Post-traumatic neuroma in the occipital region after hair restoration surgery:
Case report with a review of literatures

Abstract

We experienced a 37-year-old woman who presented with post-traumatic neuroma at donor sites after hair restoration surgery. We therefore performed a biopsy of the donor site including the lesion. The lesion was measured as 5×8 mm in size, and it was present on the scar tissue. On histopathologic examinations, the patient was diagnosed with post-traumatic neuroma. At a 1-month follow-up, the patient achieved a complete resolution of the occipital pain. To our knowledge, this has not been described in the literature.

In conclusion, our case indicates that clinicians should consider the possibility of post-traumatic neuroma in patients undergoing hair restoration surgery.

Key words:

Introduction

Post-traumatic neuroma occurs as a result of surgery or trauma.¹ It is such a very rare disease entity as to cause chronic headache.² Although it is not a true neoplasm, its hyperplastic response of the nerve to injuries during the tissue repair has been well
Moreover, it is present as a palpable nodule mass. Furthermore, it also occurs secondarily to the abnormal proliferation of nerves and connective tissue, distributed in the area after traumatic nerve damages.\textsuperscript{3,4} On gross examination, it appears as firm, oval, whitish nodules; its size is larger than 2 cm in some rare cases.\textsuperscript{5} It is composed of a dense fibrous appearance with little vasculature. Despite a lack of the capsule, the outer layer of fibrous tissue is often inseparable from the surrounding scar. It is also histopathologically characterized by the continuation of the outer layer of connective tissue with the perineurium of the intact nerve trunk.\textsuperscript{6}

It appears as a tender nodule on the incision line.\textsuperscript{7} Patients with traumatic neuroma may present with paraesthesia due to nerve damages.\textsuperscript{6} In patients who had a past history of taking cancer resection and palpable nodules, clinicians should consider the possibility of tumor recurrence.\textsuperscript{6}

We experienced a 37-year-old woman who presented with post-traumatic neuroma at donor sites after hair restoration surgery. To our knowledge, this has not been described in the literature. Here, we report our case with a review of literatures.

**Case description**

A 37-year-old woman visited us with a chief complaint of left occipital pain. On history taking, the patient presented with pain after undergoing follicular unit strip surgery (FUSS) seven years ago. On gross examination, the patient had a white-colored, hairless, small lesion in the left occipital region. On compressing the lesion, we palpated a slightly bulging mass and noticed that the patient complained of pricking pain that
nearly reaches the vertex of the head. But the patient did not present with pain without irritation to the lesion.

The patient was suspected of having post-traumatic neuroma. We therefore determined to perform diagnostic tests for the purpose of establishing a diagnosis of it. But the patient wanted to take additional hair restoration surgeries. We therefore performed a biopsy of the donor site including the lesion. The lesion was measured as 5×8 mm in size, and it was present on the scar tissue. On histopathologic examinations, the patient was diagnosed with post-traumatic neuroma. At a 1-month follow-up, the patient achieved a complete resolution of the occipital pain.

**Discussion**

Post-traumatic neuroma shows an increased response to nerve injuries, thus resulting in reactive hyperplasia although it is not a true benign neoplasm. In more detail, it is described as a loss of the nerve tissue repair because of the scar tissue.

It is known that the post-traumatic neuroma may occur in all the body areas. That is, it may occur in the mandible in patients who had fracture or underwent surgeries and the sympathetic nervous system in those whose cystic duct was amputated during cholecystectomy. In addition, it is typically classified into spindle neuroma arising from chronic friction or irritation to the intact nerve trunk and terminal one arising from nerve damages. On computed tomography (CT) scans, its findings include focal irregularities or swelling of the distal terminal of the transected nerve.

In the treatment of the post-traumatic neuroma, several methods have been attempted
up to present.\textsuperscript{11} A surgical excision may be a useful modality in this series.\textsuperscript{7, 12} But non-surgical methods, such as local steroid injection, sympathetic nerve block and percussion with mechanical vibrators, are less effective.\textsuperscript{6} According to Close et al.,\textsuperscript{13} surgical excision may be effective but would not necessary for the lesions that are present in such areas as the posterior region to the carotid artery near the second cervical nerve and it may be associated with paresthesia.

The hair follicle is present in the subdermal layer.\textsuperscript{14} Therefore, nerves between the fat and galea right below the subdermal layer might be damaged. As shown in the current case, the overproliferation,abnormal proliferation of neurons during the regeneration of damaged nerves may lead to the occurrence of post-traumatic neuroma.\textsuperscript{5} Patients with post-traumatic neuroma typically present with headache with the compression of the lesion and pricking pain along the pathway of the nerve. But such symptoms may be temporarily alleviated through the injection of anesthetics or steroids. A surgical excision of the lesion can therefore achieve a complete cure of it in this series.

In conclusion, our case indicates that clinicians should consider the possibility of post-traumatic neuroma in patients undergoing hair restoration surgery.

References


