Management and mRNA Activity of Hereditary Gingival Fibromatosis

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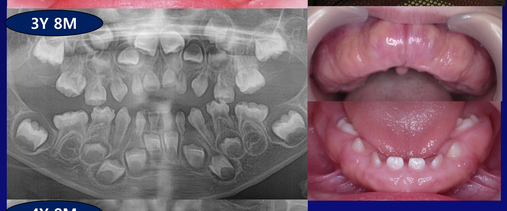
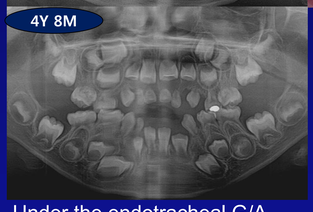
INTRODUCTION

Hereditary gingival fibromatosis(HGF) is characterized by various degrees of gingival overgrowth. It usually develops as an isolated disorder but could be one feature of a syndrome. This presentation reports a 2-year-old girl who had generalized severe gingival overgrowth, involving the maxillary and mandibular arches and covering almost all teeth. She presented with multiple impacted primary teeth and delayed eruption of permanent teeth. The patient had no known syndrome but there was a family history. The goal of this presentation is to describe the treatment under general anesthesia and genetic activity of HGF by microarray.

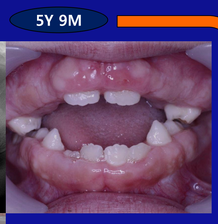
CASE REPORTS

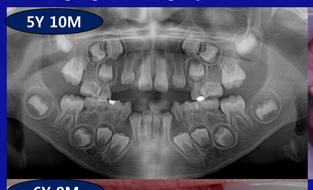




Primary tooth without root are drifting and incisors were lost state in early age.
The patient was not able to close her lips completely and had difficulty chewing food.

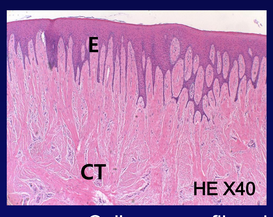
Under the endotracheal G/A, Mucogingival surgery was done

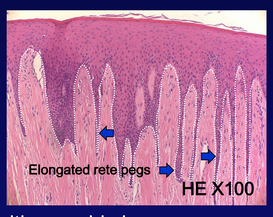




Her gingival condition was satisfactory with no recurrence.
The problem such as anterior open bite, incomplete posterior bite, spacing remained.

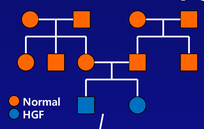
Histopathologic Findings



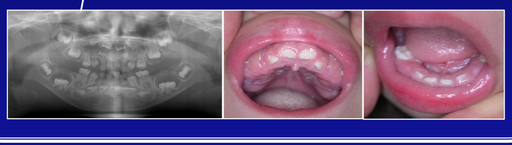


Collagenous fibrosis with myxoid change, clinically gingival fibromatosis

Family history

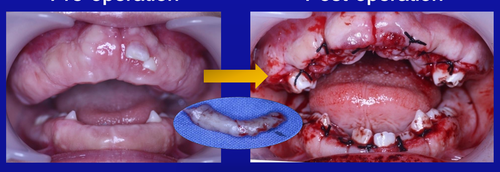


Her brother was also diagnosed with HGF and had been treated with gingivectomy in 2010.



Treatment

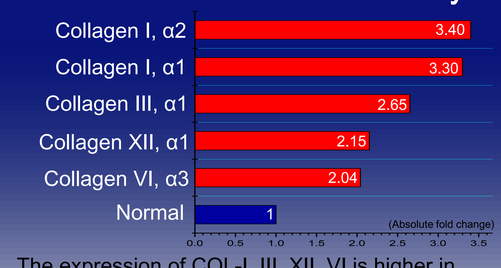
Pre-operation Post-operation



External bevel gingivectomy with wedge shape
Extraction of over-retained and unerupted primary teeth to facilitate the eruption of the permanent teeth.

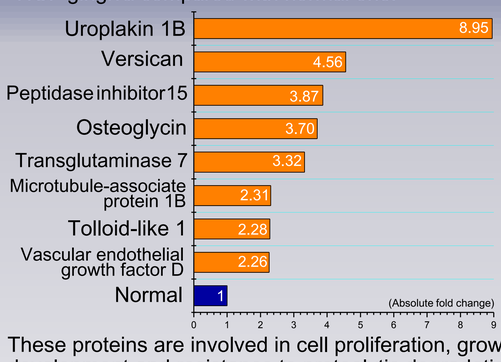
mRNA activity measured by microarray

Collagen in HGF gingiva



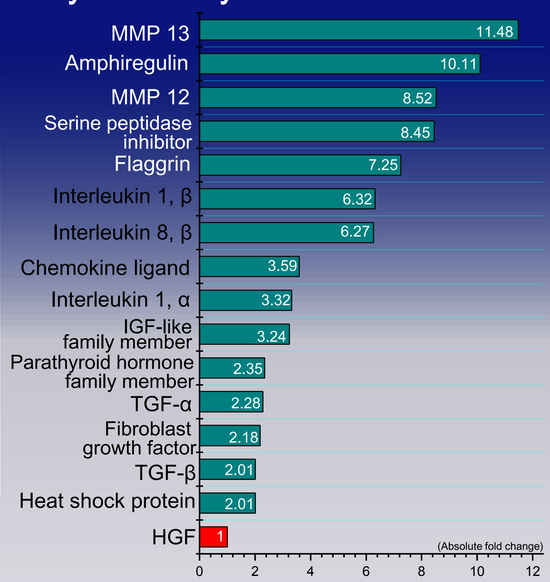
The expression of COL-I, III, XII, VI is higher in HGF gingiva compared with normal one.

Up-regulated genes in HGF gingiva



These proteins are involved in cell proliferation, growth, development and resistance to proteolytic degradation. They play a role in increased collagen in HGF gingiva.

Up-regulated genes in normal gingiva



The decreased expression of MMP13, MMP12, IL-1, IL-8 is seemed to be the main molecular mechanism in this case. Other genes like amphiregulin, flaggrin are essential for the regulation of epidermal homeostasis.

COMMENT

Surgical intervention is the usual treatment of HGF, but patients still have to deal with the risk of recurrence through periodic check. This case report revealed the genetic problems, using comparative gene expression analysis. These findings would seem to suggest that collagen accumulation in the HGF gingival connective tissue was associated with genes which are essential for the regulation of cell proliferation and degradation.