Free “mini” flaps for reconstruction of the digits

Min-Hsiang Hung[1], Kuo-Feng Huang[1], Wai-Nang Chao[2]

[1]Division of Plastic Surgery, Chi-Mei Medical Center, Tainan, Taiwan
[2]Division of Plastic Surgery, Changhua Christian Hospital, Changhua, Taiwan

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Objective

- Reconstructions of the digits are usually achieved by homodigital flaps, heterodigital flaps or vascular island flaps from the hand or forearm.
- In this study, we present our experience using free mini flaps for the reconstructions of the digits.

Materials and Methods

- From May 2006 to April 2013, there were 16 patients with 19 digits treated with free "mini" flaps in our hospital.

Table 1 Type of free "mini" flaps

Type		Number
Free groin flap	Skin flap	5
	Chimeric flap	3
	Osteocutaneous flap	2
Free partial toe flap		4
Free dorsal metacarpal artery flap		2

Results

Table 2 Patient data of the free "mini" groin flap

	Age (yrs) /sex	Digit	Defect	Flap size (cm)	Flap type	Donor Site Closure	Vascular anastomosis	Operative time (hrs)	Secondary Revision
1	45/M	middle finger ring finger	ulnar side radial side	7x1.5 6x1.5	chimeric flap	primary closure	1A1V	6.5	web space division
2	32/M	thumb	distal part	skin: 8x6, bone: 2x1	osteocutaneous flap	primary closure	1A2V	6	ostectomy and flap debulky
3	72/M	thumb	dorsal side	2.5x1.5	Skin flap	primary closure	1A1V	5.5	nil
4	21/M	thumb	volar side	3x2	Skin flap	primary closure	1A1V	5	flap debulky
5	20/M	index finger middle finger	ulnar side ulnar side	8x1.5 7x1.5	chimeric flap	primary closure	1A1V	9	nil
6	33/M	Index finger middle finger	ulnar side ulnar side	6x2.5 6x2.5	chimeric flap	primary closure	2A2V	8	nil
7	46/F	index finger	volar side	2x1.5	Skin flap	primary closure	1A1V	4	nil
8	34/M	middle finger	volar side	4x1	Skin flap	primary closure	1A1V	6.5	nil
9	27/M	thumb	distal part	skin: 5x2 bone: 1.5x1	osteocutaneous flap	primary closure	1A1V	8	nil
10	40/M	ring finger	volar side	3x1.5	Skin flap	primary closure	1A1V	4.5	nil

