu
- Eksuda
- Enfeksiyon bulguları
- Yara kenarları

ETİOLOJİ

- Çoğunlukla:
  - Bası yaraları
  - Venöz ülserler
  - İskemik ülserler
  - Diyabetik yaralar
- Radyasyon hasarı
- Nöropati
- Vaskülitler
- İmmünsüpresyon



BASI YARALARI

- Kemik çıkıntılı alanlarda
  - makaslama nedeniyle perfüzyon azlığı
- Duyusuz alanlarda daha fazla
- İki saatte bir 15 dakikalık pozisyon değişikliği
- Cilt bakımı
- Uygun yara yönetimi

VENÖZ ÜLSERLER

- Medial mallelous ve tibial yüzde sık
  - Başarısız venöz valfler
- Nötrofil tuzaklanması
  - Endotele adhezyon
    - Ekstravazasyon
      - RBC → Demir birikimi
- Kompresyon bandajlama!

İSKEMIK ÜLSERLER

- Medial ayak bileğinde, uç kısımlarda sık
- Klaudikasyo
- Revaskülarizasyon işlemleri
- Uygun olmayan seviyelerden debridman yaranın yeniden iyileşmemesi ve nekrozuyla sonuçlanır

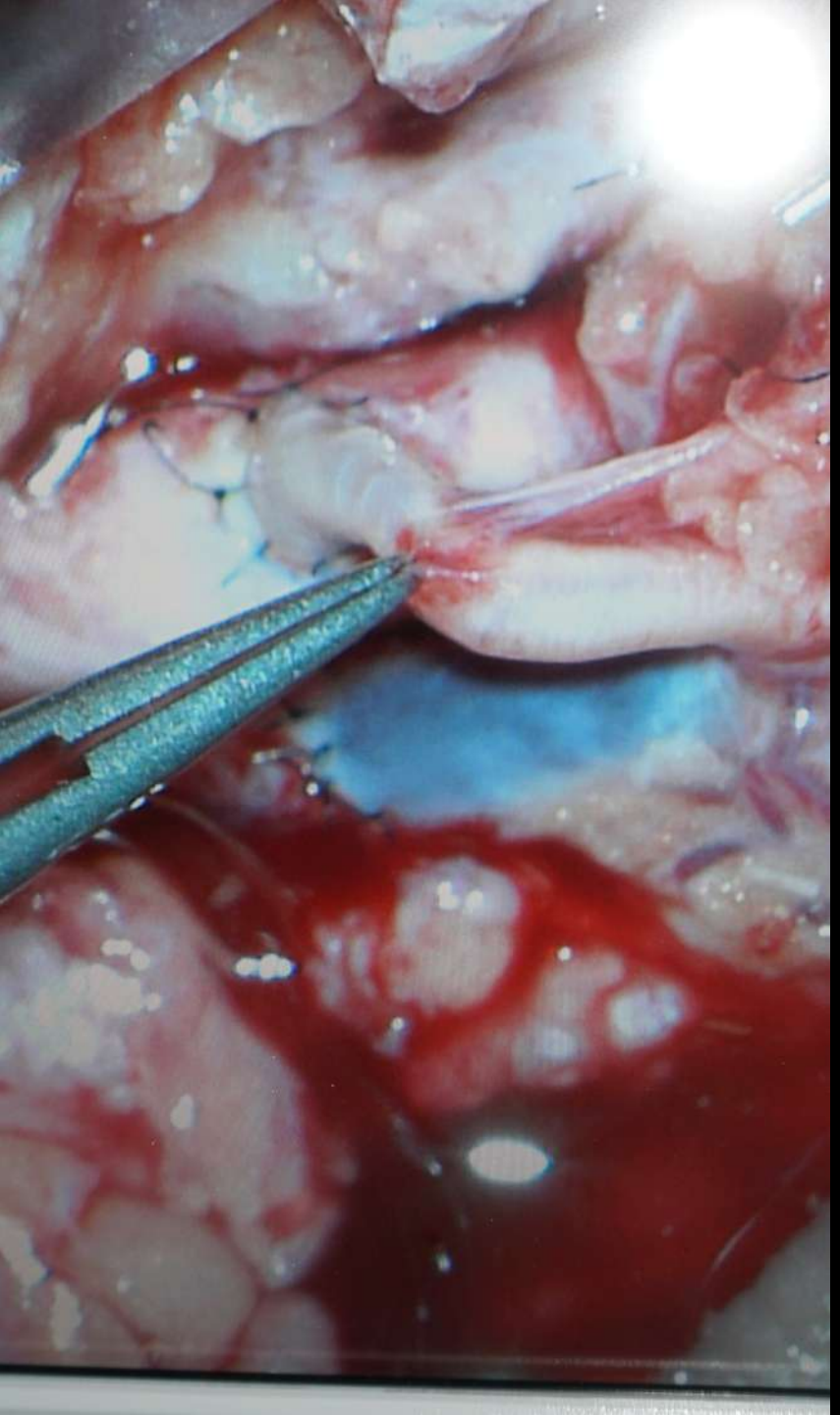
DIYABETIK YARALAR

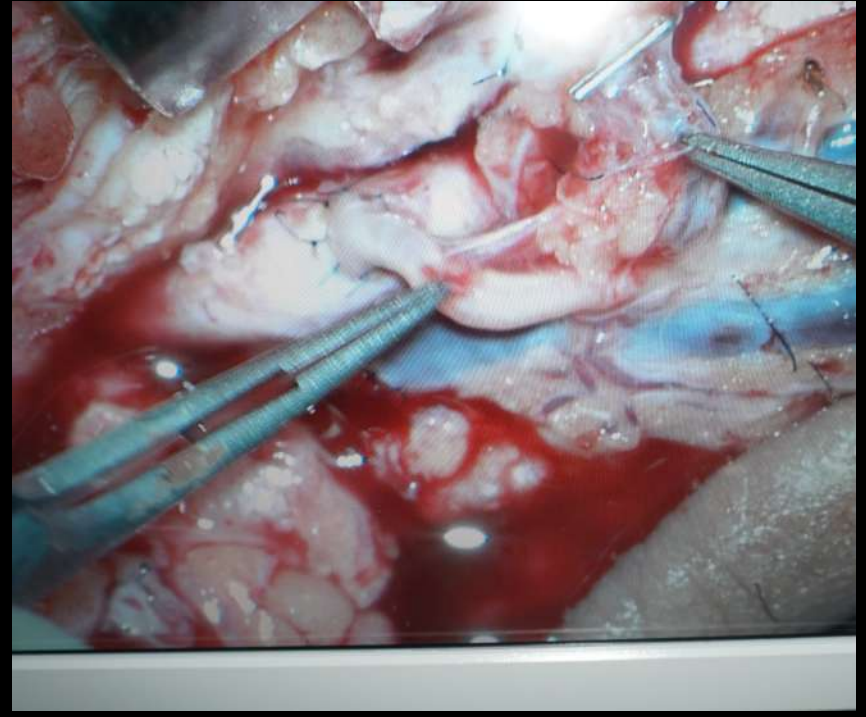
- Alt ekstremite, üst ekstremite
- Kronik yara için her faktör mevcut
  - İskemi
  - Nöropati
  - İmmünsüpresyon

