

SOLVING PROBLEMS IN LOWER LEG SALVAGE & RECONSTRUCTION

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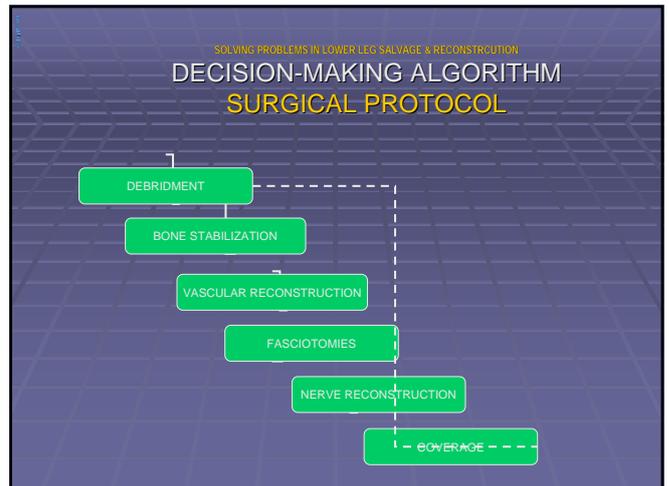
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Purpose: Severe trauma with complex soft tissues involvement should be treated according to a simple but effective decision-making algorithm – clinical assessment, shock treatment, surgical excision, bone stabilization, reconstruction of the vascular axis, nerve reconstruction and appropriate coverage. The time available for correct and safe coverage for limb salvage spans from a few hours to several days, depending on case complexity. Failure to do so leads to severe consequences. *Method and material:* We evaluated 48 cases. While the bone stabilization and vascular axis reconstruction was performed upon arrival (up to 6 hours from accident), wound closure and coverage was performed delayed primary (< 7 days). We used the following free flaps (20): latissimus dorsi (10), gracilis (2), and greater omentum (8). As local flaps (28) we used: soleus (6), gastrocnemius (16) and sural (6). The follow up period is 1-13 years. *Results:* We had two free flap failures ended with below knee amputation. All other patients had a favorable evolution, preserving the extremity with good functional outcome. After 3-6 month they all resumed ambulation with walking aids. After 6-9 month they resumed normal ambulation. We were not able to find any connection between the reconstruction method and the functional outcome. On the other side, we found strong connection between the period of time from the accident to the final coverage and the final result. The longer this period is, less favorable results should be expected. *Conclusion:* The key points in lower leg reconstruction are multidisciplinary team approach, adequate surgical excision, and early good quality coverage. The traditional reconstruction ladder is always valid. However, we cannot say that free flaps lead to better results than local flaps. The complexity of the reconstructive method should be adapted to the complexity of the trauma and to the volumetric aspect of the defect. One should not neglect the factors induced by the infrastructure.

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SOLVING PROBLEMS IN LOWER LEG SALVAGE & RECONSTRUCTION DECISION-MAKING ALGORITHM SURGICAL PROTOCOL

1. General evaluation
2. Reanimation
3. History
4. Physical examination
5. Dressing
6. Immobilization
7. X-ray examination



SOLVING PROBLEMS IN LOWER LEG SALVAGE & RECONSTRUCTION DECISION-MAKING ALGORITHM SURGICAL PROTOCOL

1. **DEBRIDMENT**
 - Tourniquet - bloodless field
 - Irrigation
 - Wide excision
 - Dead space eliminated
 - Foreign bodies removed
 - Dead tissue (including bone) removed
 - Tissue perfusion reevaluated

Decision
- amputation vs reconstruction

SOLVING PROBLEMS IN LOWER LEG SALVAGE & RECONSTRUCTION DECISION-MAKING ALGORITHM SURGICAL PROTOCOL

1. Debridment
2. **BONE STABILIZATION**

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DECISION-MAKING ALGORITHM SURGICAL PROTOCOL

1. Debridment
2. Bone stabilization
3. **VASCULAR RECONSTRUCTION**
 - venous grafts
 - arterial grafts
 - flow-through flaps

