

## Impact of Hashimoto's Thyroiditis (Ht) On Periodontal Treatment – A Case Report

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**Abstract:** Periodontitis is a multifactorial disease with microbial dental plaque as the initiator of periodontal disease. However the manifestation and progression of the disease is influenced by a wide variety of determinants and factors. The strongest type of causal relationship is the association of systemic disease and periodontal disease.

Similarly, we present a case of Hashimoto's thyroiditis which altered the periodontal therapy. Hashimoto's thyroiditis is an autoimmune disease seen in children and women. A female patient diagnosed as chronic periodontitis was treated with periodontal flap surgical procedure with bone grafting as and where required. The 3 month reassessment showed fair prognosis obvious changes. However a year later the patient's periodontal status was severely deteriorated. Medical reports revealed Hashimoto's thyroiditis. A possible association of Periodontitis and Hashimoto's thyroiditis is considered in the case report.

**Key words:** Hashimoto's thyroiditis, Periodontitis, Stress.

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### I. Introduction

Recent studies in periodontal medicine suggest a mild to moderate association between certain systemic disorders such Diabetes mellitus, Pneumonia, heart diseases, Preterm deliveries and Rheumatoid arthritis. New data suggest that this association is not indicated by traditional clinical signs of periodontal disease but rather by a cluster of host immune and inflammatory mediators<sup>1</sup>.

Recent evidence suggests that the underlying systemic conditions will affect the outcome of periodontal treatment plan.<sup>1</sup> Identifying and alleviating these systemic disease conditions for further periodontal improvement is of paramount importance. Here is an unusual case of HT, where the periodontal therapy is compromised due to the underlying systemic condition. Hashimoto's thyroiditis is the most common cause of thyroid disease in children and adolescent. It is also called as "autoimmune or chronic lymphocytic thyroiditis". It is characterized by production of immune cells and auto-antibodies by body's immune system of thyroid tissue.

Although there are no existing preliminary studies suggesting the possible association of HT and its effect on periodontal health, here we present an unusual case with HT which could be a possible cause for progression of periodontal disease.

### Case Report

A female of 43 yr. age, reported to the Department of Periodontics Triveni Institute of Dental Sciences, Hospital and Research Centre.

### CLINICAL AND RADIOGRAPHIC FINDING PRIOR TO HT 1st Visit

Patient complains of

- Bleeding gums in upper and lower front and back region since 9 months.
- Loose teeth in lower front region since 4-5months.

Patient gives history of bleeding gums in maxillary and mandibular anterior and posterior region since 9months. Bleeding is intermittent and aggravates while brushing. Mobility in mandibular anterior region since 4-5months. Patient presents with no relevant medical history during 1 visit.

### Clinical examination

Revealed poor oral hygiene, generalized bleeding on probing (BOP), generalized pockets of 6-8 mm, grade III mobility 31 and 41, grade I mobility 26, 46 and 36.

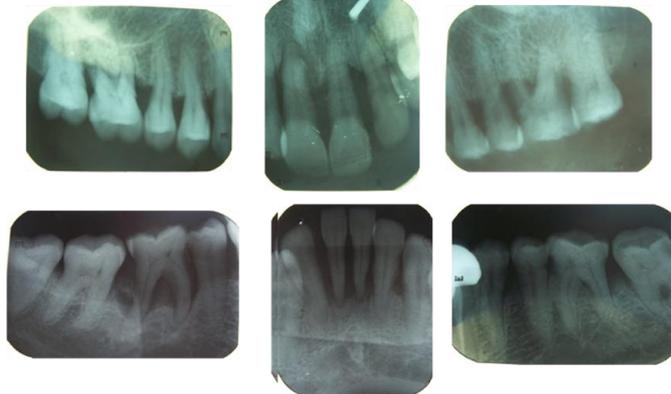
Routine blood investigations comprising of Clotting time, Bleeding time, White blood count, Differential count, Hemoglobin, Random blood glucose levels, were of normal values.

Therefore the diagnosis of Chronic Periodontitis was made.

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**Legendary Photo 1**

Radiographic findings



**Vertical defect i.r.t 16,17,26,36,46,**

**Bone loss- 60-70%**

Pre-operative Prior HT

Treatment comprising of pocket reduction therapy i.e. Periodontal full thickness flap with bone grafting (Osseo graft) i.r.t 16,17,26,36,46. 31 and 41 were extracted and Prosthesis was given. During maintenance phase after 3months, there was no BOP, reduction in PD 4-5mm. Patient presented with good oral hygiene.

