Multiple familial trichoepitheliomas: A disfiguring malady successfully treated with carbon dioxide laser

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Trichoepithelioma is a rare benign tumor arising from hair follicles usually located on the nose, upper lips and cheeks. The condition usually affects females and is cosmetically disfiguring. Malignant transformation is rare. We report a case of trichoepithelioma in a 14-year-old female, who presented with an eleven-year history of multiple skin-colored, firm, asymptomatic papules and nodules on the face. The patient was treated with three sessions of carbon dioxide laser ablation to remove the lesions. Most of the lesions resolved with atrophic scars, which were subsequently treated with carbon dioxide laser resurfacing. Close follow-up is recommended in this case to monitor for recurrence.

Keywords: trichoepithelioma, carbon dioxide laser

INTRODUCTION

Trichoepithelioma is a rare benign skin lesion that originates from hair follicles usually located on the face but can also be present on the scalp, neck, trunk, and arms. It usually presents with multiple, skin-colored asymptomatic papules with a predilection on the upper lip, nasolabial folds, and eyelids. It is cosmetically disfiguring, usually affecting females during childhood or adolescent. According to the Philippine Dermatological Society Health Information System census of the Research Institute for Tropical Medicine (RITM), there were 50 cases noted from 2004-2015, 35 of which were females. Malignant transformation is rare for this condition. Various treatment modalities include split thickness skin grafting, dermabrasion, electrosurgery, and laser surgery but the results of these procedures vary among individuals and recurrences are common.

CASE REPORT

A 14-year-old female presented with an eleven-year history of a few skin-colored, firm, asymptomatic papules on the right cheek, gradually increasing in number, with some evolving into nodules on the nose, nasolabial folds, forehead and left cheek. The skin lesions were a source of great embarrassment on the part of the patient, limited her social interactions and affected her school performance.

Dermatologic examination revealed multiple skin-colored firm papules and nodules on the forehead, cheeks, nose and nasolabial folds (Figures 1a-c).

A 4mm skin punch biopsy on the lesion revealed a basaloid tumor in the dermis with a focal connection to the overlying epidermis showing lobules of basaloid cells and few horn cysts, consistent with trichoepithelioma (Figure 2).

Treatment options including electrocoagulation, carbon dioxide (CO₂) laser or surgery, together with the corresponding advantages and disadvantages of each procedure were discussed with the patient and her guardians. The patient opted for CO₂ laser ablation and resurfacing. Complications such as scarring and recurrence of lesions post procedure were thoroughly explained and understood by the patient and her guardian prior to signing an informed consent. The procedure was done using CO₂ Smart Fractional laser (Korea) with the following parameters 241-252W peak power, a pulse duration of 500-700ms and repeat time of 10ms. The patient underwent two sessions of carbon dioxide laser ablation, with two weeks interval to completely remove all presently existing lesions (Figures 3a, 3b). Two weeks after CO₂ laser ablation, she underwent two sessions of CO₂ laser resurfacing, with a one-month interval, using the same CO₂ laser and following the suggested laser protocol for acne scars, with a depth level of 1, fluence of 42 mJ, duration of 1.8ms and density level of 12 (Figure 3c). Secretion of Cryptomphalus aspersa (SCA) in serum preparation (Endocare®), containing snail-derived growth...
factors and glycosaminoglycans was applied post-procedure and maintained twice a day for three days. Topical tretinoin 0.05% cream and sunscreen were used as maintenance treatment. The patient was followed-up every 2 weeks to note for recurrence. After 1 month from the last session of laser resurfacing, few new lesions were noted on the nasolabial fold, cheeks, and forehead. The patient underwent her third session of CO₂ laser ablation using the same parameters. (Figure 3d). Patient’s self-confidence has been boosted and she opted to return to school.

DISCUSSION

Trichoepithelioma is a rare benign neoplasm that originates from follicular germinative differentiation. Trichoepitheliomas may be divided into the multiple familial trichoepithelioma, solitary trichoepithelioma, and desmoplastic trichoepithelioma.¹ ²

Patients with multiple familial trichoepitheliomas (MFT) typically begin developing tumors during childhood or adolescence. The tumors present as skin-colored papules or nodules on the face, located preferentially on the nasolabial, upper lips and cheeks, but may also occur on the neck, scalp, or trunk. They may grow larger and increase in number over time.³ ⁴ In severe cases, the tumors may get in the way of vision and hearing. It can be disfiguring enough to cause depression and contribute to other psychological problems leading to losing self-esteem and confidence.¹ ⁵

Histologically, trichoepitheliomas are dermal tumors with focal continuity with the overlying epidermis. They are composed of islands of uniform basaloid cells, sometimes showing peripheral palisading. Moreover, there are usually branching nests of basaloid cells.⁶ Small keratinous cysts lined by stratified squamous epithelium are quite common. The stroma is prominent and loosely arranged.⁷ It shares similar features with basal cell carcinoma (BCC) and their distinction may be difficult in small biopsies. The main histological features that distinguish BCC from trichoepitheliomas are stroma, clefting and the absence of papillary mesenchymal branches. Reports have shown that trichoepithelioma can undergo malignant transformation to BCC but this is a rare occurrence.¹

The negative effect of this condition on the patient’s psychological well-being and self-confidence warrants early treatment. Various palliative treatment approaches have been described in the literature, including electrocoagulation, cryotherapy, dermabrasion, trichloroacetic acid, retinoic acid, carbon dioxide (CO₂) laser, radiation therapy, and surgery.

In our case, we opted to use the CO₂ laser which is considered as the gold standard for vaporization of soft tissues using the ablative mode. CO₂ laser emits energy in the form of infrared light at a wavelength of 10,600 nm and primarily targets intracellular and extracellular water molecules.¹ This
leads to vaporization of the skin with coagulative necrosis in the remaining dermis. It can be used in the continuous or focused mode for making relatively bloodless incisions. The important characteristics of this laser are its rapid action, the selectivity and precision of its effects, and its high specificity for tissue damage producing highly localized destruction and enabling multiple lesions to be treated with minimal bleeding. The complications of treatment include immediate side effects such as erythema, edema, and pain within hours or days after treatment.

In a study by Allende et al, they presented two cases of multiple trichoepitheliomas treated with CO$_2$ laser. The first patient was a 43-year-old female who was treated over 9 years and received 4 sessions of continuous wave CO$_2$ laser. The second case is a 43-year-old male who had undergone sessions every 2 years of continuous wave CO$_2$ laser. In both cases, the cosmetic result had been satisfactory, achieving a significant reduction of the lesions, though they had never disappeared completely. Over time there had been a gradual recurrence, associated with the appearance of new lesions, but there was an adequate response to further CO$_2$ laser treatments.

Carbon dioxide laser therapy, ever more widely used in dermatology, was a good therapeutic option in our case as the large number of trichoepitheliomas on the face lead to a significant inferiority complex and psychological trauma. We were able to offer a treatment that, although may not be permanently curative, has nevertheless achieved good cosmetic results with minimal side effects.

CONCLUSION

Trichoepithelioma is a rare condition that is cosmetically disabling and can cause a great impact on patient’s self-esteem. Effective treatment with carbon dioxide laser using both ablative and resurfacing modalities improved our patient’s quality of life. Close follow-up is needed to monitor recurrence. Prompt management is recommended in most cases to avoid cosmetic disfigurement and inferiority complex.

REFERENCES
