Feasibility of a deepithelialized superior gluteal artery perforator propeller flap for various lumbosacral defects

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Purpose

Skin and soft tissue defects in the lumbosacral area are commonly encountered in the field of reconstructive surgery, and it is well documented that the superior gluteal artery perforator flap (SGAP) provides excellent coverage of these defects. In this article, we describe our experience using a modified version of the SGAP propeller flap, in which the distal redundant portion of an elevated SGAP flap is deepithelialized, thereby maximizing the effect of the soft tissue augmentation.

Methods

Thirteen patients with lumbosacral soft tissue defects treated between May 2010 and June 2012 were included in this study. The wound causes were pressure ulcer (N = 9), pseudomeningocele (N = 2), and hardware exposure (N = 2). In all patients, an elevated SGAP flap was rotated 180 degrees over the defect area and the extra distal portion of the flap was deepithelialized and used as a soft tissue filler or tamponade.

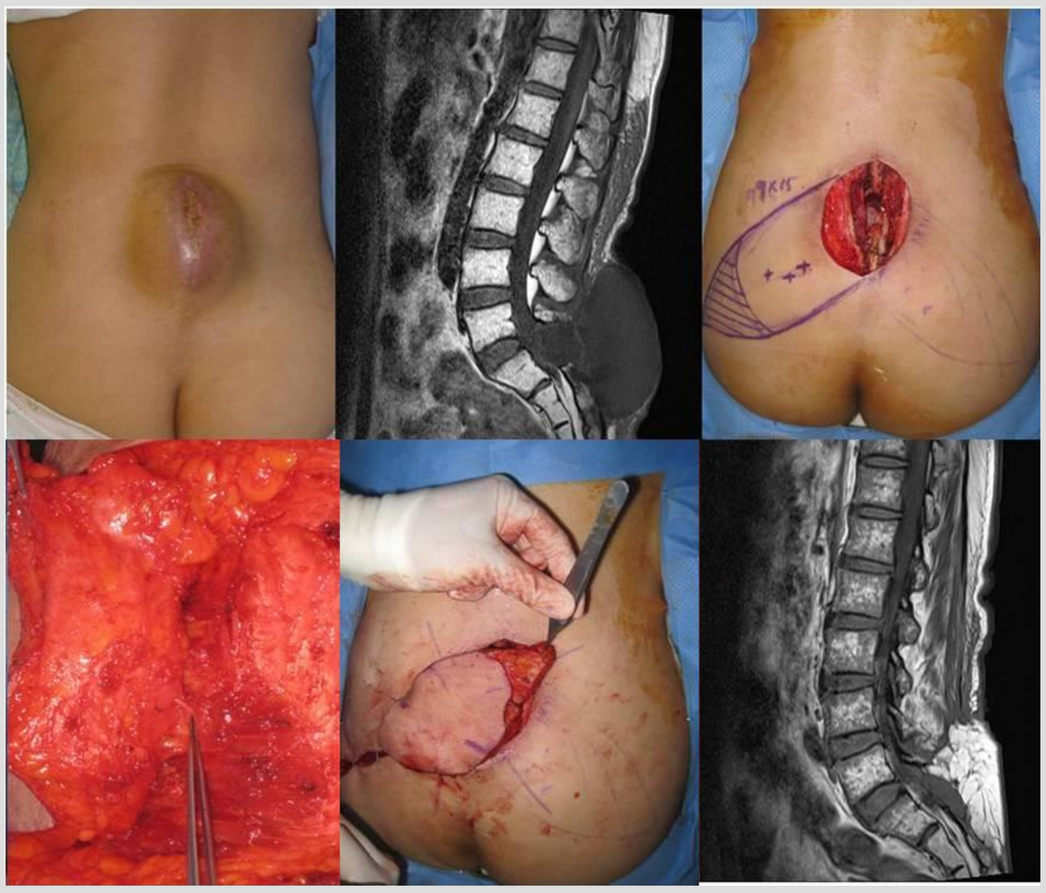

Figure1.
Preoperative photograph (top left). The preoperative MRI revealed a large pseudomeningocele originating from the L5-S1 level (top middle).
A 9 × 15-cm^2 superior gluteal artery perforator flap was designed. Hatch marks represent the area to be deepithelialized (top right). Skeletonization of the perforator (bottom left).
After the flap has been rotated 180°, the distal redundant portion of the flap is deepithelialized and folded into the deep defect area (bottom middle). The postoperative MRI shows thick soft tissue overlying the repair site (bottom right).

