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Early Coverage of Gustilo Type 3b Fractures in Lower 1/3rd Leg Defects

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Editorial

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Editorial

Gustilo 3b injury accounts for a big bulk of cases which are reconstructed in any tertiary care centre with a joint effort of Plastic Surgeons and the orthopaedics team. Once the patient is stabilised, the plastic surgery team looks into the severity of soft tissue injury. The qualitative and quantitative defect is assessed under anaesthesia. Necessary radiological investigations are done and the orthopedician is consulted upon to plan the bony fixation.

In Gustilo 3b injury, the exposed tibia needs early coverage as the bone without periosteum becomes infected. These injuries can be associated with impaired vascularity of the soft tissue, loss of soft tissue including muscles, tendons, and nerve and bone chips. These have to be assessed at the initial debridement which should be done by a Plastic Surgeon and bone fixation by the orthopaedic team taking into consideration the future reconstructive plan. Patient should be explained about the nature of injury, the reconstructive plan and the treatment options. Reconstruction can be done in one go after debridement or it may require multiple stages. The total duration of the treatment should be conveyed to the patient and the reconstructive options planned according to the reconstructive ladder or elevator keeping in mined the patient's age, nature of work he does, and his motivation.

As both the orthopaedics and Plastic Surgery plan and procedures have now become highly advanced, it is now possible to preserve the limb in many more cases as compared to earlier times. Early intervention by the Plastic Surgery team makes it easier to plan for definitive reconstruction in less time thereby decreasing the morbidity. There are many options which can be offered to the patient. Small defects in lower 1/3rd of the leg can be covered with local options. Fasciocutaneous flap offer a good option to cover the defects where local soft tissue is healthy. Reverse sural artery flap, flap based on the perforators of Anterior tibial artery, Posterior tibial artery and Peroneal Artery offer a good range of options for the reconstructive surgeon. Small defects can be covered with distally based Peroneous Brevis Flap. The emphasis on early cover should be there as it reduces the chances of infection of soft tissue and bone. It prevents the desiccation of the exposed tendons, nerves and blood vessels.

Vacuum assisted closure therapy can be use as an adjunct after debridement. It reduces the tissue edema, decreases infection rate and promotes granulation. Definitive reconstruction should be ideally planned within 72 hrs of injury. This not only helps in faster recovery but at the same time decreases the financial burden over the patient.

Microvascular free tissue transfer is the main option for large lower 1/3rd leg defects. Numbers of options are available in the armantarium of a microvascular Surgeon including Anterolateral thigh flap, lattismus dorsi muscle

and myocutaneous flap and Thoracodorsal artery perforator flap amongst those used more frequently.

Whatever procedure is chosen, it should be done on an early basis preferably in the 1st 72 hrs in Gustilo's 3b injuries affecting lower 1/3rd of the leg. Reconstruction of the tissue components should be kept in mind and may require multiple stages. A multidisciplinary team effort of the trauma, Plastic Surgery and the Orthopaedics helps providing the best functional and Aesthetic outcome to the patient. If the Plastic Surgery team is involved from the very beginning then the decision for approach to application of external fixator keeping in mind the future reconstruction options can be taken. Initial assessment should involve both teams. The plan for bony stabilisation by orthopaedics team and reconstruction by Plastic Surgery team should be discussed with the patients who are followed by the bony fixation and early wound cover.