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## CASE STUDY

### SIGNIFICANCE OF EARLY MANAGEMENT OF DENTURE-INDUCED FIBROUS HYPERPLASIA

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#### ABSTRACT

Over extension of denture border is the main cause of denture-induced fibrous hyperplasia (DIH) especially with immediate denture. We report a 53-year-male with the chief complaint of a loose immediate maxillary denture as well as pain and discomfort during mastication and asking for new denture. Patient was examined and medical history was taken. Intraoral examinations revealed that folding with deep fissure covered by white granulation tissue in the maxillary right labial sulcus and left buccal sulcus related to the overextended thin denture borders and diagnosed as DIH. Treatment started with border adjustment and finally new denture fabrications. Exact Denture border extension verifications and adjustments during insertion is the most important step as well as patient education and periodic follow up after denture insertion for prevention of DIH occurrence.

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## INTRODUCTION

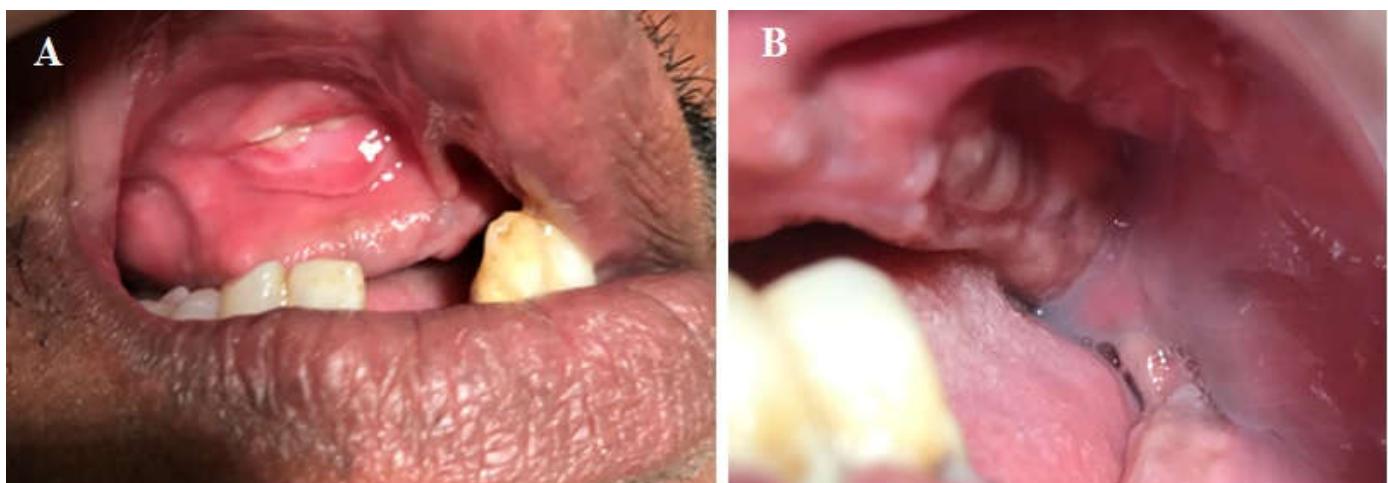
The modern dentistry requires the dentists to acquire the necessary knowledge in order to protect the health of the oral tissues and prevent the chronic diseases of the oral mucosa. One of the necessary conditions to prevent the occurrence of denture-induced hyperplasia (DIH) is to perform standard prosthetic treatments on the patients and carry out the necessary maintenance procedures of the denture as soon as possible (Mohammadi *et al.*, 2017; Kalavathy *et al.*, 2010). One of the most important responsibilities of the prosthodontist at the time of denture insertion is to provide specific instructions in order to protect the health of the mucosal tissues under the denture (Veena *et al.*, 2013). The maintenance and hygiene-related advice such as how to wash the denture and the length of wearing the dentures throughout the day and also recommendations on regular visits to make sure of the health of the tissues under the denture over time are among these necessary instructions (Mohammadi *et al.*, 2017; Veena *et al.*, 2013). After denture insertion, continued denture usage may cause development of new parallel masses

related to the complete denture borders and this condition clinically presented as DIH. The size of DIH varies between small (less than 1cm) to massive lesions (Veena *et al.*, 2013; Monteiro *et al.*, 2012). DIH is asymptomatic, so the patient continue to use the ill-fitted denture until the lesion increase in size and hyperplastic tissue formation with chronic features. After that, pt. may complain from discomfort due to large considerable size and may ask for treatment (Veena *et al.*, 2013). It was reported that the ill-fitting denture with sharp borders have susceptibility to cause oral carcinoma therefore, continues wearing of ill-fitting dentures and their sequelae should not be ignored (Rosenquist, 2005). If ignored, the lesion increased to considerable size, the treatment should include excision of the mass following the correction of denture border surgical treatment. Excision can be done either by conventional blade surgery, Laser electro surgery, or by cryosurgery (Shirani, 2009). To avoid lesion progress and treatment, early management could be easiest solution for DIH prevention.