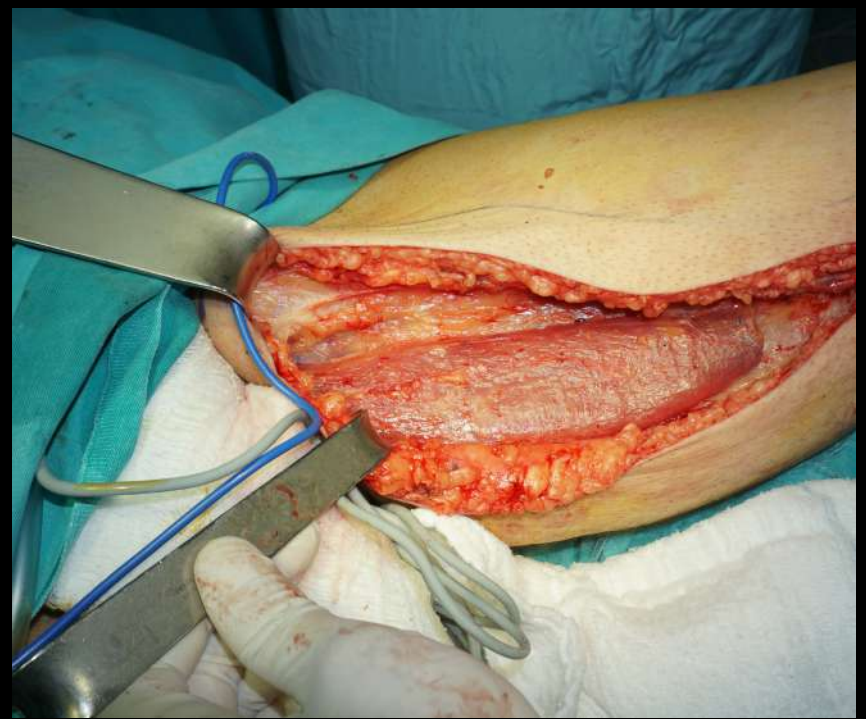
DİABETİK AYAK

- Periferik nabızlar palpasyon ile nonpalpable
- Vasküler görüntüleme ile ATA ve PTA'da distale kadar akım mevcut, non kritik seviyede multipl darlık
- Uç-yan anastomoz planıyla yük taşıyabilecek serbest doku transferi kararı

DEBRIDMAN







SERBEST GRACILIS FLEBI

- Uç yan anastomoz ile ayak dolaşımı bozulmadı

POSTOP 6. AY

- Hastanın aktif yük bindirmesine dayanabilen flep dokusu

CİLT / YUMUŞAK DOKU TÜMÖRLERİ

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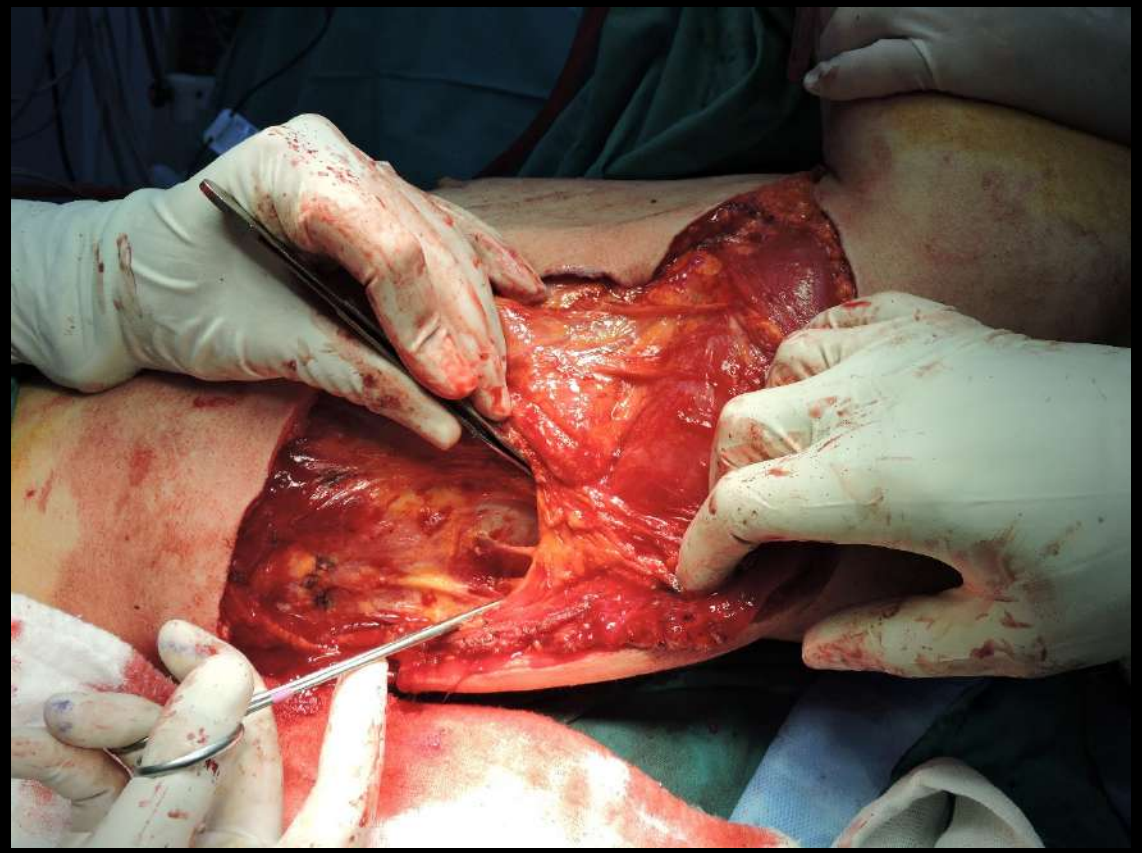

