

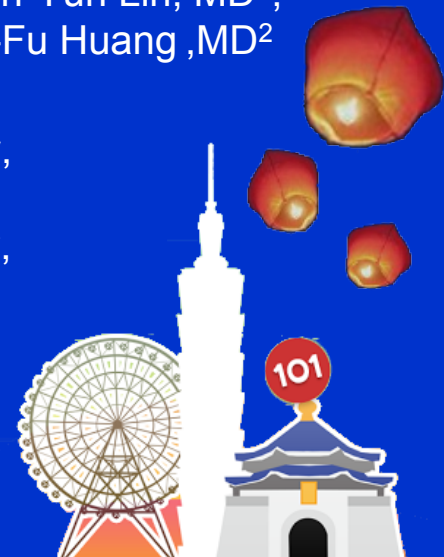
Get Two Birds with One Stone –

The use of venous flap in a two-stage lower extremity free flap reconstruction following A-V looping procedure

Chi-Ying Hsieh, MD¹ Yen-Chen Yu, MD¹, Tyng-Luen Roan, MD¹, Chih-Yun Lin, MD¹,
Yo-Shen Chen, MD¹, Ke-Chung Chang, MD¹, Tsoo-Wu Lin, MD¹, Hui-Fu Huang, MD²

Division of Plastic and Reconstruction Surgery, Department of Surgery,
Far-Eastern Memorial Hospital, Taipei¹

Division of Plastic and Reconstruction Surgery, Department of Surgery,
National Taiwan University Hospital, Taipei²





Nothing to disclose

Introduction

- ***Arteriovenous loop*** for lower limb free flap reconstruction - High successful rate in high-risk patient

Two-stage A-V looping

Pros	Cons
1. ↑ pedicle length	1. ↑ kink or twist
2. ↑ arterial flow	2. ↑ Late bleeding after skin graft
3. ↓ ischemia time of the flap	3. ↑ Difficulty in dissection

Our Concept

Harvest vein graft along with a portion of venous flap for vascular coverage in a two-stage A-V looping procedure



Advantages

- **Provide temporary soft tissue coverage of the vein graft to avoid vascular exposure**
- **Avoid the use of skin graft**
- **Splint the vein graft to avoid kinking or twisting**
- **Monitor A-V loop flow quality easily**

Case I



Fig 1 -a

A 49-year-old uncontrolled diabetic man presented with a 12x15cm² skin and soft tissue defect of right dorsal foot with tendon and bone exposure.



Fig 1-b

A 12cm venous flap was harvested from ipsilateral saphenous vein with an overlying 4x2cm² skin paddle.



Fig 1-c

The venous flap was interposed to dorsalis pedis artery and deep posterior tibia vein to create an arteriovenous loop.



Fig 1-d
The patency of arteriovenous fistula was detected by an audible Doppler easily.



Fig 1-e

The A-V loop was divided from the venous flap into an artery and a vein for end-to-end anastomoses with pedicle vessels of the anterolateral thigh fasciocutaneous flap after 5 days.



Fig 1-f

POD 7 after free ALT flap reconstruction.

Case II



Fig 2-a

A 49-year-old man with a total soft tissue defect measured 17*10 cm² on right dorsa foot after a bicycle collision. EHL, 2nd - 4th toes extensor tendons were segmental loss after debridement.



Fig 2-b

A 22 cm GSV vein graft with 8*4 cm venous flap skin paddle was harvested from left leg

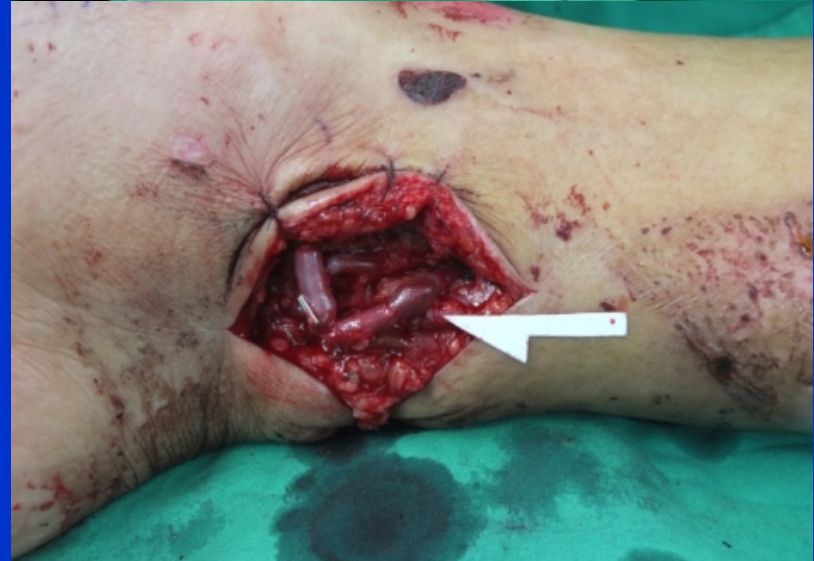


Fig 2-c

AV looping was created in anastomosis with ATA and PTV in end-to-end fashion



Fig 2-d

The venous flap was interposed to dorsalis pedis artery and deep posterior tibia vein to create an arteriovenous loop.



Fig 2-e

The arteriovenous loop was well covered by venous flap. The patency of the loop can be detected by an audible Doppler easily on the venous flap.



Fig 2-f

The tendons gap was repaired by using tensor fascia lata graft and the defect was resurfaced by using ALT flap one week after A-V looping



Fig 2-g. Flap design -

- (1) Skin paddle size: 10 * 17 cm, from left thigh
- (2) Perforator * 1; pedicle: 1A1V, length: 6 cm
- (3) Vascular anastomosis:
 - pedicle a. end-to-end to right ATA (vein graft A end)
 - pedicle v. end-to-end to right PTV (vein graft V end)

Conclusions

- **Arteriovenous loop is a useful adjunct in free flap transfer in complex extremity reconstruction.**
- **The employment of venous flap in A-V loop is a simple and easy technique with several advantages in the setting of a two-stage A-V loop procedure in lower limb free flap reconstruction.**

Thank you for your attention~

