"The use of massive allografts in diaphyseal reconstruction"

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Document type : *Communication à un colloque (Conference Paper)*

Results: We observed an average supra-malleolar osteotomy correction of 5.0 degrees. We found an average hindfoot correction of 10.0 degrees. We found a 100% fusion rate at the supra-malleolar osteotomy site 4 months after surgery.

Conclusion: Lower extremity correction using a supra-malleolar osteotomy in combination with a retrograde tibial nail is an effective technique to correct lower extremity deformities. By fashioning a stable intramedullary construct, patients are able to weight bear sooner, limiting post-operative immobilization. The fusion rates using a retrograde tibial nail make this technique an efficacious procedure to correct lower extremity angular deformities.

10.00 IL The use of massive allografts in diaphyseal reconstruction

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The most important element in treating infected non unions is debridement to remove sequestra and other devitalized tissues. The radical resection of the necrotic bone needs further reconstruction with massive iliac crest autograft transfer, vascularised transfer or distraction osteogenesis. The use of autologous free non vascularised transfer exposes the patient to the loss of this precious material in case of infection recurrence. A free vascularised transfer or the Ilizarov technique are technically demanding and careful postoperative follow-up are necessary to minimize complications and improve outcome. The overall duration of treatment is in both cases long lasting and patients are exposed to high number of secondary procedures. The results in patients who have an infected tibial defect or non-union longer than 3 cm are so severe that an amputation might be considered.

Large bone allograft transplants have been successfully used to reconstruct skeletal defects created by tumor resections and failed arthroplasties, but little has been reported on their use in traumatic defects.

We report our experience with the treatment of infected non unions with massive bone allografts. A two stage protocol is applied: infected bone resection, death space management with antibiotic loaded cement and soft tissue coverage during the first step, followed at the second stage by massive bone allografting and definitive fixation.
This salvage method allowed the preservation of the limited valuable bone autograft stock in potentially still infected patients, less restriction in the bone resection and immediate stable fixation allowing rapid return to function. The threat of infection which is the greatest concern when using allografts was not justified.

Auditorium Albert

10.10-10.25 Honorary lecture

10.10 Limits of external fixation

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External fixation is considered the best technique to fix open, contaminated fractures. There is no internal implant at the fracture site, decreasing the risk of infection. The wounds are easily accessible for care. Flap surgery remains possible if indicated. The mounting can be modified to improve if necessary the reduction, to apply distraction or compression or to stimulate bone healing by increased elasticity. External fixation is also the technique of choice to stabilize in emergency the fractures in polytrauma patients, following the principles of damage control care. Finally, external fixation is an excellent technique to perform progressive three-dimensional corrections of complex deformities.

External fixation has many other possible applications. It may be used to treat closed fractures. Avoiding an internal implant at the fracture site significantly reduces the risks of nonunion as demonstrated in a study of our Department of diaphyseal humeral, femoral and tibial fractures. External fixation may be combined to navigation for virtual reality fracture reduction. Comminuted distal radius fractures can be easily treated by transarticular distraction maintained by radio-metacarpal external fixation. The same principles may be applied at other joints. In pilon tibial fractures, using an external fixator avoids the implantation of a bulky internal implant which could lead to skin necrosis and subsequent infection. External minifixation used at the hand to stabilize small fractures allows early active finger mobilization, reducing the risks of stiffness and CRPS. In wrist arthrodesis, avoiding a plate by choosing for osteosynthesis a fixator prevents the usual tendon complications. External fixation allows small bones lengthening, for example of the capitate in Kienböck's disease. External