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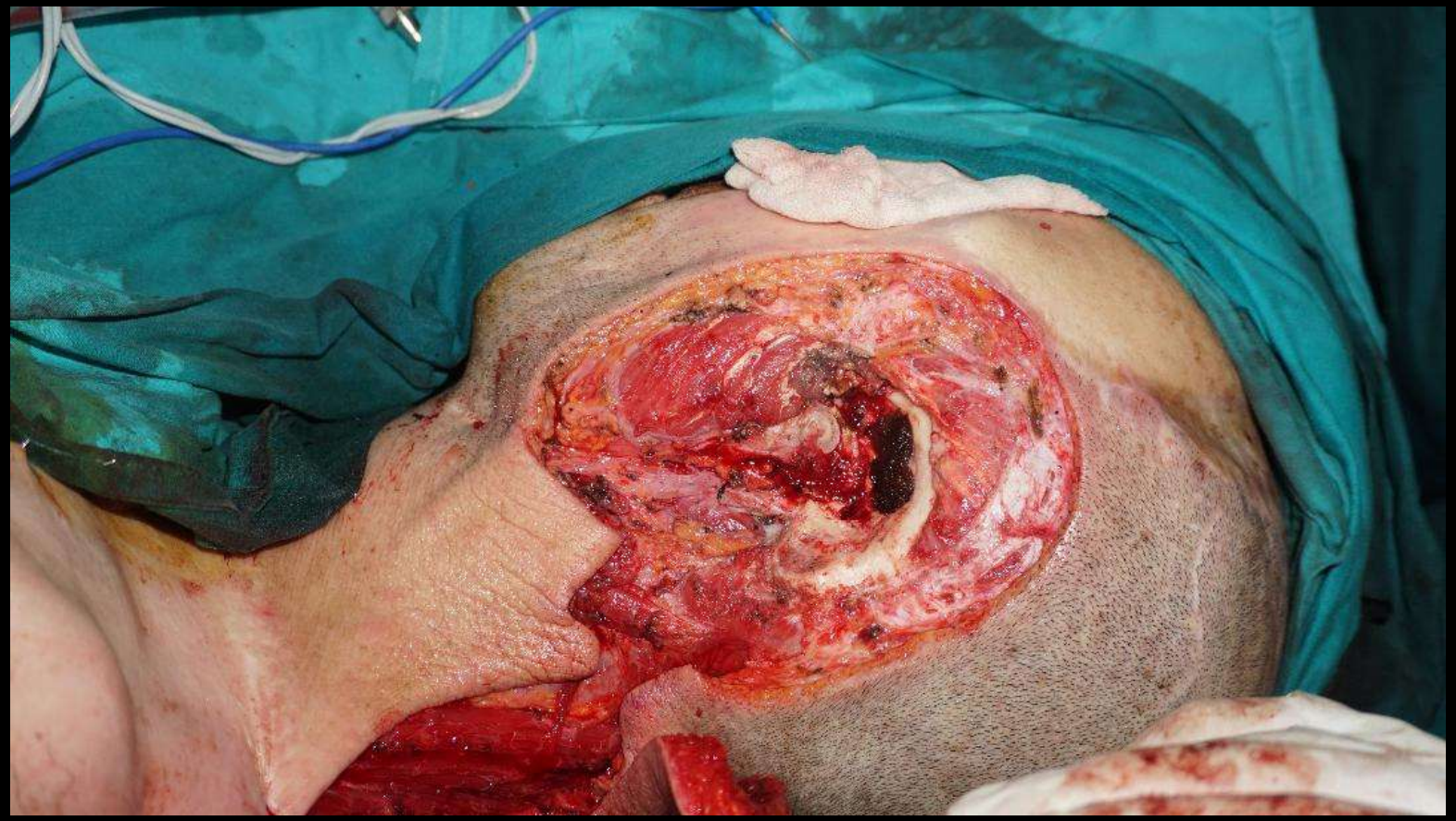


