

## Contact burn due to a heated-wire breathing circuit

Wonjin Lee · Kwang Rae Cho · Jeong Han Lee

Received: 5 January 2014 / Accepted: 17 February 2014 / Published online: 4 March 2014  
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To the Editor:

A 23-year-old female with no underlying disease underwent septorhinoplasty, which lasted about 3 h and 40 min. A heated-wire breathing circuit was used, and it was fastened at the patient's right thigh to the patient's pants with a Kelly forceps to prevent movement. After 1 h postoperation, a second-degree burn about 13 cm long with a vesicle 1 × 1 cm in size was found on her right thigh (Fig. 1). The direction and shape of the skin lesion matched the heated circuit. It is highly likely that the burn was due to the heated circuit.

The temperature of the material and the duration of contact are important determinants of contact burns [1, 2]. To determine the temperature of the circuit, the heated circuit was wrapped with a skin towel and fastened tightly with a Kelly forceps to create a situation similar to this case. The temperature of the heated wire and the circuit surface reached about 65 and 47 °C, respectively after 1 h at the 42 °C set point. According to a report by Yarmolenko et al. [1] cumulative equivalent minutes at 43 °C

(CEM<sub>43</sub>) between 480 and 960 min caused immediate superficial burns. Assuming that this patient was exposed to 45 °C continuously over a period of 3 h, CEM<sub>43</sub> is 720 min. This is enough heat to cause superficial burns.

In conclusion, it is important to recognize that accidental burns can occur due to a heated-wire breathing circuit. To prevent accidental burns, direct contact of the heated circuit with the patient's skin should be avoided and the heated circuit must not put pressure on the patient's skin.

### References

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**Electronic supplementary material** The online version of this article (doi:10.1007/s00540-014-1810-1) contains supplementary material, which is available to authorized users.

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W. Lee (✉) · K. R. Cho · J. H. Lee  
Department of Anesthesia and Pain Medicine, Inje University  
College of Medicine, Busan Paik Hospital, 75, Bokji-ro,  
Busanjin-gu, Busan, Korea  
e-mail: 2wonjin@hotmail.co.kr