Innovation in the Design of V-Y Rotation Advancement Flap: A Template for Flap Planning

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INTRODUCTION: Local flaps have an excellent color match that no other flap can compete with. Local flap surgery is easier and faster than distant and free flaps. However, its design is much harder than the surgery. While planning the flap, a surgeon must consider the size, the mobility, the viability and the donor area of the flap. Doing more incision to increase the mobility of the flap decreases its blood perfusion. Harvesting the flap larger than needed may help to close the defect but it risks the primary closure of the donor area. After having reviewed the literature and blending it with our experience, we described an optimal mathematical equation for unilateral and bilateral V-Y rotation advancement flap (RAF).[1] According to that equation, I designed two templates (patent pending) for flap planning.

PATIENTS AND METHODS: Template for unilateral V-Y RAF was used on face (n: 5), anterior tibia (n: 1), posterior axilla (n: 1), ischium (n: 1) and trochanter (n: 2). Template for bilateral V-Y RAF was used on sacrum (n: 8), arm (n: 1) and anterior tibia (n: 1). Causes of defects were meningocele (n: 3), decubitus ulcer (n: 5), pilonidal sinus (n: 3) and skin tumor excision (n: 10). Meningocele patients were younger than eight days. Mean age of adult patients was 48.2 years (range 19-80 years). All the donor areas of the flaps were closed primarily. All the patients were followed at least 6 months. None of the patients had wound dehiscence or partial/total flap necrosis.

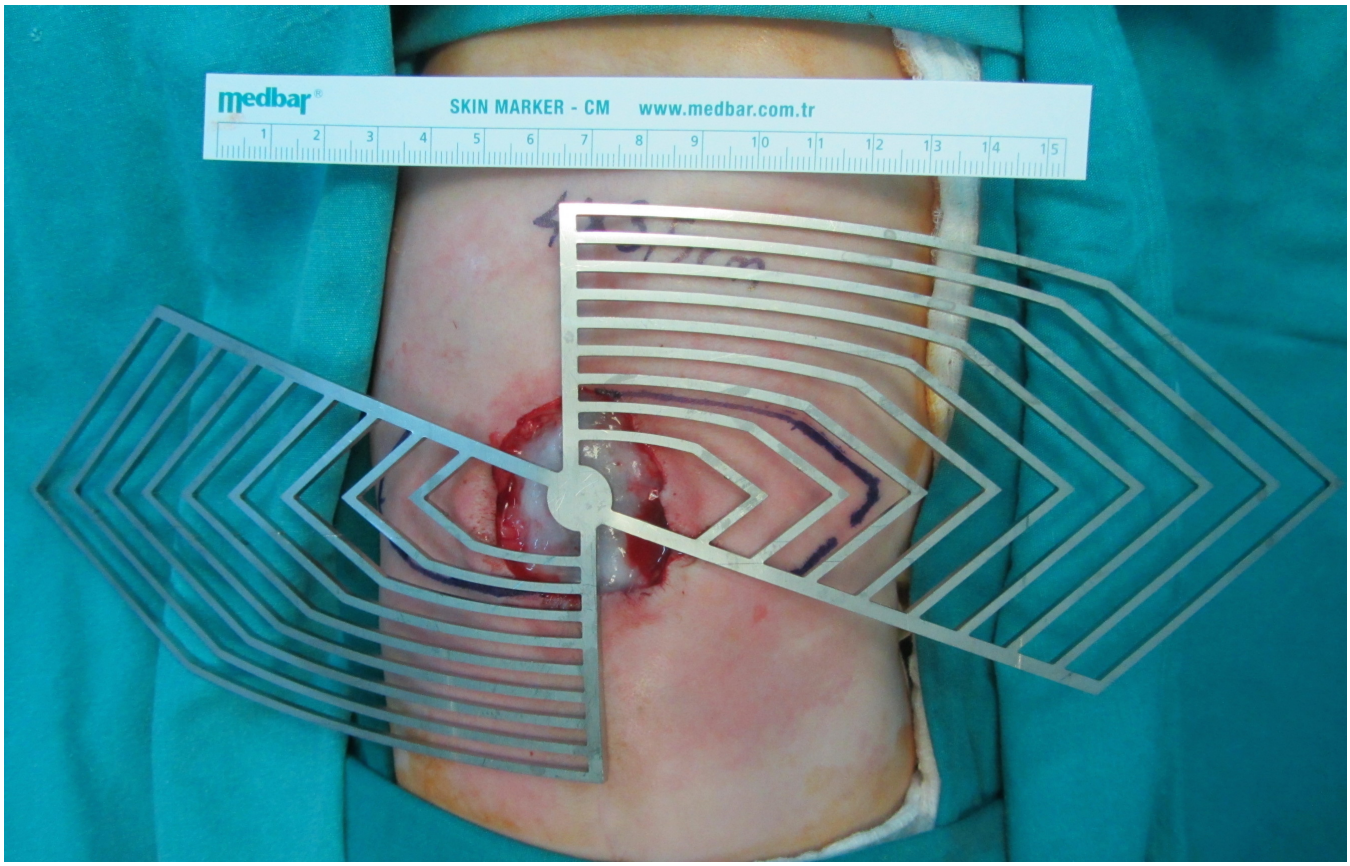
CONCLUSION: Surgeons plan a flap according to their experiences. There is no generally accepted mathematical rule that describes the dimensions of the flap relative to the size of the tissue defect. While there is no quantitative way to explain how to plan a flap, it is not easy to teach it to the residents in training or other surgeons. Especially, surgeons who are not doing these surgeries are reluctant to operate because of the complications such as incomplete closure of the defect or flap loss. Those templates guide surgeon on the length and the placement of the incision for V-Y RAF according to the size of the wound.

REFERENCE:

1. Dölen UC, Sungur N, Koçer U. *V-Y Rotation Advancement Flap: A Metanalysis and Systemic Review.* Eur J Plast Surg 2014 Dec;37(12):635-642.

LEGENDS:

Figure 1: Application of the template for a meningocele defect
Figure 2: Closure of the defect after mobilizing the flaps.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