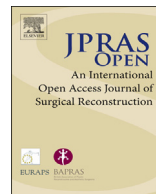




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## Case Report

# Successful microsurgical lip replantation: Monitoring venous congestion by blood glucose measurements in the replanted lip

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## ABSTRACT

Replantation of an amputated lip using microvascular anastomosis is the best option for restoration of the defect. However, the amputated region often lacks veins with appropriate diameters for microvascular anastomoses and typically necessitates both postoperative exsanguination using medicinal leeches and a blood transfusion. We present a case of the successful replantation of an avulsed lip in which postoperative congestion was evaluated objectively by measuring blood glucose levels in the replanted region. The patient presented to our hospital with an upper lip avulsion that was caused by a dog bite. The lip was replanted by the microvascular anastomoses of one artery and two veins using interposed vein grafts. The replanted lip showed signs of congestion on postoperative day one; exsanguination using medicinal leeches was attempted, while blood glucose levels were measured every three hours. Critical congestion, which did not occur in this patient, was defined as a blood glucose level lower than 40 mg/dL. Lip replantation was successful without any complications in this patient.

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This work has never been presented in any meeting or conference nor any publication.

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## Introduction

Replantation using microvascular anastomosis is often the best option for reconstruction of defects associated with a facial avulsion injury. However, the amputated region often lacks veins with appropriate diameters for anastomoses.<sup>1</sup> Even if the veins are large enough to be anastomosed, the amputated region easily develops congestion and requires additional venous drainage using leeches or topical heparin injections, which often necessitate a blood transfusion. Exsanguination should be performed based on objective data to minimise total blood loss. We present the successful replantation of an avulsed upper lip that required postoperative exsanguination using medicinal leeches; the replanted region was objectively monitored for congestion by measuring blood glucose levels in the replanted lip.

## Case report

A 68-year-old female presented to the emergency unit with amputation of the upper lip caused by a dog bite. The size of the amputated region was  $2.5 \times 3.5$  cm and had been placed inside a plastic bag containing water and ice: It consisted of the upper third of the vermilion/white lip with partial left alar skin containing a small amount of orbicularis oris muscle without the mucosa (Figure 1). The patient was taken to the operating room, and replantation was attempted. First, the amputated region was inspected under a microscope: Two labial arteries (0.7 mm), one angular branch of the facial artery (0.8 mm) and two veins (0.5 mm) were found and isolated. The branch of the facial artery and two veins were selected for anastomoses. Because each vessel stump was too short for direct anastomosis, the amputated region was inverted, and the artery was anastomosed with an interposed vein graft that was harvested from the dorsum of the left hand. The amputated region was promptly revascularised, and the venous return was detected from the two vein stumps within the amputated region immediately after the artery was unclamped. The two veins were anastomosed with interposed vein grafts that were harvested from the dorsum of the left foot (Figure 2). The amputated region was again inverted and roughly secured with 4-0 nylon sutures (Figure 3). The procedure lasted 9 hours, 42 minutes, with a total ischemia time of approximately 9.5 hours. On postoperative day one, part of the flap became livid, and we administered leech therapy and intravenous heparin (5,000 U/day). The replanted lip's blood glucose levels were monitored every three hours by a pin prick; critical congestion was defined as a blood glucose level below 40 mg/dL. Throughout the entire procedure, these levels were stable (mean 90.1 mg/dL, standard deviation (SD) 23.4) and never dropped below 40 mg/dL. Leeches were



**Figure 1.** The avulsed upper lip/ala, and the amputated region.

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