

# Challenges in the management of defects in the lower third of the leg. A Case report

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Case report

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**Background:** The lower limbs are needed for ambulation as well as the support of the body. This makes them essential for daily living. Defects of the distal third of the leg are common and are complicated by exposure of bone, tendons, and nerves.<sup>1</sup> Management of these defects has remained a challenge despite advances made in surgery. This report highlights the challenges faced in the management of two patients with complex defects in the distal third of the legs.

**Case report:** Mr. D.M, a 41-year-old male who had bilateral rectus femoris free flap reconstruction of bilateral complex defects of the distal thirds of both legs, and a reverse sural flap cover for a residual contour defect on the right leg.

Mrs. D. I, a 47-year-old female who had rectus femoris free flap reconstruction of a complex defect of the distal third of the right leg and foot.

**Conclusion:** The management of soft tissue defects in the distal third of the leg is a challenge to the reconstructive surgeon because of the dearth of soft tissue in the region and it is made worse by the limited availability of funds and facilities in resource-poor settings.

**Key words:** Defect, leg, reconstruction

The management of defects in the distal third of the leg is faced with problems such as the dearth of soft tissue in that region of the leg, the relatively low blood supply to the lower limbs, and the higher chances of wound infection.<sup>2</sup> There is also a need for multiple surgical procedures and a paucity of human and financial resources needed for the management of patients with these defects.

The definitive goal of reconstruction of these defects is a lasting soft tissue cover over skeletal reconstruction, and this can be achieved using flaps. In the choice of flap cover, factors such as the size of the flap, the vascular pedicle length, and the desired cosmetic outcome should be considered.

The reduction in blood supply distally, paucity of soft tissue in the distal leg, difficulty in mobilizing this soft tissue as well as the predisposition of this region to these defects all contribute to the challenges in the reconstruction of the defects.<sup>3</sup> The difficulties experienced in achieving early resurfacing and the attendant complications following resurfacing also pose a challenge to the management of these defects.<sup>1</sup> **Error! Marcador no definido.**

## Case report 1

The first case is a 41-year-old male who was admitted into our facility with a three-hour history of

had wound debridement and application of external fixation devices on each lower limb. He had wound dressings with honey for optimization of wounds and was counseled for free flap cover of defects on both legs. Five months after the presentation, he had a rectus femoris free flap reconstruction of both lower limbs, starting with the left. He later had a reverse sural flap cover of a residual contour defect one year after the free flap reconstruction.