YARA BAKIMI

- Esas olan:
  - Metabolizma kontrolü
  - Altta yatan hastalık kontrolü
  - TIME
    - Tissue - Doku
    - Infection/Inflammation - Enfeksiyon kontrolü
    - Moisture - Nem
    - Edge/Epithelization - Yara kenarı

YARA YÖNETIMINDE T.I.M.E. KONSEPTI

- Doku yönetimi (Ölü dokuları uzaklaştır, canlı dokuları koru)
- Enfeksiyonu tedavi et
- Nem dengesini sağla
- Yara kenarlarını tedavi et

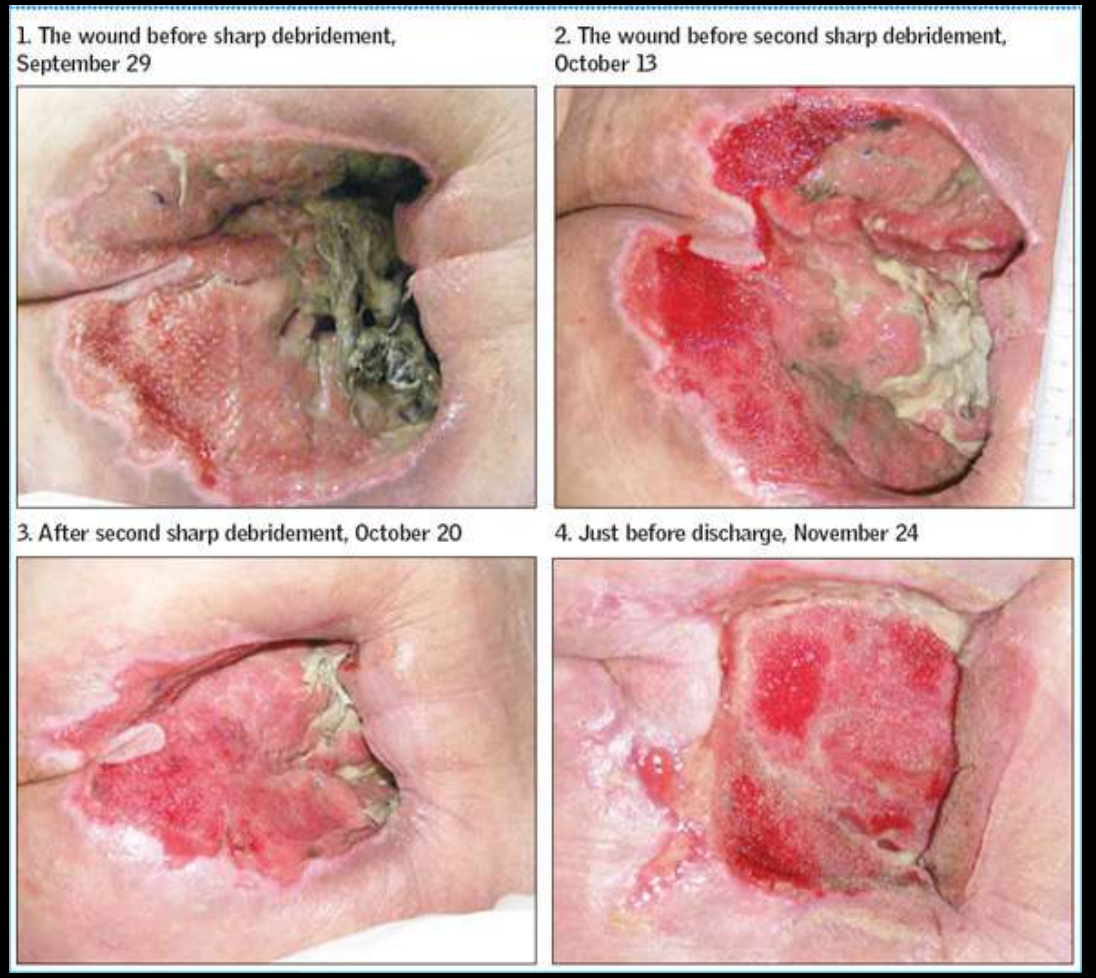
Table I
TIME – Principles of wound bed preparation

