

Pr Thomas NERI
MD, PhD

Inter-university Laboratory of Human
Movement Science, EA 7424, Univ
Lyon

Sport and Arthritis University center

University hospital of Saint-Etienne,
Saint Etienne, France



Skin issues of fracture around the knee





WHY TALK ABOUT SKIN ISSUES ?

Because the organising team asked me ???

WHY TALK ABOUT SKIN ISSUES ?

Because it's happen





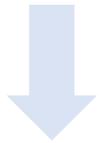
WHY TALK ABOUT SKIN ISSUES ?

Knee joint



superficial joint

Large & distal joint



Issues

- Bone coverage
- Risk of open fracture
- Risk of infection ++++

Issues

- swelling
- Risk of oedemia
- Some vascularisation issues (diabetic patient)

LOCALISATION

- Proximal tibia (medial side)
- (less distal femur)
- patella





GENERAL PREVENTION

- diabetes control
- vascular status control
 - US doppler
 - angio CT scan
- Stop smoking



LOCAL PREVENTION

- Elevate leg
- Ice
- Control skin every day before surgery
- Negative pressure wound therapy for surgical wounds healing



Negative pressure wound therapy for surgical wounds healing

Negative pressure wound therapy for surgical wounds healing by primary closure

Monitoring Editor: Cochrane Wounds Group, [Gill Norman](#), [Chunhu Shi](#), [En Lin Goh](#), [Elizabeth MA Murphy](#), [Adam Reid](#), [Laura Chiverton](#), [Monica Stankiewicz](#), and [Jo C Dumville](#)

[Clin Orthop Relat Res.](#) 2015 May; 473(5): 1802–1811.

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PMID: [25595096](https://pubmed.ncbi.nlm.nih.gov/25595096/)

Negative Pressure Wound Therapy in Grade IIIB Tibial Fractures: Fewer Infections and Fewer Flap Procedures?

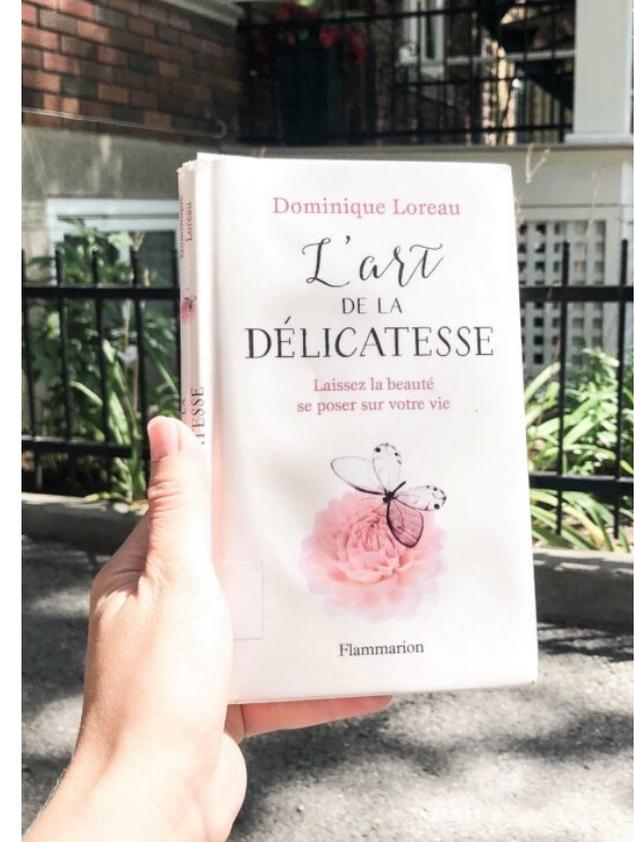
[Daniel R. Schlatterer](#), DO, MS, [Adam G. Hirschfeld](#), MD, and [Lawrence X. Webb](#), MD

There is an increasing body of data supporting negative pressure wound therapy as an adjunctive modality at all stages of treatment for Grade IIIB tibia fractures. There is an association between **decreased infection rates** with negative pressure wound therapy compared with gauze dressings. There is evidence to support negative pressure wound therapy beyond **72 hours** without increased infection rates and to support a reduction in flap rates with negative pressure wound therapy. However, negative pressure wound therapy use for Grade IIIB tibia fractures requires extensive additional study.



