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CASE REPORT

A 5-Year Follow-up of an Implant Placed in a Patient with Generalized Aggressive Periodontitis

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ABSTRACT

The placement of implants in patients with aggressive periodontitis has always been questioned. The presence of highly pathogenic bacteria, severe periodontal bone destruction and the refractory nature of this disease tends to deter the clinician from placing implants in these patients. With good patient compliance and regular maintenance, the placement of implants in these patients becomes a viable treatment option. The following is a report of an implant placed in one such patient and successfully followed up over a period of 5 years.

Keywords: Aggressive periodontitis, Implants, Long-term follow-up of implant, FP2 prosthesis.

INTRODUCTION

Generalized aggressive periodontitis, formerly known as rapidly progressive periodontitis, was first recognized in the 1970s as a set of cases which were characterized by their early onset, presence of scant local factors and rapid destruction of alveolar bone.[1] Clinically, generalized aggressive periodontitis is characterized by "generalized interproximal attachment loss affecting at least three permanent teeth other than first molars and incisors".[2]

Generalized aggressive periodontitis has an unpredictable episodic nature and is sometimes refractory to conventional surgical and nonsurgical periodontal treatment. Another reason for concern is that implants placed in partially edentulous mouths are more at risk for bacterial colonization with pathogenic microflora emerging from the periodontal pockets around adjacent diseased teeth.[3,4] This is due to the similarity of microflora causing periodontal disease, and those causing peri-implantitis.[5] Also implant placement in these cases becomes complicated due to the massive destruction of bone seen, especially in advanced cases.[5] However, emerging data suggests that once the periodontal disease is brought under control, implants placed in generalized as well as localized aggressive periodontitis have good prognosis.[6,7]

The following is a case report of one such case, where an implant was placed and followed up for over a period of 5 years.

CASE REPORT

A 26-year-old female patient presented to the Department of Periodontics at The Oxford Dental College, in December 2004, with a chief complaint of gradually increasing mobility of teeth and bleeding on brushing. Intraoral examination showed presence of scanty calculus with moderate to severe gingival inflammation, deep pockets were present in relation to all molars, premolars and incisors. The upper right central incisor also showed grade II mobility. On examination, there was a sinus opening present near the apical region. Intraoral radiograph showed a 5 mm radiolucent lesion at its apex. The orthopantomogram also showed vertical bone loss in relation to 16, 26, 34, 36 and 46, while other teeth showed generalized horizontal bone destruction (Fig. 1).

Based on the clinical and radiographic findings, a diagnosis of generalized aggressive periodontitis was made. This diagnosis was based on the criteria given by Armitage in the classification of periodontal diseases, AAP 1999.[2]

After a treatment plan was established, the patient was placed on a combination of Amoxicillin and Metronidazole for a period of 8 days. During this period, professional supragingival and subgingival scaling were also completed. The rationale for giving antibiotics at this early stage was to treat the tissue invasive bacteria prevalent in aggressive forms of periodontitis. Once the inflammation was brought under control, periodontal access flaps were elevated in relation to all the involved teeth. At the end of the surgical phase of treatment, the upper right central incisor was extracted, following which enucleation of the cyst was done. The socket was preserved using bone graft (Perioglas™) and the site allowed to heal for 6 months (Fig. 2).

During the subsequent period between the active periodontal therapy and the implant placement, a removable partial denture

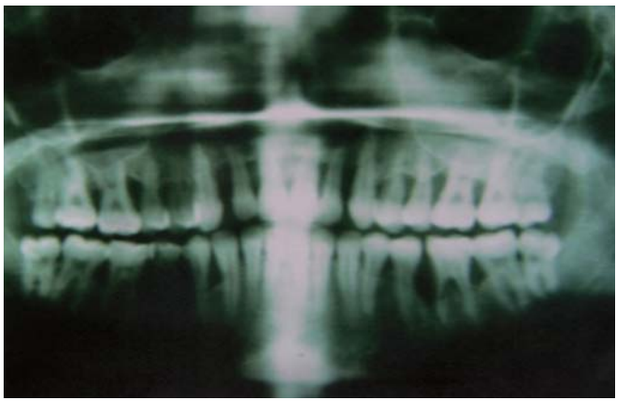

Fig. 1: OPG showing vertical bone loss in relation to 16, 26, 34, 36 and 46, and generalized horizontal bone loss

Fig. 3: Off-crestal incision placed at the osteotomy site

Fig. 2: Implant site 6 months after extraction

Fig. 4: Upon reflection implant site shows good bone width

was given in relation to the missing tooth. The patient was placed on a maintenance program and recalled every 3 months. During this stage, the patient showed good compliance and did not show any signs of recurrence of disease.