Clinical observations	Proposed pathophysiology	WBP clinical actions	Effect of WBP actions	Clinical outcome
Tissue non-viable or deficient	Defective matrix and cell debris impair healing	Debridement (episodic or continuous): »Autolytic, sharp surgical, enzymatic, mechanical or biological »Biological agents	Restoration of wound base and functional extracellular matrix proteins	Viable wound base
Infection or Inflammation	*High bacterial counts or prolonged inflammation* ↑Inflammatory cytokines ↑Protease activity ↓Growth factor activity	Remove infected foci *Topical/systemic:* »Antimicrobials »Anti-inflammatories »Protease inhibition	*Low bacterial counts or controlled inflammation:* ↓Inflammatory cytokines ↓Protease activity ↑Growth factor activity	Bacterial balance and reduced inflammation
Moisture imbalance	Desiccation slows epithelial cell migration	Apply moisture-balancing dressings	Restored epithelial cell migration, desiccation avoided	Moisture balance
	Excessive fluid causes maceration of wound margin	Compression, negative pressure or other methods of removing fluid	Oedema, excessive fluid controlled, maceration avoided	
Edge of wound — non-advancing or undermining	Non-migrating keratinocytes Non-responsive wound cells and abnormalities in extra-cellular matrix or abnormal protease activity	Re-assess cause or consider corrective therapies: »Debridement »Skin grafts »Biological agents »Adjunctive therapies	Migrating keratinocytes and responsive wound cells. Restoration of appropriate protease profile	Advancing edge of wound

DOKU YÖNETIMI

- Debridman (ölü dokuların uzaklaştırılması)

  - Cerrahi → Altın standart
  - Biyo-cerrahi (Larva)
  - Otolitik / Enzimatik
  - Hidrocerrahi
  - Ultrasonik



ENFEKSIYON TEDAVİSİ

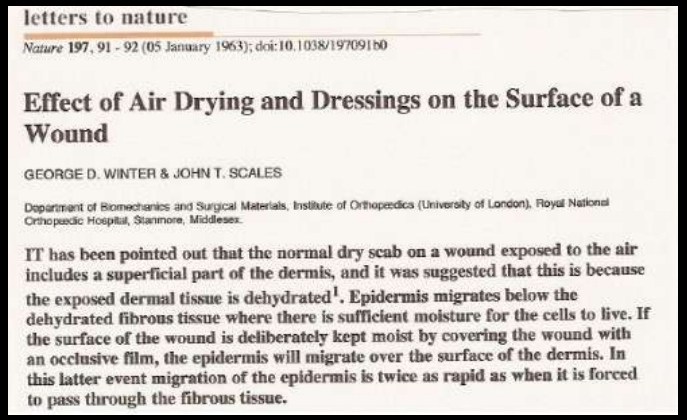
- Akut yaralar iyileşmediğinde ilk akla gelecek sorun
- Debridman - Yıkama - Yabancı cisim çıkarılması
- Derin doku kültürü
- Pseudomonas, Staph Aureus, B-hem Streptococcus
- Her kronik yarada mutlak antibiyoterapi endikasyonu yok

NEM DENGESİ

- Kuruyan yaralarda epidermal proliferasyon ve hareket için nemli ortam gerekir
- Süreç uzar
- Sekonder nekrozlar gelişir
- Yara iyileşmesi yavaşlar

NEM DENGESI

- Nemli emici pansumanın yara iyileşmesinin olumlu etkisine dair ilk bildiriler
- **Fizyolojik, kolay ve ucuz yara bakım yöntemi**



letters to nature

Nature **197**, 91 - 92 (05 January 1963); doi:10.1038/197091b0

Effect of Air Drying and Dressings on the Surface of a Wound

GEORGE D. WINTER & JOHN T. SCALES

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IT has been pointed out that the normal dry scab on a wound exposed to the air includes a superficial part of the dermis, and it was suggested that this is because the exposed dermal tissue is dehydrated[1]. Epidermis migrates below the dehydrated fibrous tissue where there is sufficient moisture for the cells to live. If the surface of the wound is deliberately kept moist by covering the wound with an occlusive film, the epidermis will migrate over the surface of the dermis. In this latter event migration of the epidermis is twice as rapid as when it is forced to pass through the fibrous tissue.

letters to nature

Nature **200**, 377 - 378 (26 October 1963); doi:10.1038/200377a0

Effect of Air Exposure and Occlusion on Experimental Human Skin Wounds

CAMERON D. HINMAN & HOWARD MAIBACH

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THE benefits of special dressings versus air exposure of cutaneous wounds has long been debated. Winter and Scales[1,2] have recently added fresh insight into the problem. In the domestic pig they demonstrated that an occlusive dressing doubles the rate of wound re-epithelization when compared with wounds exposed to the air. In this communication we report parallel studies performed in man.