GENERAL SURGICAL RULES

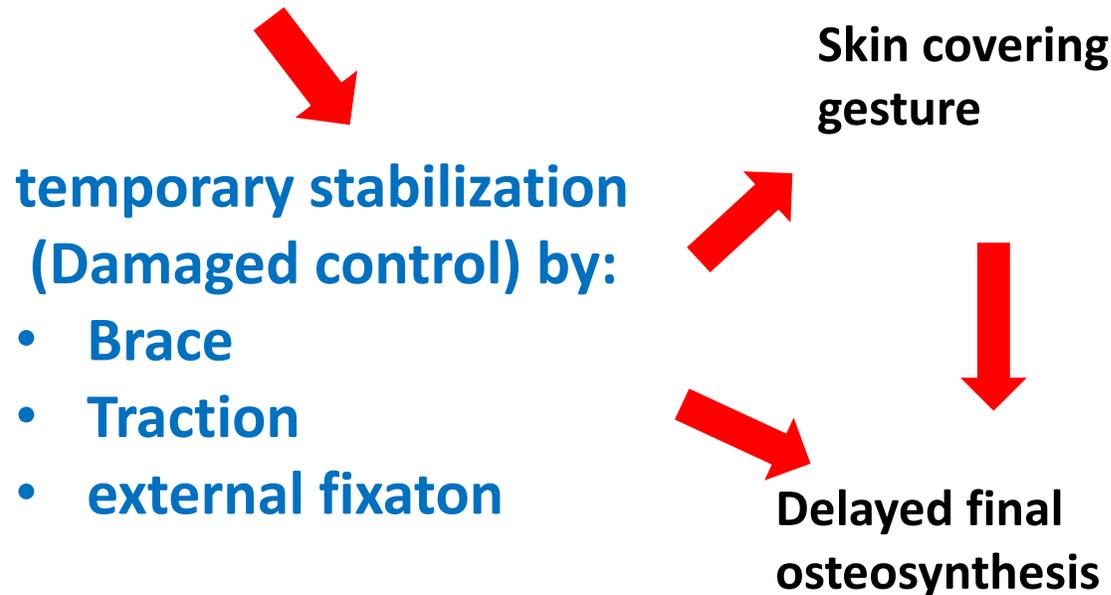
- be delicate and cautious+++
- Skin is your friend: don't be aggressive
- Less than 7h OR more than 7 days
- Avoid tourniquet
- Good setting in theatre





GENERAL SURGICAL RULES

- Pre-existing or dystrophic skin lesions
- Skin lesions with evolutionary potential
- Polyfractured
- Traumatic condition :Cauchoux ≥ 2 (widely open)





