

Abstract

Flap Monitoring by Infra-red Thermometer

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Flap monitoring is important for flap salvage. Although there are many methods to observe the flap, practical methods mostly used are subjective methods. Recording flap surface temperature is one of the objective methods of flap monitoring. We used an infra-red thermometer to simplify monitoring of the flap temperature. 60 groin flaps of SD rats are used in the experiment. Artificial arterial or venous insufficiency was made and the surface temperature was checked and compared with body temperature.

In the results, the temperature of the arterial clamped flaps was lower than that of body and the mean difference was 0.3 °C after 20 minutes of clamping. In the vein-clamped flaps, the mean decrease was 0.4 °C after 30 minutes of clamping. The all difference of the temperature between the flaps and body was statistically significant.

Our results suggest that flap monitoring by infra-red thermometer is simple, useful and helpful to evaluate the flap status.

Key Words: Free flap monitoring, Temperature, Thermometer

가 , (monitor
ing) .⁵
(patency)
90% .¹⁻⁴

pinprick test

5, 10, 20, 30, 1, 2, 3, 6, 12, 18 (Fig. 4)

가

BRAUN(Germany) Thermoscan(

가
가

가 0.5℃

()

student T test

30

(n=60)

15

15

sel)

(superficial epigastric ves-

500 g

30

20℃,

30%

가

, Table 1

(32.5

30

~ 34.2)

0.4

ketamine (dissociative anesthetic agent) 가
가

2 cc/kg

±0.2℃

가

18

1.9±0.7℃

Table 1

4 cm 5 cm

20

(Fig. 1)

0.3±0.1℃

18

535 g (510 g ~ 587 g)

2.9±0.4℃

가

(Fig.

2)

가

(30)

15

1979 Baudéf

10

15

9~0

3℃

가

(Fig. 3)

, 2℃

가

1981 Acland

가 30℃

가



Fig. 1. Design of the flaps.

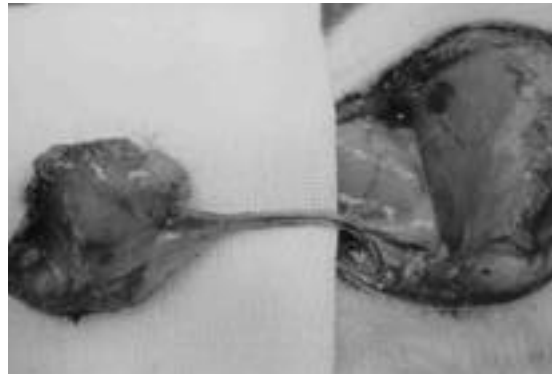


Fig. 2. Flap elevation & dissection of pedicle.

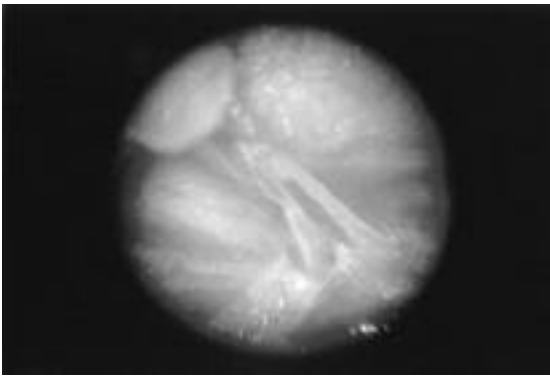


Fig. 3. Artificial ligation of pedicle by 9-0 Nylon.



Fig. 4. Checking the temperature of the flaps

Table 1. Differences of the temperature between the flaps and body

	5 min	10 min	20 min	30 min	1 hr	2 hr	6 hr	12 hr	18 hr
Mean difference (artery)	-0.08	-0.07	-0.30	-0.40	-1.09	-1.48	-1.94	-2.44	-2.92
P value	0.752	0.351	0.047	0.039	0.025	0.018	0.014	0.025	0.036
Mean difference (vein)	-0.06	-0.05	-0.09	-0.40	-0.60	-0.67	-1.08	-1.32	-1.96
P value	0.822	0.391	0.451	0.024	0.015	0.006	0.016	0.024	0.035

Daniel . 1983 Kerrigan 가

2.6℃, 가 2.4℃ 가 20 가 30

가

