

## Case 15

A 15-year-old Thai male from Samutprakarn

**Chief complaint:** A 7-year history of multiple skin-colored papules on face



### Present illness:

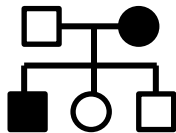
He presented with a 7-year history of asymptomatic skin-colored papules on face, predominately on centrafacial area. The lesions progressed in number over time. He had no other systemic symptoms. No previous treatments have been done before.

### Past history:

He has no underlying diseases.

### Family history:

His mother also has similar lesions on face, however the lesions have not been observed in his siblings.



### Physical examination:

Other systemic examination revealed no abnormality.

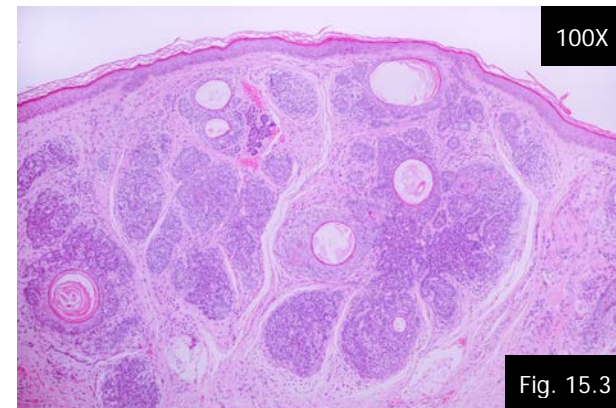
### Dermatological examination:

Multiple discrete dome-shaped, skin-colored papules with rubbery in consistency, size up to 8 mm on face, predominately on centrafacial area

### Histopathology:

 (SC18-00171A, Left side of nose) (Fig. 15.3)

- Dermal nodules composed of aggregates of multiple lobular and cribriform aggregates of basaloid cells with horn cysts, embedded in dense fibrous stroma
- Some aggregates show follicular differentiation with hair germ and rudimentary papillae



**Diagnosis:** Multiple familial trichoepithelioma

**Treatment:** Carbon dioxide (CO<sub>2</sub>) laser

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### Discussion:

Trichoepithelioma is a rare benign skin lesion, originates from hair follicle. It appears as skin-colored papule or nodule measuring 2 to 8 mm and is mostly seen on scalp, nose, forehead, and upper lip, causing social and psychological problems.<sup>1</sup> Trichoepithelioma is

usually found in multiple lesions, but it can also be solitary in number. The incidence of multiple trichoepithelioma in the US has been reported between 2.14-2.7 cases per year, with female predilection.<sup>2</sup> Nowadays, trichoepithelioma can be divided into three subtypes; multiple familial trichoepithelioma, solitary trichoepithelioma, and desmoplastic trichoepithelioma.<sup>1</sup>

Multiple familial trichoepithelioma (MFT) is an autosomal disorder, defect in cylindromatosis or CYLD gene, tumor suppressor gene located on chromosome 16q12-q13, which also be a gene mutation of familial cylindromatosis (FC) and Brooke-Spiegler syndrome (BSS).<sup>3,4</sup> Multiple trichoepithelioma is not only found in MFT it is also associated with other diseases or syndrome, such as Rombo syndrome, Bazex-Dupre-Christol syndrome, basal cell nevus syndrome, myasthenia gravis, and systemic lupus erythematosus. According to our patient, we did not find any association. Even though we did not work up for the gene mutation, but clinical feature in our patient with positive family history lead to the diagnosis of MFT.

Malignant transformation is rare. There are a few case reports of multiple trichoepithelioma turning into a malignancy, which histopathology revealed a transformation zone between primary trichoepithelioma with malignant neoplasm, such as basal cell carcinoma and malignant trichoblastoma.<sup>5,6</sup> Clinical signs of malignant transformation comprise of pain, ulceration, and rapid growth.<sup>4</sup>

Trichoepithelioma usually can be diagnosed via naked eye-examination. Histopathology is usually be done to confirmed the diagnosis. It reveals a small, well-circumscribed, dermal tumor with branched nests of basaloid cells, small horn cysts, abortive hair papillae, and a rather dense collagenous stroma with stromal-stromal cleft.<sup>1,2</sup> Dermoscopy was used as an adjunctive non-invasive diagnostic tool. Each papule revealed an in-focus arborizing vessels, multiple milium-like cysts and rosettes amidst a whitish background.<sup>2</sup> However, histopathology still be the definite tool to diagnosis this kind of tumor.

Many modalities were reported as a treatment of trichoepithelioma, included surgical excision, dermal abrasion, laser surgery, curettage, topical imiquimod alone or combined with topical retinoic acid. But most of them associated with increased rate of recurrence.<sup>1</sup> Sinha K, et al.<sup>7</sup> reported a series of 9 cases with trichoepithelioma treating with CO<sub>2</sub> laser ablation. Four cases required more than one session of treatment at 6 months. All patient satisfied with cosmetic outcome with 1-year follow-up. The common side effects of CO<sub>2</sub> laser were erythema, edema, and hyperpigmentation.<sup>7</sup> According to our patient, he was treated with 2 sessions of CO<sub>2</sub> laser at 5-month interval. The overall feature expressed satisfaction of cosmetic outcome. By the way, some lesions are still recurrent. Recent study reported that hypoxia-inducible factor 1 (HIF1) and mTOR signaling seems active in both trichoepithelioma and basal cell carcinoma.<sup>8</sup> Tu JH, et al.<sup>9</sup> reported two siblings with MFT. One was treated with CO<sub>2</sub> laser combined with 1% topical sirolimus, the other was treated with topical sirolimus alone. Both siblings had a reduction in the growth of new lesions without side effects.<sup>9</sup> Baur V, et al.<sup>10</sup> reported a 53-year-old patient with MFT with malignant transformation. Surgical excision of malignant tumor was performed. Furthermore, a new metatypical basal cell carcinoma with lung metastasis occurred, leading to the treatment with vismodegib, antagonist of Hedgehog signaling pathway and downregulation of glioma-associated oncogene Gli1 mRNA. A significant decreased in trichoepithelioma size and number, especially on face, was occurred, in contrast with malignant tumor with metastatic lesions.<sup>10</sup> They hypothesized that Gli upregulation is indirectly caused by CYLD mutation which promotes tumor growth.<sup>10</sup> Both sirolimus and vismodegib could be provided a new treatment option for patients with trichoepithelioma.

## References:

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