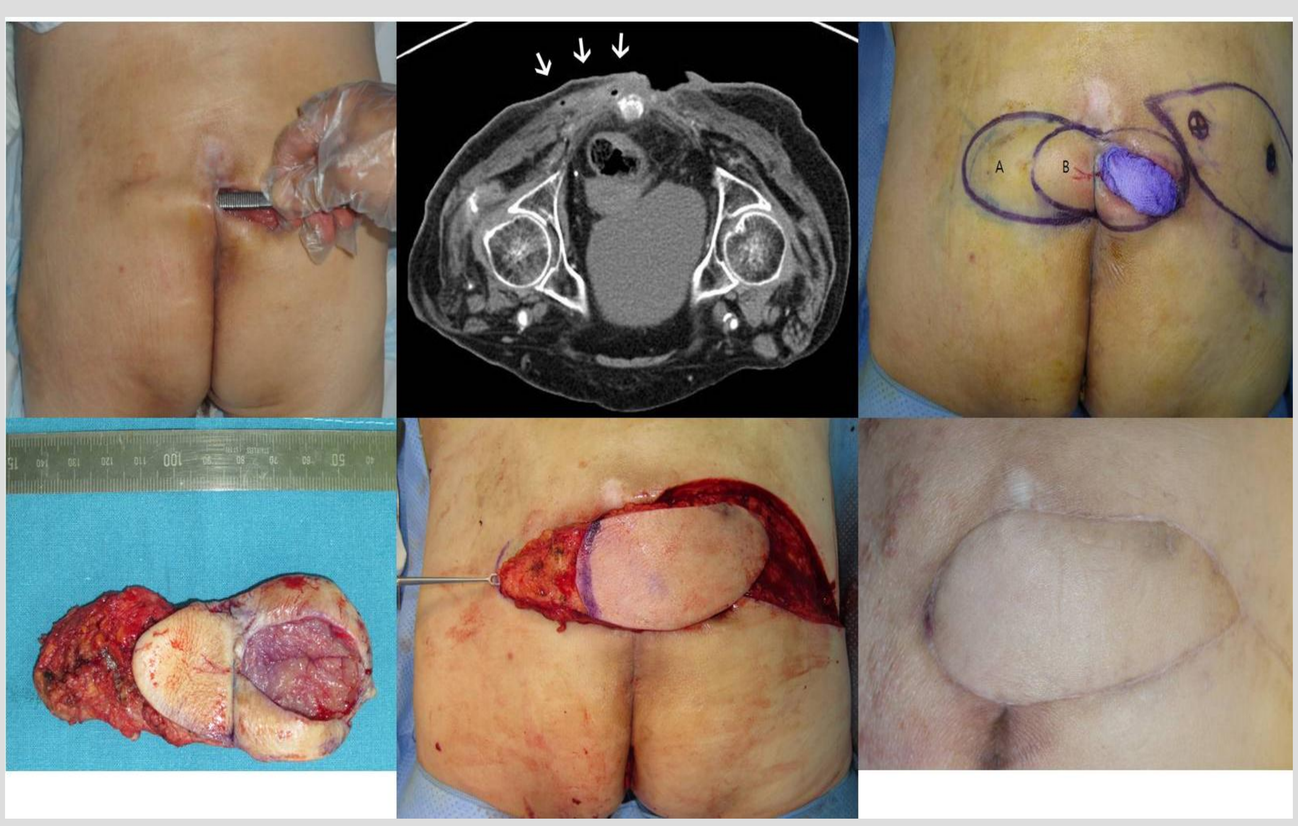

Figure2.
Preoperative clinical photograph (top left). Pelvic CT shows a skin and soft tissue defect in the sacral area with wide undermining (arrows) to the left side of the wound (top middle).
Gentian violet solution–soaked gauze was plugged into the undermined area to facilitate dissection. “A” represents the undermined wound area where skin and healthy subcutaneous tissue is to be preserved, and “B” represents the wound area where both skin and subcutaneous tissue are to be excised (top right). Unhealthy skin and soft tissue are completely removed (bottom left).
The distal portion of the flap is deepithelialized and is to be plugged into the undermined wound area (bottom middle). Photography at 9 months postoperatively (bottom right).

Results

During the follow-up period (mean, 26 months), 12 of 13 flaps survived completely. One flap was totally necrosed due to progressive venous congestion and was reconstructed with local advancement flaps. No further complications were noted.

Conclusion

Due to the redundancy and pliability of the tissue in the gluteal area, a flap relatively wider or longer than the defect can be elevated safely. Hence, the redundant tissue volume can be tucked inside to facilitate soft tissue augmentation of the area. We propose that the deepithelialized version of the SGAP propeller flap is an effective option for the reconstruction of various lumbosacral soft tissue defects because it offers thick and healthy soft tissue from a distant site to the defect areas.