NEM DENGESI

- Bir çok yara örtüsü mevcut
- Bölge, alan büyüklüğü
- Eksuda tipi
- Açık yarada ekspoze doku tipine göre

Table 3.1 Types of wound dressings available

Type	Actions/advantages	Indications/use	Precautions/contraindications
Alginates/CMC*	Absorb fluid Promote autolytic debridement Moisture control Adapt well to wound bed	Moderate- to high-exuding wounds Special rope or ribbon presentations for wounds with cavities Combined presentation with silver for antimicrobial activity	Do not use on dry/necrotic wounds Use with caution on friable tissue (may cause bleeding) Do not pack cavity wounds tightly
Foams	Absorb fluid Moisture control Adapt well to wound bed	Moderate- to high-exuding wounds Special rope or ribbon presentations for wounds with cavities Low-adherent versions available for patients with fragile skin Combined presentation with silver or polyhexa lene biguanide (P antimicrobial acti	Do not use on dry/necrotic wounds or those with minimal exudate
Honey	Rehydrate wound bed Promote autolytic debridement Antimicrobial action	Sloughy wounds w moderate exudate Critically colonize ed wounds	
Hydrocolloids	Absorb fluid Promote autolytic debridement	Clean wounds wit moderate exudate Combined present with silver for anti activity	
Hydrogels	Rehydrate wound bed Moisture control Promote autolytic debridement Cooling	Dry wounds or tho to moderate exuda Combined present silver for antimicro	
Iodine	Antimicrobial action	Critically colonize ed wounds Wounds with low exudate	
Low-adherent wound contact layer (silicone)	Protect new tissue growth Atraumatic to periwound skin Adapts well to anatomical contours	Wounds with low exudate Used as contact la superficial wounds exudate	

Table 3.1 Types of wound dressings available *(Continued)*

Type	Actions/advantages	Indications/use	Precautions/contraindications
PHMB	Antimicrobial actions	Wounds with low to high exudate Critically colonized or infected wounds May require secondary dressing	Do not use on dry/necrotic wounds Known sensitivity
Odor control (activated charcoal)	Odor absorption	Malodorous wounds (due to excess exudate) May require antimicrobial if due to increased bioburden	Do not use on dry wounds
Protease modulating	Active or passive control of wound's protease levels	Clean wounds that are not progressing despite correction of underlying causes, exclusion of infection, and optimal wound care	Do not use on dry wounds or those with leathery eschar
Silver	Antimicrobial action	Critically colonized or infected wounds Wounds with low to high exudate Combined presentation with foam and alginates/CMC for increased absorbance Also in paste form	Some may cause discoloration Known sensitivity Discontinue after 2 weeks if no improvement and reevaluate
Polyurethane film	Moisture control Breathable bacterial barrier Transparent	Primary dressing over superficial low-exuding wounds Secondary dressing over alginate or hydrogel for rehydration of wound bed	Do not use on patients with fragile/ compromised periwound skin Do not use on moderate- to high-exuding wounds

* Wound dressings may contain alginates or CMC only; alginates may also be combined with CMC.
Abbreviation: CMC, carboxymethyl cellulose.
Source: Data from International Best Practice Guidelines: Wound Management in Diabetic Foot Ulcers. London: Wounds International; 2013.

YARA KENARLARININ TEDAVİSİ

- Epitel migrasyonunu engelleyen nekroz, kallus gibi dokuların debridmanı
- İlerlemesi durmuş yaralarda inflamasyonun tetiklenmesi
- Yara kenarları ve merkezi arasındaki yükseklik farkını azaltmak

YARA KENARLARININ TEDAVİSİ

- Sınıflanamayan veya zor vakalar
- Belirgin komorbidite (DM, LUPUS,…)
- Hücre tedavileri (adipoz, kemik iliği)
- Rekombinan büyüme faktörleri

TEŞEKKÜRLER

- Dr. Can Ege Yalçın
- Dr. Servet Yekta Aydın