

## Although surgery should not be used as first-line treatment, immediate ablation should be performed when necrotic change around the fang mark is recognized

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Sir,

I was glad to learn that Dr. Jean-Philippe Chippaux (1) made informative comments on our article in his Letter to the Editor entitled “Surgery should not be used as first-line treatment”, published in *The Journal of Venomous Animals and Toxins including Tropical Diseases*, v. 16, n. 1, p. 3-4, 2010. Herein, I give my response and present my considerations on why immediate radical fang-mark ablation may be effective in some cases (2).

Firstly, I also believe that surgery is not the best treatment for snake envenomation, as Dr. Chippaux (1) stated in the conclusion of his letter. Appropriate first-aid treatment for fang wounds is clearly described in the booklet entitled “How to Prevent or Respond to a Snake Bite” by the US Centers for Disease Control and Prevention (CDC), where it is stated “Do not slash the wound with a knife” (3). I believe that mere slashing is of no use for reducing the injected volume of venom; conversely, it may worsen the bite wound by provoking infection and nerve or vessel injury (4).

Secondly, I do not dismiss antivenom usage, as stated in our article: “Continuous observation is indispensable after ablation, and if severe systemic symptoms of envenomation occur [...] antivenom treatment should be indicated with no hesitation” (2). I think this principle is the same when a patient does not undergo ablation.

Thirdly, although snakebites are most

commonly treated with specific antivenoms, surgical management has also been practiced. Several investigators reported that many patients required surgical debridement or amputation to treat bite wounds, subsequent to or along with conservative treatment (5-8). Wongtongkam *et al.* (9) evaluated 85 victims and concluded that there was some degree of tissue necrosis at the bite site in almost all patients. Chattopadhyay *et al.* (10) reported that 28% of 58 patients required debridement to treat local necrosis, and only five needed a skin graft. I do not know when these patients developed necrosis around the fang marks, but maintenance of necrotic tissue in the wounds will almost certainly aggravate the local and general conditions of patients.

The standard method of wound management was presented in 2003 as a guideline for wound-bed preparation, stating that “efficient debridement is an essential step in acute and chronic wound management. The underlying pathogenic abnormalities in the wound cause a continual build-up of necrotic tissue, and regular debridement is necessary to reduce the necrotic burden and achieve healthy granulation tissue. Debridement also reduces wound contamination and therefore assists in reducing tissue destruction” (11). Furthermore, it is well known that all sites of animal bites present a high risk of infection (12). Once tissue undergoes necrotic changes, it cannot survive. Thus, debriding necrotic tissue as soon as possible is a reasonable option from the viewpoint of wound management and infection

control. Moreover, this procedure ensures the removal of remaining venom in necrotic tissue.

Dr. Chippaux (1) expressed concern about hemorrhage risks during surgical ablations; however, necrotic areas show less vascularization so that the control of bleeding by compression of the affected limbs is simple. He also commented about post-surgical risks of infection. As I mentioned for infection control, leaving necrotic tissue in the wound is riskier than surgical debridement of the wound performed by a skilled surgeon. As Dr. Chippaux (1) suggested, the early surgical ablation of necrotic zones often results in relapses leading to the necessity for new surgical intervention over the subsequent days. This occurs when the area ablated is not sufficient and the remaining tissue preserves venom that causes further necrosis. Nevertheless, I feel that favorable outcomes are possible, when wet-to-dry dressing is performed. This mechanism consists of removing gauze pads from the wound bed as soon as they dry, so that they will adhere to the wound surface and the necrotic tissue will be torn from the lesion as the dressing is removed (12).

In my opinion, “immediate radical fang-mark ablation” should be performed in cases when necrotic change around the fang mark is recognized, preventing progressive and rapid effects of venom several after the bite.

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## CONFLICTS OF INTEREST

There is no conflict.

## CORRESPONDENCE TO

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