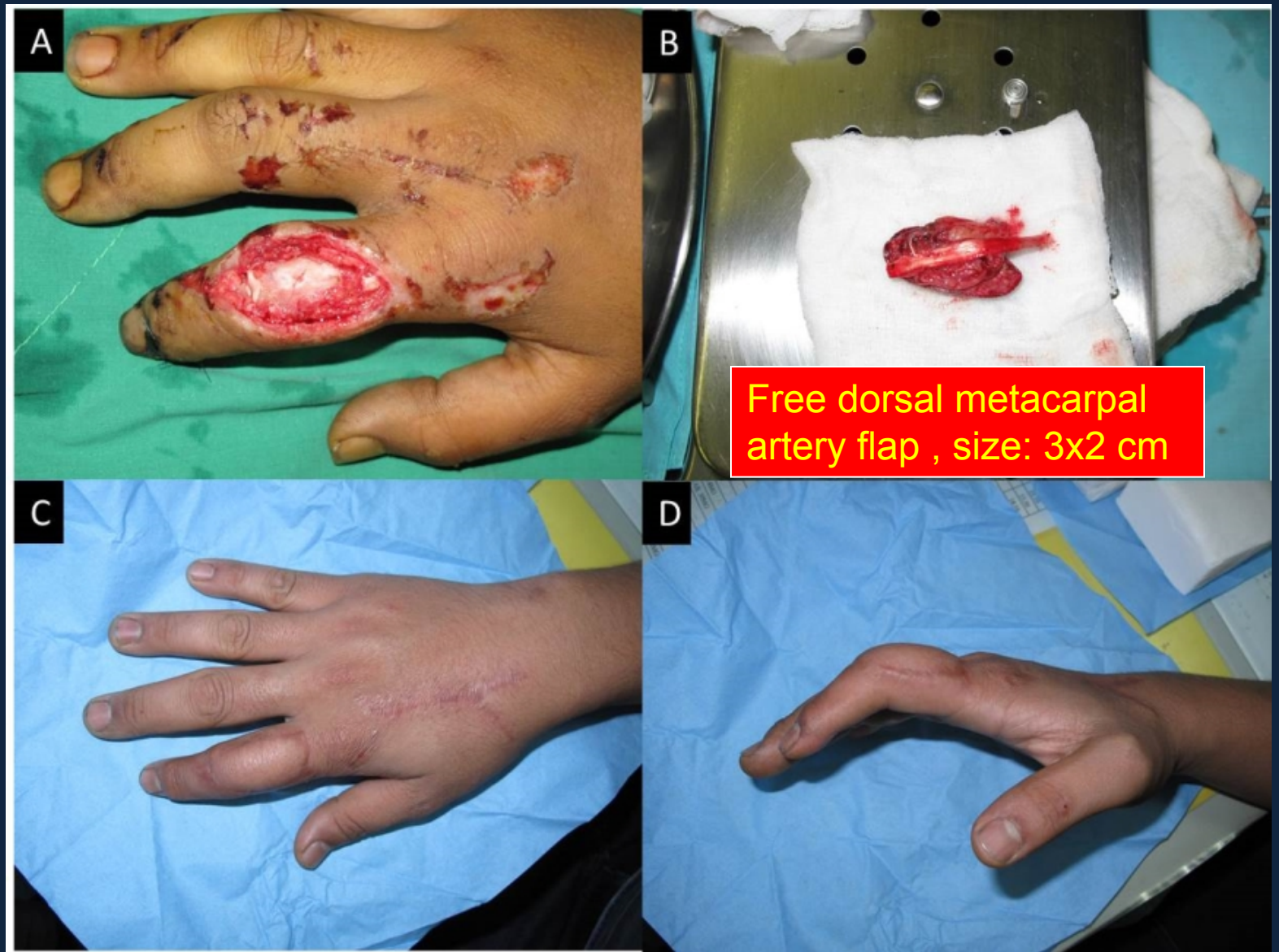
Table 3 Patient data of the free "mini" partial toe flap

	Age (yrs) /sex	Digit	Defect	Flap size (cm)	Donor Site Closure	Vascular anastomosis	Operative time (hrs)	Secondary Revision
1	57/F	index finger	Volar side	6x1.5	primary closure	1A1V	8	nil
2	35/M	thumb	Volar side	5x3	STSG	1A1V	4.5	nil
3	54/F	index finger	Volar side	5x3	STSG	1A1V	6	nil
4	30/F	index finger	Volar side	4x2.5	STSG	1A1V	4	nil