SOLVING PROBLEMS IN LOWER LEG SALVAGE & RECONSTRUCTION

DECISION-MAKING ALGORITHM SURGICAL PROTOCOL

1. Debridment
2. Bone stabilization
3. Vascular reconstruction
4. **FASCIOTOMIES**

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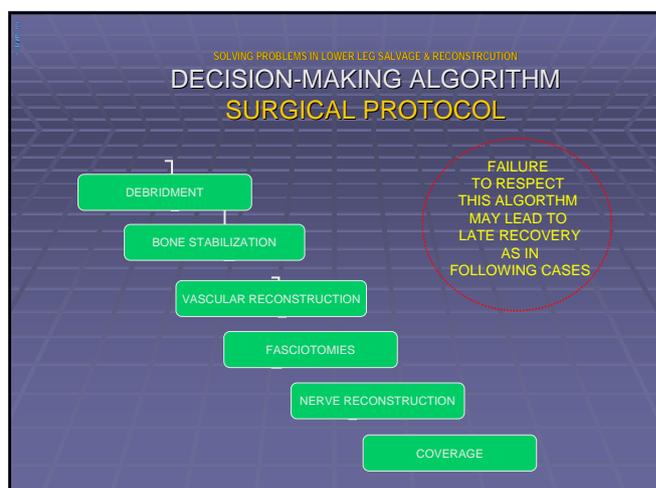
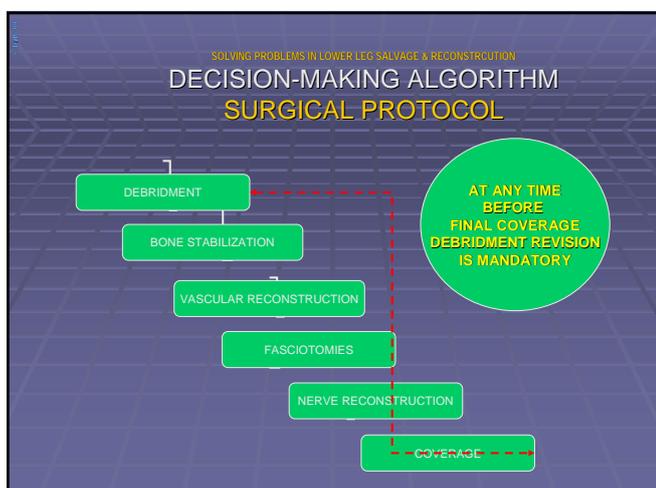
DECISION-MAKING ALGORITHM SURGICAL PROTOCOL

1. Debridment
2. Bone stabilization
3. Vascular reconstruction
4. Fasciotomies
5. **NERVE RECONSTRUCTION**
 - neurorraphy
 - nerve ends fixation
 - nerve grafts

