Microsurgical Reimplantation of Total Scalp Avulsion — Case Report

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ABSTRACT

A 25-year-old woman, victim of a total avulsion of the scalp including a large portion of the forehead, when the rotative machine caught her hair:

Successful reimplantation was carried out using microsurgery.

Reimplantation should be attempted in all scalp avulsions.

INTRODUCTION

In our society, where agricultural activities are predominant, the mechanization process came up with new kinds of accidents, moreover those caused by the rotative axes of plows.

When the axes used in agricultural equipment catch plowmen clothes or long hair they cut off certain body segments.

The mechanism of avulsion of the scalp in accidents caused by plows generally occurs in the subgalea region. In the total avulsion, many other structures may be evolved like the cutaneous portion of the face, eyelids and ears. In these regions, the frontal and occipital muscles present less resistance than the galea.

The resulting sequelae from the total avulsion of the
A plowman, evangelical, entered the emergency room of Hospital de Base de Bauru (Bauru, SP, Brazil) two hours after the trauma, on October 28, 1990.

The rotative axis of a farm tractor caught the patient's hair, which led to the total avulsion of the scalp.

It was possible to observe a portion of the frontal region of the face, the eyebrows and part of the upper eyelids in the amputated segment, which was washed with saline solution, warped in gauze and placed then in a plastic bag to be cooled in an icebox.

Laboratorial and radiological tests (skull X-ray) were normal.

The patient was submitted to surgery under general anesthesia about one hour after the first aid. Cleaning with water and neutral soap and debridement were performed.

The scalp was trichotomized and washed once more in saline solution. Next, a wide artery and vein were identified for a surgical anastomosis.

The left superficial temporal artery was dissected as it presented better condition than all other vessels, which were very damaged.

A terminoterminal microsurgical anastomosis of the superficial temporal artery was performed using 10-0 nylon. After the release of the arterial flow, a little was waited for bleeding, in order to facilitate the identification of vessels. The distal stump of the superficial temporal vein was anastomosed with its proximal stump.

The scalp was sutured with 5-0 nylon and the skin of the face with nylon 6-0. Draining with Penrose drains, cotton plaster and smooth binding were done. Antibiotics (cephalosporin, 3mg/day), platelet antiaggregative (acetylsalicylic acid, 1g/day) and anticoagulator (Liquemine) were used.

The surgery lasted about four hours and the postoperative did not have any intercurrences. Hair growth was normal.

**DISCUSSION**

Due to religious matters, the patient had very long hair. Besides that, she neglected warping her hair while working near the plow. These factors led to this kind of accident.
The avulsion mechanism in these cases is generated by a continuous rotative movement causing a very intensive traction that results in the avulsion of the affected structure.

Using a hairnet would be an effective way to avoid this kind of accident and such procedure should be obligatory in agriculture.

Microsurgery has led to an adequate restoration (figs. 1, 2, 3, 4, 5) as it immediately reestablished the blood circulation. Generally, the anastomosis of a vein and an artery is enough to restore the circulation in scalp (fig. 3), but it is advisable to restore as many vessels as possible.

The great avulsions look more catastrophic, but they present better results due to the presence of wide remaining vessels in the amputated segments.
REFERENCES