Table 4 Patient data of the free "mini" dorsal metacarpal artery flap

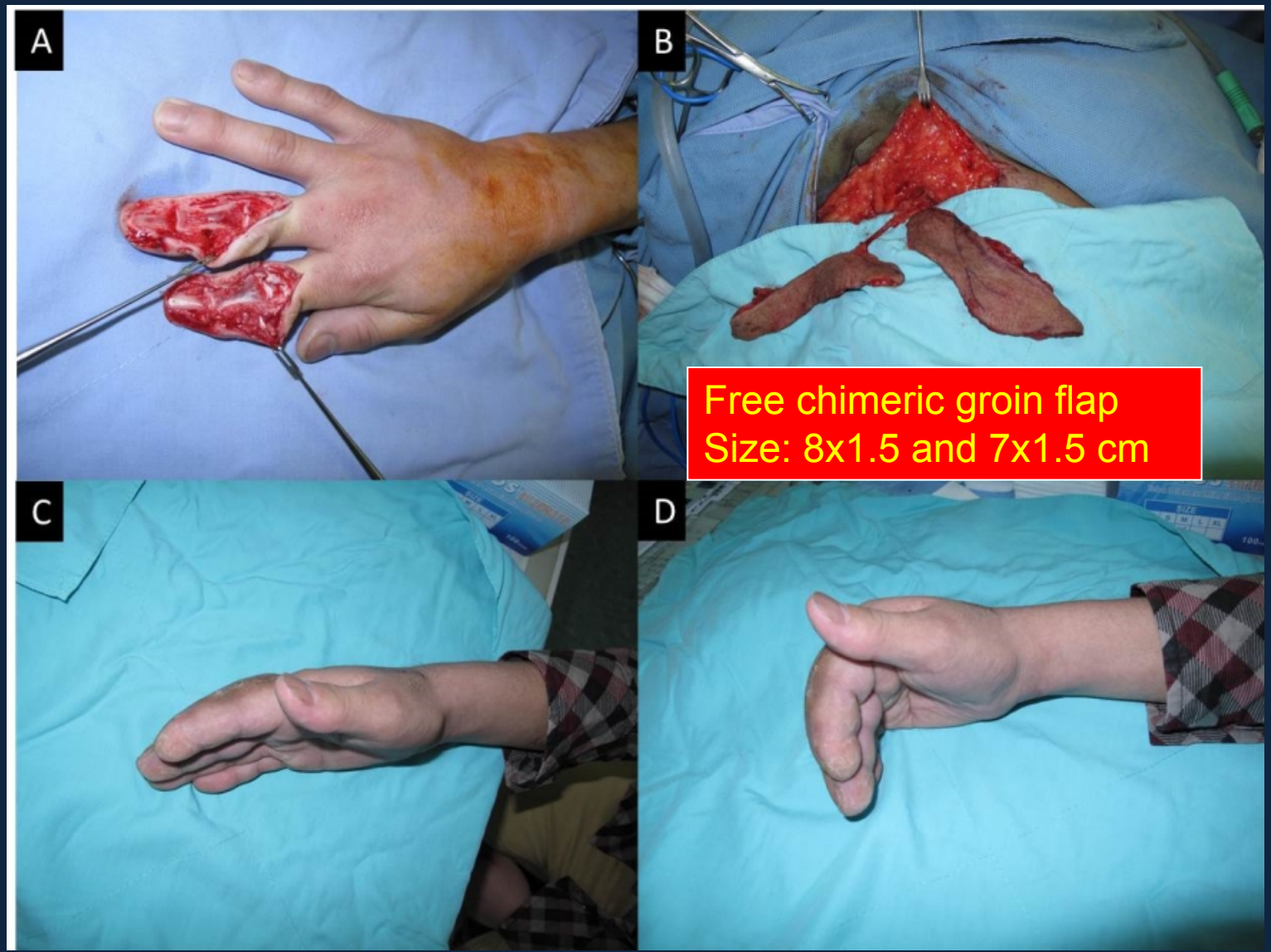
	Age (yrs) /sex	Digit	Defect	Flap size (cm)	Donor Site Closure	Vascular anastomosis	Operative time (hrs)	Secondary Revision
1	44/M	thumb	dorsal side	2.5x1.5	primary closure	1A1V	4.5	nil
2	21/M	index finger	dorsal side	5.5x2	primary closure	1A1V	5.5	nil

Case Presentation-Case 1



Case Presentation-Case 2

Case Presentation-Case 3



Case Presentation-Case 4

Significance of the findings

- The free ‘mini’ flap is a reliable and safe alternative for digital coverage.
- Using dorsal metacarpal artery flap for dorsal finger coverage, partial toe flap for pulp reconstruction and groin flap for multiple finger coverage and bone lengthening is recommended.