**Clinical And Radiographic Findings After The Diagnosis Of Ht**

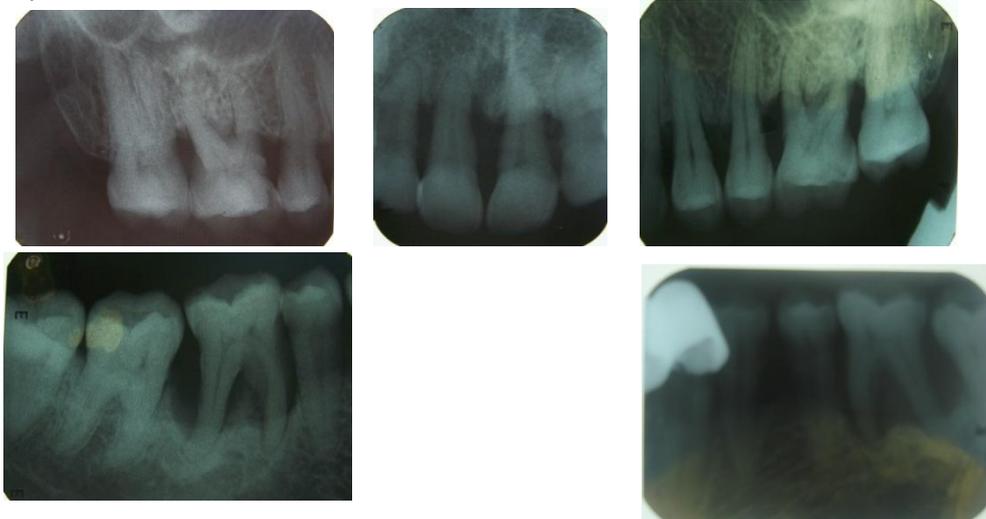
- After a year a patient complained of loose teeth in upper front region.
- Patient's medical history revealed the development of Hashimoto's thyroiditis.
- Medical report comprising of nuclear scintigraphy, T4 levels favoured a definitive diagnosis of HT
- Clinical parameters presented with grade III mobility with 11,36 and grade II with 21 and 46
- However pockets of 9mm were detected in relation with 11, 26, 34, 36,46.

**Legendary Photo 3**



Post-operative photo after HT

**Legendary Photo 2**



Post-operative after HT

**Nuclear Scintigraphy and T<sub>4</sub> levels** confirmed the diagnosis of Hashimoto's thyroiditis. However oral hygiene status was good, radiographic finding revealed vertical defect 26, 34, 36, 46 .In spite of good oral hygiene these findings showed progressive destruction.

## II. Discussion

In 1912, Hashimoto described the term 'struma lymphomatosa'. The autoimmune nature of this form of thyroiditis was established in 1956 by Rotter et al.<sup>2</sup> Patients presents with hypothyroidism, mood alteration, weight gain, menstrual disorder, stress and depression<sup>3</sup>.

The pathogenesis in HT is lymphocytic infiltrate into the gland and the production of autoantibodies directed toward thyroglobulin and thyroid peroxidase<sup>4</sup>.

Common oral findings include macroglossia<sup>5</sup> dysguesia, root resorption<sup>6</sup> decreased salivary gland secretion<sup>7</sup>, poor periodontal health, delayed wound healing and osteoarthritis of the TMJ<sup>8</sup>.

In the present study, the tissue response to the periodontal therapy was adversely affected. The clinical parameters comprising of Bleeding on probing (BOP), pocket probing depth (PD) and tooth mobility evaluation showed further increased destruction. The radiographic finding comparing pre and post operative represented an increased bone loss.

**Table no 1**

### CLINICAL FINDING

	Pre-operative (Prior HT)	Post-operative (after HT)
BOP	Moderate	Moderate
PD	6-8mm	7-9mm
Mobility	31,41	11, 21, 36 and 46.
Radiographic findings	60-70%	70-80% in 11, 46.

To support the **poor tissue response to periodontal therapy**, a classic article by Scardina and Messina has shown a possible association of HT and Periodontitis. Reduced caliber and greater no. of tortuosity of gingival capillary loops in interdental region are observed in HT cases. The clinical consequences of altered gingival microcirculation could be a compromise of the first line of defense .For the defense cells to perform their function, some receptors must be expressed in correspondence with the endothelial wall.

Thus the first step of the non-specific defense involves a greater vulnerability in the subject. Such morphological data appear extremely relevant since they would certainly be altered during particular pathologies such as HT<sup>9</sup>.In this case, the amount of alveolar bone loss was further correlated with evaluation of salivary alkaline phosphates which was increased up to 63ul in comparison with normal of 32.2+/- 5.2<sup>10</sup>. The amount of bone destruction could be attributed to the pathogenesis of HT. The endothelial dysfunction in these patients presenting with low grade chronic inflammation impairs nitric oxide availability by a Cox-2 dependent pathway leading to increased production of oxidative stress<sup>11</sup>.

**Stress or mood alteration** are the characteristic features of HT. Evidence suggesting association stress and periodontal disease is already stated<sup>12</sup>.Therefore a correlation of stress altering the blood flow and trafficking of inflammatory cells can induce set of reactions that have effects on virtually all body systems. However association of HT, stress and periodontitis need to be evaluated.

## III. Conclusion

Since conclusion could'nt put forth, we suggest that cases of HT particularly, in female be considered for an appropriate diagnosis, treatment plan and management

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