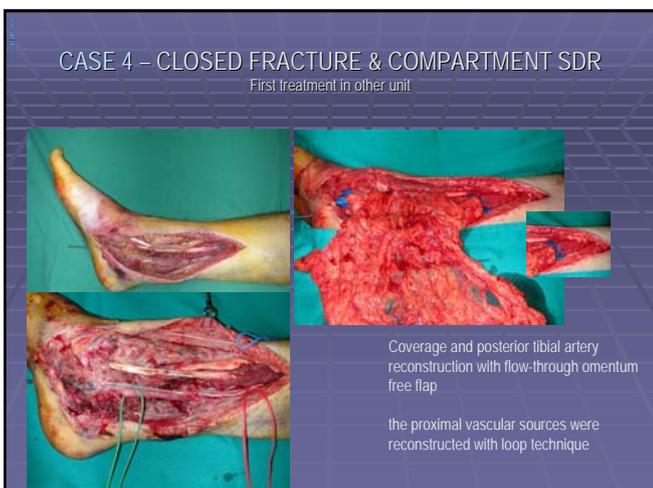
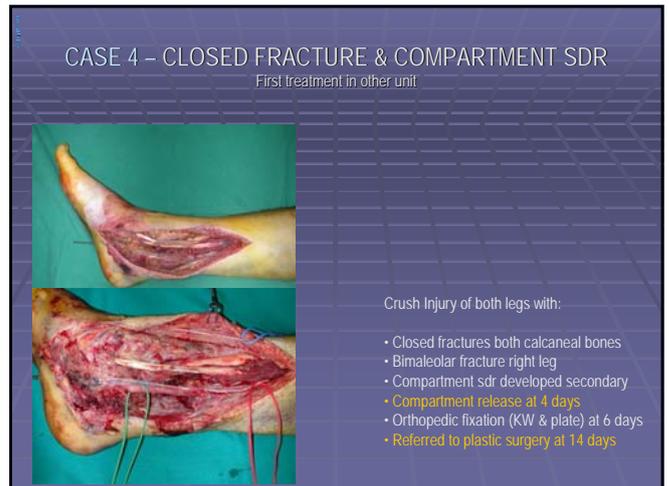
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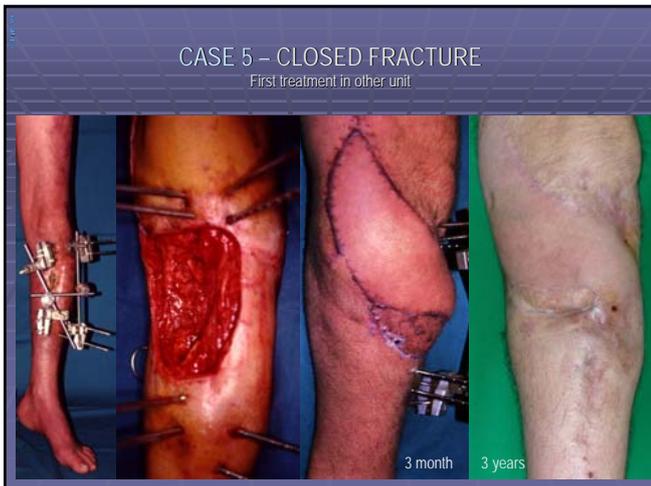
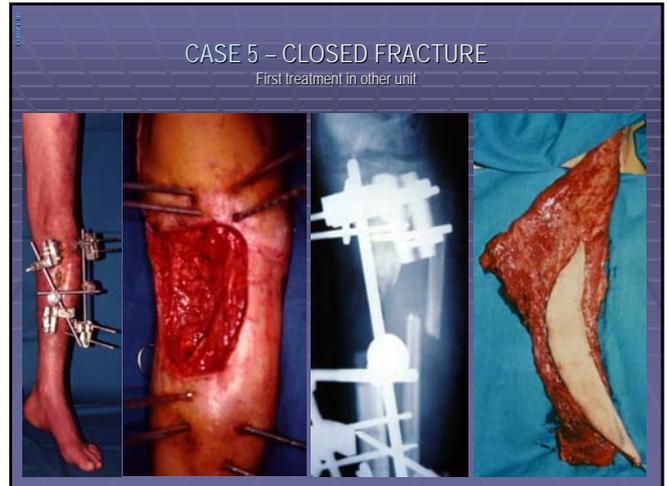
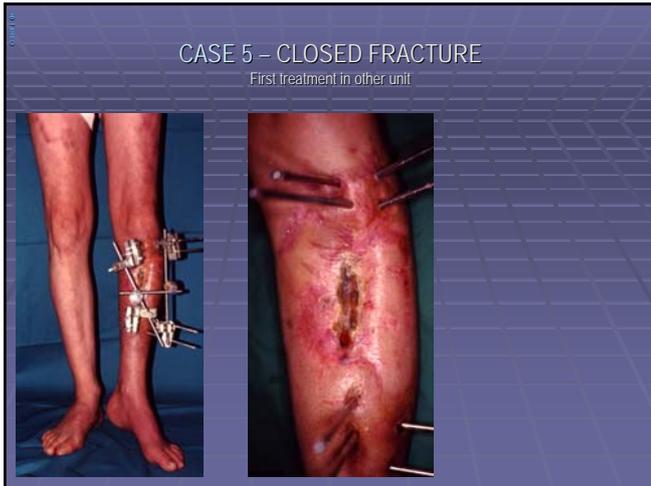
DECISION-MAKING ALGORITHM SURGICAL PROTOCOL

1. Debridment
2. Bone stabilization
3. Fasciotomies
4. Vascular reconstruction
5. Nerve reconstruction
6. **COVERAGE**
 - temporary
 - permanent









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IN LOWER LEG SALVAGE & RECONSTRUCTION

CONCLUSIONS

- The key points in lower leg reconstruction are
 - multidisciplinary team approach,
 - adequate surgical excision, and early good quality coverage.
- The traditional reconstruction ladder is always valid.
- The complexity of the reconstructive method should be adapted to the complexity of the trauma
- One should not neglect the factors induced by the infrastructure.