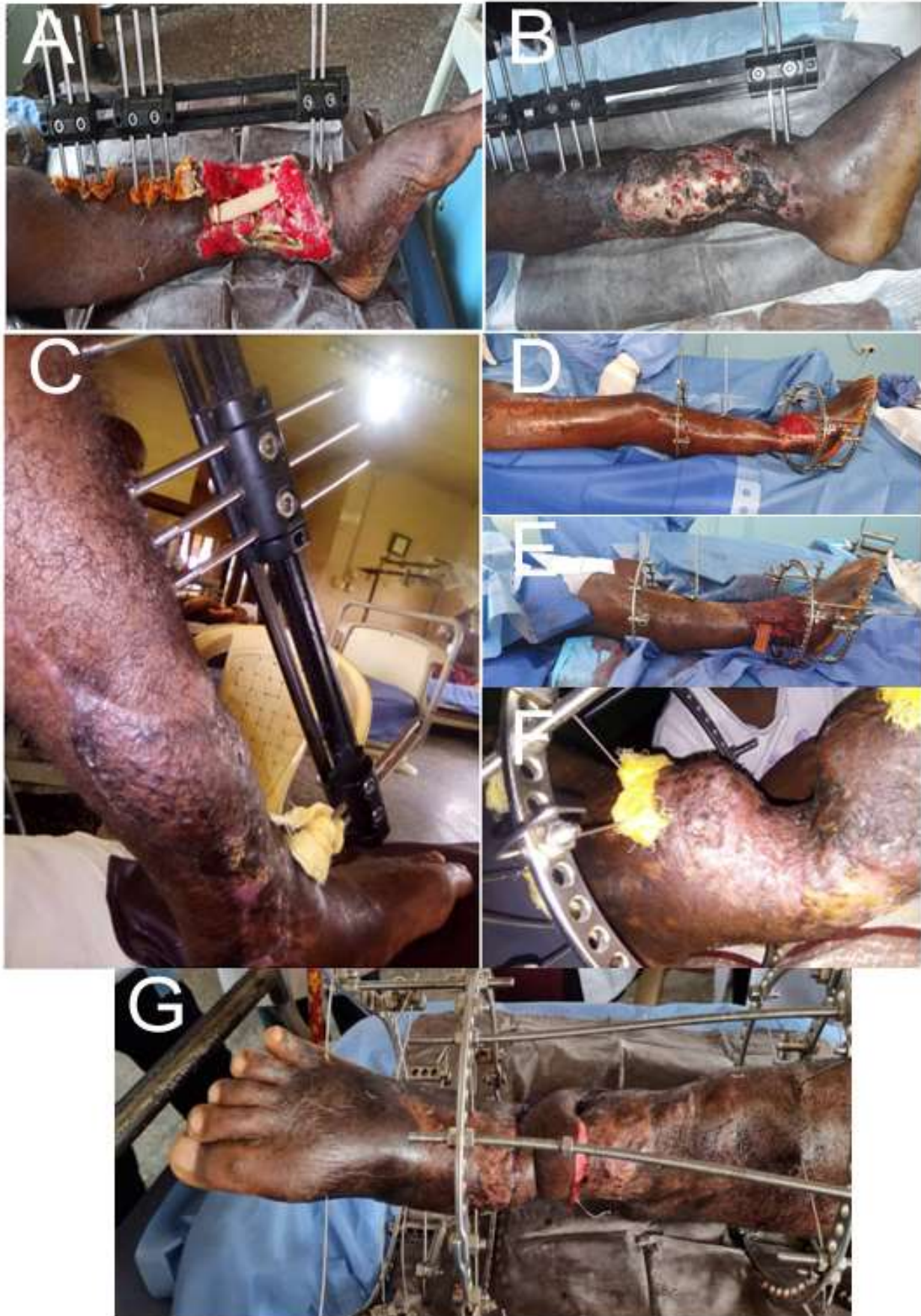
## Case report 2

The second case is a 47-year-old female with a post-traumatic right ankle and foot defect sustained following a motor vehicular accident. She had initial resuscitation and debridement of the defect, and later had a rectus femoris free flap cover of the defect and meshed split-thickness skin graft over the flap.

Post-operatively, the patient had wound dressings of the flap until all wounds were healed. She was subsequently discharged to the outpatient department but has been lost to follow-up.

## Discussion

Coverage of soft tissue defects in the lower third of the leg is exigent due to its anatomical features. The bones in this region are prone to injuries, particularly open injuries, as there is a dearth of



**Figure 1A:** preoperative photograph of the left leg defect. **B:** post- rectus femoris free flap cover of left leg defect. **C:** left lower limb six months post- rectus femoris free flap cover. **D:** preoperative photograph of the right leg defect. **E:** post- rectus femoris free flap cover for right leg defect. **F:** contour defect right lower limb, six months post- free flap cover. **G:** reverse sural flap cover for right leg contour defect





**Figure 2A:** preoperative photograph of the right leg and foot defect.  
**B:** Left rectus femoris flap.  
**C:** Intra- operative photos showing the recipient vessels.  
**D:** Post- operative photograph.  
**E:** Postoperative photograph of consolidation free rectus femoris flap.

surrounding soft tissue.<sup>4</sup> The subcutaneous location of the tibia in this region and the absence of muscles preclude the use of skin grafts for definitive wound cover and are indications for full-thickness tissue cover.<sup>5</sup>

Early reconstruction has been shown to give the best opportunity for the return of function. However, this is difficult to achieve considering the financial constraints, and the dearth of resources experienced especially in these climes.

Microvascular free flaps are the gold standard of coverage of defects in the distal third of the leg,<sup>2</sup> but the dearth of skilled manpower, the low socio-economic status of patients, and the absence of universal health insurance make these surgeries difficult to achieve and as a result, less suitable options are used to achieve wound cover.<sup>5</sup>

## Conclusion

The management of defects in the distal third of the leg remains daunting as a result of the anatomy of the lower extremities, paucity of soft tissue for coverage, the need for multiple surgeries, and the dearth of human and financial resources in this part of the world. Recent advances made in microvascular surgery now make more options available for the reconstruction of these defects.

## Conflicts of interests

The authors declare that there is no conflict of interest.

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