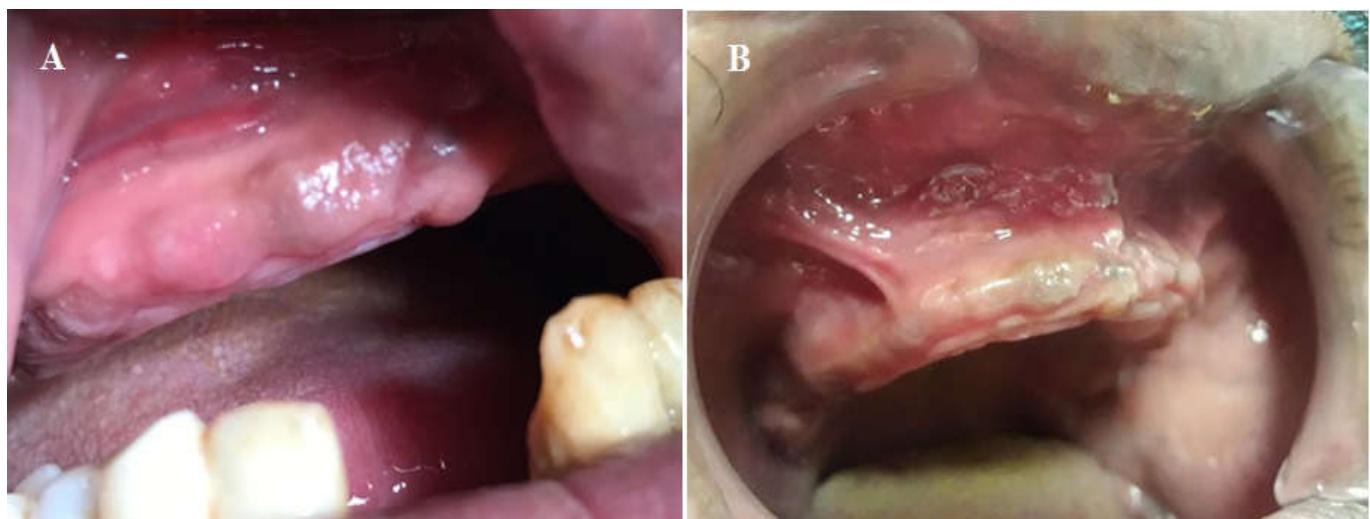
**Case Report:** A 53-year old male heavy smoker patient attended at the substitutive dental sciences department, college of dentistry, Imam Abdulrahman Bin Faisal University, with the chief complain of loosening immediate maxillary complete denture which fabricated 3 month before and ask to fabricate a new CD.

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**Figure 1. A. B. DIH along labial and posterior border of the upper denture**



**Figure 2. Lesion regression. A, healing after week; B, complete regression of the lesion**

Patient had been using dentures constantly since 3 months. On thorough clinical examination, folding of labial and buccal sulcus of maxilla. Deep fissure between tissue folds covered by white granulation tissue in relation to maxillary anterior region (1cm size) and disto-buccal corner (2cm), (Fig. 1A,B). The patient has been suffering from pain and discomfort during mastication for the past 2 months. The folds of the lesion engulf the borders of the denture between and this folds were soft in consistency and smooth in texture [Figure 1A,B]. Medical history was not contributory, and he did not use any medications except for vitamins and minerals. Bad oral hygiene and no regular care of the denture in addition to he used to wear the denture during night time. According to the patient's history and clinical examination, a provisional diagnosis of DIH was made. Clinically, DIH asymptomatic and found in the form of 2-folds one outer and another one inner and the sulcus in between may be ulcerated. Denture borders were examined in relation to these areas and displayed thin overextended portions which embedded in the folded of DIH.