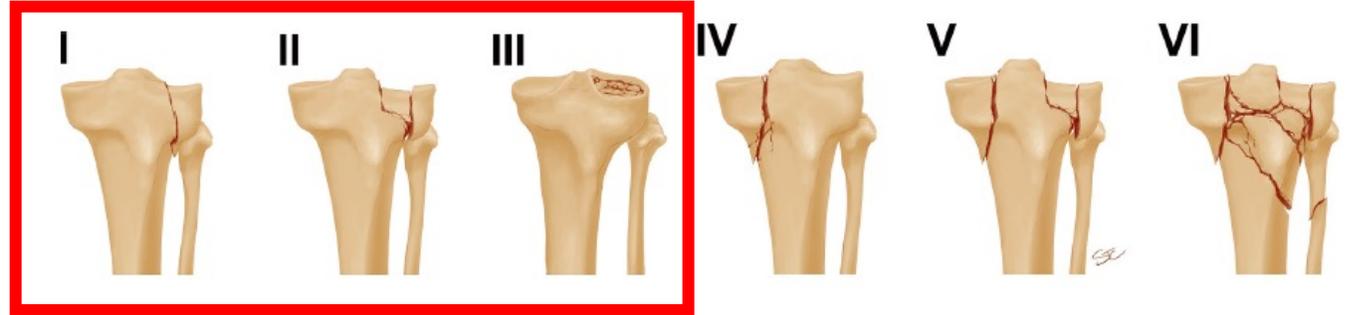
Proximal tibia



Patella



EASY FRACTURE WITH LATERAL PLATEAU DEPRESSION OR CLEAVAGE



FEW RISKS of skin issue

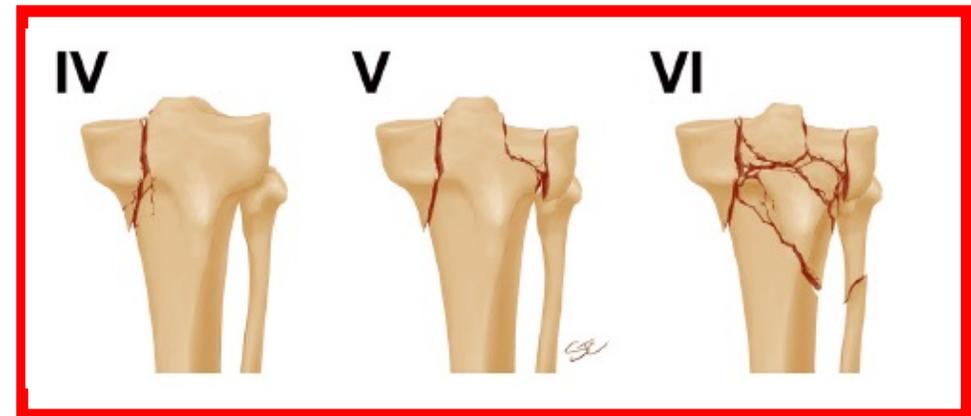
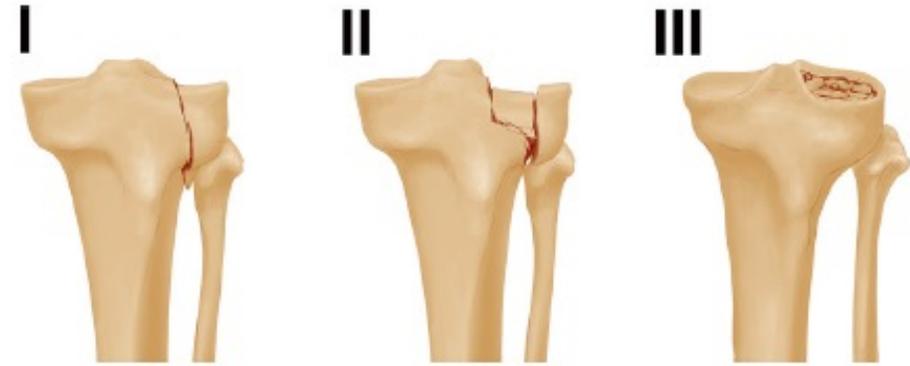
Closed reduction + percutaneous reduction
arthroscopic control
if possible

