

## Clinical Observation of Subepidermal Vascular Network Flaps in Keloid Patients

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### **BACKGROUND:**

There are many different keloid treatment modalities. One surgical technique is to keep the “shell” of the keloid to cover the defect. We named this “shell” keloid subepidermal vascular network flap (KSVNF), and we outlined the characteristics of this flap by observing 35 flaps in keloid patients.

### **METHODS:**

A total of 35 KSVNFs were designed in 15 patients during 2020–2021. All patients underwent the operation and adjuvant radiotherapy as well as hyperbaric oxygen therapy. All flap lengths and widths were recorded, and the blood perfusion of the flaps was measured on the first day postoperation and the day of stitch removal. Flap survival and the quality of flaps were evaluated on the day of stitch removal. All harvested data were analyzed using the R (version 4.0.1) package.

### **RESULTS:**

The mean blood perfusion on the first day postoperation (pod1) and the day of stitch removal was 120.4013 and 168.6900, respectively ( $p = 0.02249$ ); 2 flaps had partial necrosis (5.714%). Receiver operating characteristic (ROC) curve analysis showed that when the length/width ratio was less than 1.05, the quality of the flap was good (AUC = 0.724), which suggests that the effective safe length/width ratio was 1.05.

### **CONCLUSION:**

KSVNF is an applicable method for covering the remaining wound after keloid mass removal with sufficient blood perfusion and adequate skin quality. We recommend that the length/width ratio of the flap design not exceed 1.