**Treatment:** The entire treatment plan was described to patient and written consent form was obtained from patient. The border of the denture related to DIH were marked and reduced to be located at exact full extensions with rounded smooth borders. Acrylic bur was used to adjust the extended denture borders. Regarding inflammation, the use of antifungal medication associated with oral hygiene and patient education

for denture care during treatment, in addition to denture removal for long period of times per day to overcome pt. uncomfortable. Denture absence would affect his social interactions as well as oral functions. A new denture fabrication accompanied with treatment period was planned. Primary alginate impression with stock trays and primary casts were obtained to fabricate custom try. After one week, intraoral examination revealed regression of the lesion (figure 2A) as its size decrease and signs of inflammations slightly disappeared. By the conventional methods, custom trays were molded and final impression and master casts were obtained. After two weeks, total regression of the lesion and no signees for inflammatory tissue as well as fissure completely obliterated (Figure 2B). By conventional method for denture fabrication, maxillo-mandibular relation then try-in were done and finally new denture insertion. At denture insertion, all border extensions were verified by muscle functions, jaw movement and disclosing wax application to confirm the exact borders extension. Post insertion instruction and pt. education for denture and tissues hygiene was given. During follow-up visit, complete healing of the lesion clearly appear and no any sign of inflammation related to denture borders in addition to pt. comfortable. Periodic follow up after two weeks and then one month to evaluate the treatment outcome and early manifestation of tissue changes related to the denture as well oral hygiene measures.

## DISCUSSION

The symptoms of DIH appeared lately and patient' chief complaint of un-discomfort and inability to eat and masticatory difficulties. But at this time the lesion has considerable size that may need surgical intervention. The treatment started with the causative factors elimination, in case of causative factors existence, overtimes, the more fibrous tissues formed which required treatment plane with more procedures and time for lesion regression and new prosthesis fabrication (American Prosthodontic Society, 2005; Blanco *et al.*, 1999). Therefore, the early management of DIH has potential effect as the lesion will regress with minimum intervention. Generally, treatment includes immediate withdrawal of the ill-fitting prosthesis followed by topical application of antifungal agents and paste containing anesthetics with local analgesics (Mohan *et al.*, 2013). But different modalities of treatment were implemented depending on site, size, consistency, and tissues formed (American Prosthodontic Society, 2005; Blanco *et al.*, 1999). In the early stage, denture coverage with a soft liner material is frequently sufficient for elimination or reduction of the lesion. However, in later stages, when the hyperplastic tissue is composed of significant fibrosis, surgical excision is the treatment of choice. Excision can be performed by either conventional surgical approach or laser ablation, which provides minimal postoperative edema and pain (Veena *et al.*, 2013; Monteiro *et al.*, 2012; Kafas *et al.*, 2010).

Treatment of DIH can be of two types: conservative and surgical (American Prosthodontic Society, 2005). The conservative approach should be the first option as it is non-invasive in early manifested lesions and simply includes removal of the offending acrylic flanges to be located in proper extension. Moreover compromised elderly patients with reduced ability for surgical treatment and may have complicate treatment plan. DIH prevention started with proper final impression and exact border extension then during denture insertion which should be investigated in two ways; first muscle movement where the extended flange will affected by functional muscle movement, secondly, disclosing wax where it displaces from extended border. Moreover, uniform round border required as the sharp border will act as a knife resulted in fissuring of the sulcus related to extended areas. Patient education about the complications that may occurred with denture after insertion and how to deal with considered one of the most important factors with successful denture. Written post insertion instructions should be given and explained specially points related to tissue changes. Some patient were interested with denture and they can withstand a little pain to keep the new smile while tissue changes increased. During follow-up, retrieve the denture and thoroughly examine all buccal and lingual sulcus for any ulceration or tissue changes. If present, insert the denture, mark and adjust and then follow-up after 1 wee and two weeks. The potential benefit of the overall management to develop a strategies to prevent DIH from the onset better than treatment after occurrence and increased to a considerable size. If the condition is not long standing and rather limited in extent, simply adjusting the denture flange area in the affected area will bring about a resolution of the lesion with good prognosis (Bhusal and Joshi, 2010).

## Learning points

- As DIH is reactive tissue response to sustained mechanical pressure generated by sharp overextended borders of complete denture, the proper placement of round borders is a key factor for prevention of DIH.
- Periodic follow up and patient education regarding tissue changes and denture hygiene, as well as post insertion instructions if followed collectively could be prevent DIH occurrences.
- Early manifestation, minimal inventions and good prognosis
- Early management has a potential benefit and overall prognosis with some compromised pt. where surgical interventions is compromised as well as geriatric population.

## Conclusion

A case of successfully early managed denture-induced hyperplasia is presented. The need for regular maintenance visits and good denture hygiene habits is also emphasized.

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