Medial side ++++
HIGHER RISK

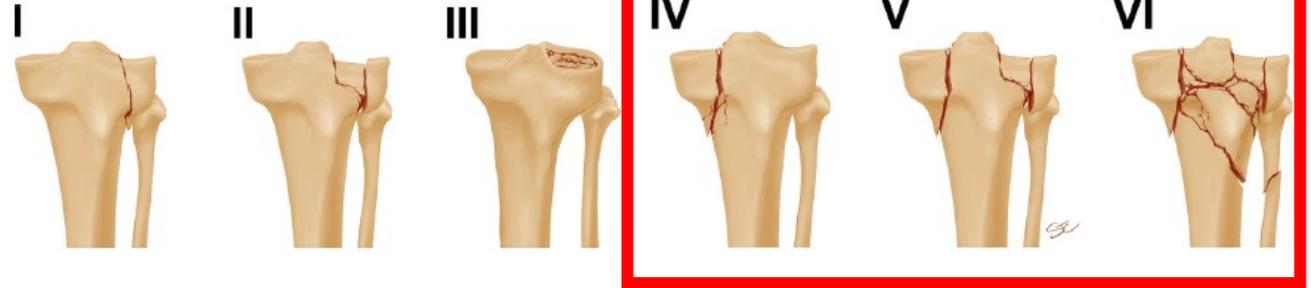
Type IV Medial tibial plateau fracture

Type V Bicondylar fracture

Type VI Extension of the fracture line to the diaphysis

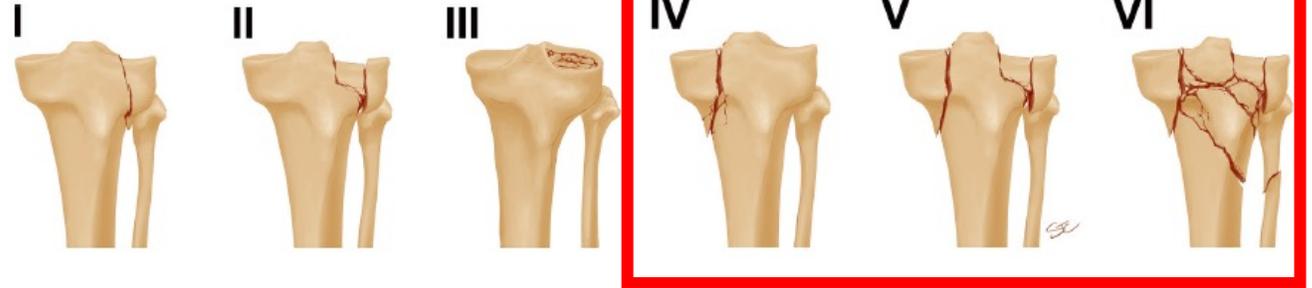


FRACTURE OF MEDIAL +/- LATERAL PLATEAU



MEDIAL FRACTURE
posterior > anterior

FRACTURE OF MEDIAL +/- LATERAL PLATEAU



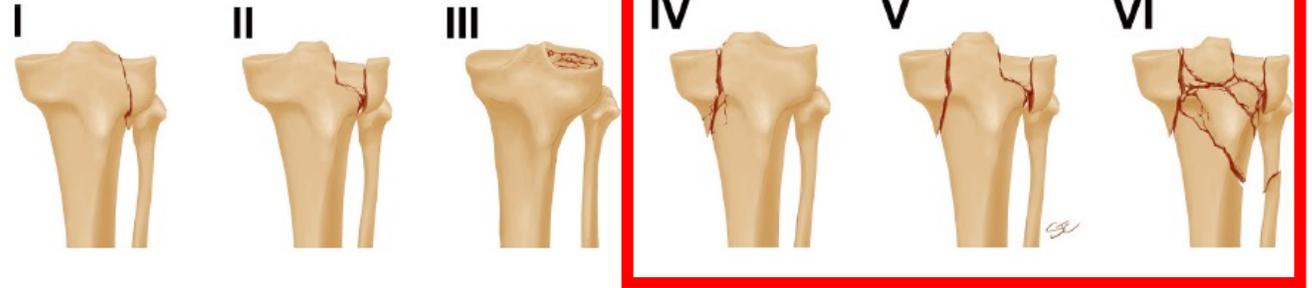
Double approach

- Postero-medial for medial side
- Antero-lateral approach

Large bridge of skin between approaches



FRACTURE OF MEDIAL +/- LATERAL PATEAU



Double approach:

ADVANTAGES

- Better for bone reduction and stability
- 2 small approach > 1 large medial incision

Better to avoid skin issue





Proximal tibia



Patella



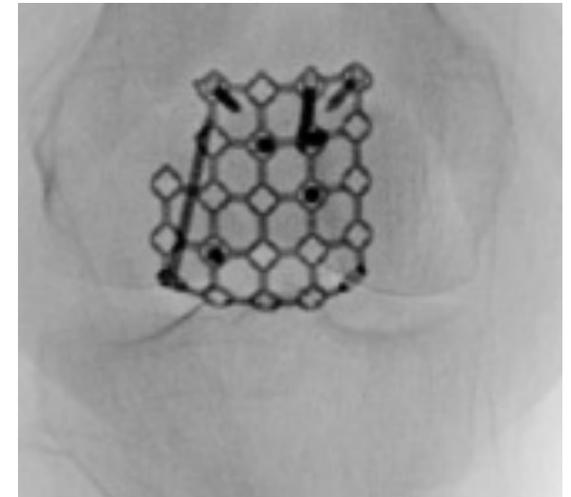
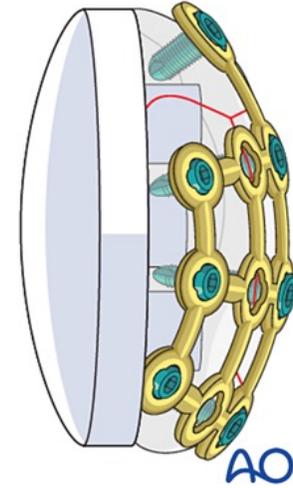
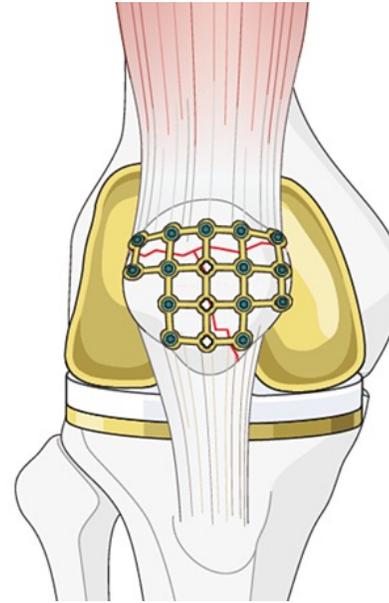
REDUCTION

- use the periosteum
- pulled and sutured
- close the package



FIXATION

Be cautious with plate



If the Skin issue happens



Remove the necrosis
Avoid to be large and to deep
bacteriological sampling
wound washout+++
+/- knee joint

Use negative pression therapy



If the Skin issue happens



AFTER:

- Good evolution
- Free skin graft
- gastrocnemius flap
- Free flap graft



CONCLUSION – TAKE HOME MESSAGE



- Knee= **Superficial** & **distal** joint
- **Prevention**: vascular status, diabetes, smoking
- General rules: avoid tourniquet, **<7h OR >7 days**
- Tibia:
 - **medial** side +++ schatzker IV, V, VI
 - if double approach: **Postero-medial** and Antero-lateral
- patella:
 - **periostum** & retinaculum
 - be cautious with plate



Thank you for your attention

