

Post-Irradiation Verrucal Overgrowth Superimposed with Aspergillus Infection

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ABSTRACT

Aspergillus is an opportunistic pathogen in oral cavity. The fungal hyphae are characteristically dichotomous, septate and branch at 45° acute angle. This case reports an intra-oral verrucal lesion over the dorsum of tongue with Aspergillus infection. On histopathologic examination, a verrucal lesion was seen with PAS-positive dichotomous, septate hyphae branching characteristically at 45° along with numerous spores.

Keywords: Verrucal, Aspergillus, Post-irradiation

INTRODUCTION

Aspergillus is a filamentous fungus found in varied sources like soil, plant waste etc. in immunocompromised individuals, Aspergillus appears in filamentous forms usually within the paranasal sinuses. Its occurrence in immunocompetent individuals has been sparsely reported. Head and neck radiation therapy alters the oral microflora significantly. Radiation-induced altered tissue response predisposes the mucosal microenvironment towards growth and sustenance of pathogenic microflora. Candidal overgrowth is the most commonly encountered oral condition post-irradiation. Other microorganisms include *Streptococcus mutans*, Lactobacilli and Spirochetes [1,2]. There is limited literature available in intraoral Aspergillus infection. Sethi et al. [3] reported Aspergillus lesion in an immunocompetent host. Similar finding was reported by Khatri et al. [4] affecting hard palate and nasal cavity. Uncommonly Aspergillus also has been reported in radiation sensitized oral mucosa. This case report highlights Aspergillus infestation over a verrucal growth on dorsum of tongue in a 72 year old female patient.

CASE REPORT

A 72 year old female reported with the chief complaint of a small growth over the dorsum of tongue. Patient had undergone hemiglossectomy two years back for Verrucous Carcinoma of the tongue followed by a course of radiotherapy. The lesion was locally excised twice at a private clinic and after each excision, the lesion recurred. A biopsy was sent obtained for histopathologic examination.

Grossly, the excised lesional tissue was white to pink in color with a rough to smooth surface, was firm in

consistency and measured 1.8 × 1.2 × 0.8 cm. On histopathological examination, the lesion exhibited features of a hyperparakeratinised, stratified, squamous epithelium with a chevron-like keratosis and globular keratin formation in superficial layers. The lesion was elevated compared to adjacent mucosa and demarcated from the same by a constriction (**Figure 1**). Suprabasal and subepithelial clefting were evident. PAS-positive (**Figure 2**) and Gomori methanamine silver positive dichotomous, septate hyphae branching at 45° along with numerous spores (**Figure 3**) were seen within the areas of clefting and at the periphery of the verrucal growth as well in the superficial parakeratinized layers. Connective tissue was moderately collagenous with minimal inflammatory infiltrate. Laboratory culture was positive for Aspergillus growth.

The patient was not immunocompromised as complete blood count and overall blood picture were normal and the chest X-ray indicated no pulmonary involvement. Based on the above features, a diagnosis of Oral Verrucal lesion superimposed with Aspergillus infection was given.

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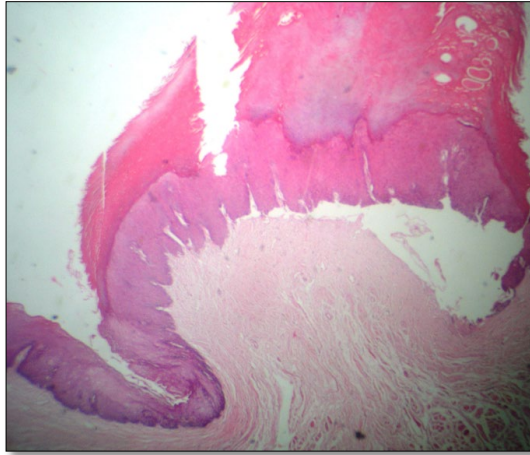


Figure 1. Photograph showing Chevron-like keratosis and clefting and absence of inflammatory infiltrate in the underlying connective tissue.
4x; H & E stain

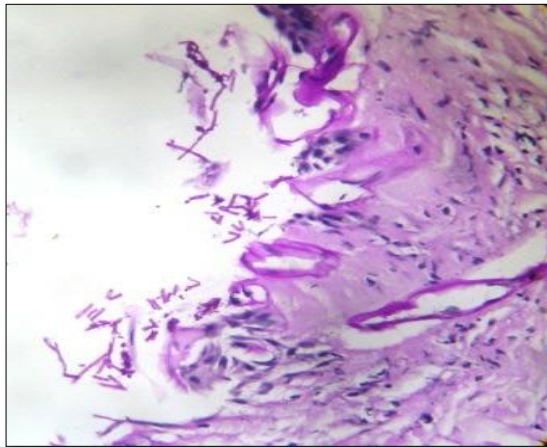


Figure 2. Photograph depicting dichotomously branched fungal hyphae.
10x; PAS stain



Figure 3. Photograph depicting Aspergillus hyphae.
40x; Gomori Methanamine silver stain

DISCUSSION AND CONCLUSION

Shifts in microbial flora following radiation therapy have been reported till six months after cessation of exposure. The most common demonstrated species alteration have been studied in Candidal subpopulations although, *Aspergillus* spp. and *Torulopsis glabrata*, can also be occasionally isolated [1]. The present case is the first ever reported case of an oral verrucal lesion with a superimposed *Aspergillus* infection two years, post-irradiation. Verrucal overgrowth in response to therapeutic radiation exposure has been reported previously on skin, however, never in oral cavity. *Aspergillus* is an opportunistic pathogen in man and can become pathogenic on previously damaged tissue [2]. In early stages of *Aspergillus* infection, epithelial cells show a loss of intercellular bridges, resulting in detachment of cells [3]. These features were seen in our case as areas of clefting. Underlying connective tissue stroma shows nil to minimal inflammatory cell infiltrate in early *Aspergillus* infection [2] which was consistent feature in the present case (**Figure 2**). Microbial culture was positive. Cases of *Aspergillus* infection have been reported in immunocompetent people as well [3,4]. The growth was completely excised and antimicrobial drug therapy was instituted. Healing was complete and uneventful [5,6].

CONFLICT OF INTEREST STATEMENT

There are no conflicts of interest.

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