Placement of implant in close proximity to supernumerary tooth

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Abstract

Supernumerary teeth are additional teeth that appear in the maxillary and mandibular arches in addition to the normal set of teeth. The exact cause of the occurrence of supernumerary teeth is unclear, but it is hypothesized to be a result from atavism (the reversion to a primitive dentition), proliferation of remnants of the dental lamina or dichotomy theory, in which the tooth bud is split into two equal or unequal parts: Resulting in two teeth of equal or unequal size. Many complications can be associated with the presence of supernumerary teeth such as crowding, tooth displacement, impaction, delayed eruption of adjacent teeth, esthetic problems, root resorption of adjacent teeth, and the possibility of formation of dentigerous cyst with advanced bone destruction. Management of supernumerary teeth depends on the area and on the presence of pathologic processes around the impacted teeth. Placement of the dental implant to restore an edentulous space requires the presence of adequate amount of bone. Inadequate amount of remaining alveolar bone adversely affects the long-term success of implant placement. In this present study, we report the management of impacted supernumerary central incisor and placement of the dental implant to restore the edentulous space. The patient was not aware of the presence of the impacted supernumerary tooth and reported the loss of his central incisor due to trauma. A multidisciplinary treatment approach was planned including the surgical removal of the supernumerary tooth, bone grafting of the defect, and temporization of the edentulous space. Implant placement was performed after the proper time of healing and the treatment resulted in an esthetically and functionally pleasant outcome.

Keywords: Hyperdontia, implant, supernumerary

Case Report

A 24-year-old male presented to the Department of Periodontics, Henry M. Goldman School of Dental Medicine, Boston MA with a chief complaint of restoring the missing anterior tooth with an implant. He gave a history of trauma to upper front region nine years ago. Intra-oral clinical examination showed
a missing tooth #8 [Figure 1a and b]. Root canal treated tooth #7 done 9 years ago. He had neither pain nor discomfort. His medical history was unremarkable. Periapical radiograph of the maxillary anterior teeth showed the presence of two impacted and inverted supernumerary teeth [Figure 1c], one was in the edentulous space of #8 and one was in close proximity to the root of #9. A computed tomography (CT) scan was taken to evaluate the position of the supernumerary tooth in #8 area. The CT scan showed that the impacted supernumerary tooth was in close proximity to the nasopalatine nerve [Figure 1d]. The treatment plan was explained to the patient: the impacted supernumerary tooth will be extracted, and the area will be grafted with bone allograft first then implant placement will follow. A horizontal incision below the mucogingival junction was made to expose the bone [Figure 2a]. A window access was performed on the buccal bone plate using carbide round bur, then the tooth was removed with root tip elevator [Figure 2b]. The site was then curetted and irrigated with saline. A periapical radiograph was taken to confirm the removal of the tooth. Small remnant of the tooth was lift [Figure 3a]. Since it was ankylosed and in close proximity to the nerve, the risk-benefit ratio was in favor to keep the small piece of the remaining tooth. Freeze-dried bone allografts (FDBA) were placed and the RCM6 membrane was used to separate the bone graft from the gingiva [Figure 2c]. The area was then sutured using 40 vicryl sutures [Figure 2d]. After 3 months of healing a periapical radiograph was taken to plan the placement of the implant [Figure 3b]. A 3.25 × 11.5 Nobel speedy replace was chosen for this case.[7] After placement of the implant, FDBA was placed to augment the anterior ridge covered by RCM6 membrane. The area was sutured using 40 vicryl sutures [Figure 4a-f]. Periapical radiograph was taken [Figure 5a]. The patient presented with a 1-week follow-up [Figure 5b], healing was normal and the patient was scheduled for an uncovering visit within 3 months. PA was taken to evaluate the bone [Figure 3b]. Implant was uncovered, PA was taken to ensure healing abutment seated, and the site is temporized [Figure 6a-c].

**Discussion**

The exact etiology of supernumerary teeth is still unclear. It was reported by Asaumi et al. a study of 256 mesiodens in 200 patients and found that 26% of cases occurred as two mesiodens, and the direction of crown of mesiodens was inverted in 67% of cases.[8] Supplemental bilateral central incisors are rare, only a few cases have been reported in the literature.[9-13] Most supplemental teeth remain unerupted,[9] and can be associated with several pathological conditions such as failure of eruption, displacement of teeth, crowding, root resorption, ankylosis, and cystic formation.[9] The clinician should manage these teeth by identifying the complications associated with supernumeraries.[9] The ability to accurately locate supernumerary teeth and determine their
relationship with adjacent teeth and other anatomical structures is a necessity prior to surgery. To minimize harm to surrounding tissue, determining the best surgical approach is very important. Traditionally, periapical, occlusal, and panoramic radiographs have been used to manage the removal of supernumerary teeth. However, in some cases, the information provided through such radiographs is inadequate. In cases of severe superimposition of impacted teeth or with multiple impacted teeth, it may be impossible to accurately determine the location of teeth in relation to surrounding structures. By contrast, CT is able to clearly show the intraosseous location, direction, and the relation to vital anatomic structures. In this patient’s case, the supplemental supernumerary tooth was interfering with implant placement. Extraction is not always the treatment of choice for supernumerary teeth. Unerupted supernumerary teeth that are asymptomatic do not appear to affect the dentition in any way and are usually found during routine examination. Garvey recommended monitoring the supernumerary teeth without removal where satisfactory eruption of the related teeth is established, no active orthodontic treatment is required; there is no pathology, and where removal would negatively affect the vitality of the related teeth.

**References**

12. Trotman CA, McNamara T. Four maxillary incisors: A case