At the end of 6 months, a two-stage implant placement procedure was followed. As this case presented generalized gingival recession, a longer implant was selected to compensate for the longer crown length. After placing an off-crestal incision, a lifecare implant (Hitec^{TM}) of diameter 4.2 mm and length 13 mm was placed in the bone and the flap was sutured (Figs 3 to 10).

The second stage loading was completed 5 months later. The prosthesis constructed was of an FP2 design replacing the crown and a portion of the root.[8] The FP2 design was selected because of increased recession in the adjacent teeth (Fig. 11). This case was then followed up with regular maintenance visits every 6 months over the next 5 years.

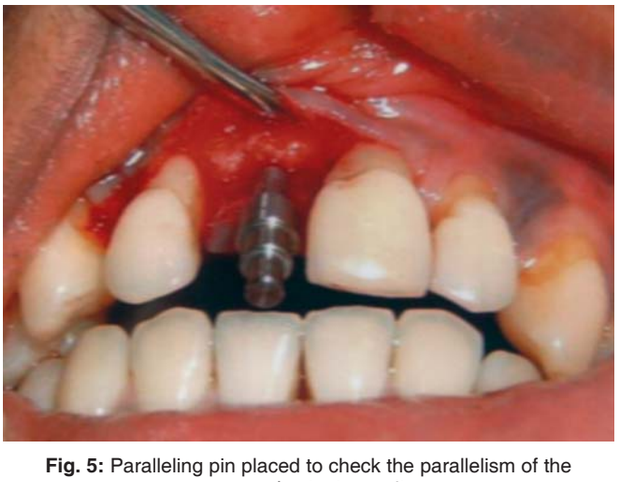

Fig. 5: Paralleling pin placed to check the parallelism of the prepared osteotomy site

DISCUSSION

The placement of implants can satisfy esthetic, functional and phonetic demands of the patient in a manner similar to that of natural teeth. Though reports exist regarding the successful placement of implants in patients with aggressive periodontitis, the general consensus is that placement of implants in these patients is unpredictable.[5,9,10]

The long-term prognosis has also been questioned for these patients. Ellegard followed up implants in patients with

Fig. 6: Radiograph used to confirm parallelism of the preparation. The extensive bone loss on the adjacent teeth can also be seen

Fig. 9: Flap approximated and sutured over the implant

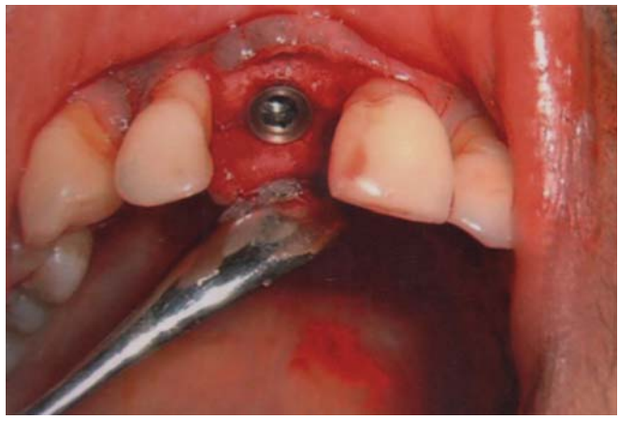

Fig. 7: Implant placed

Fig. 10: Radiograph taken immediately after placement of the 13 mm implant

Fig. 8: Cover screw placed over the implant

Fig. 11: Implant was loaded with an FP2 design prosthesis after 6 months

generalized aggressive periodontitis and found that, at 5 years, 45% of the implants displayed marginal bone loss of 1.5 mm or more and 30% of the implants displayed pockets of 6 mm or more even though all patients participated in a periodontal supportive care program.[10]

On the contrary, recent reports have found that once the disease is controlled, implants can be placed successfully with Mengel showing a successful follow-up upto 10 years.[11]

The current case presents an instance where a patient with generalized aggressive periodontitis was successfully followed

Fig. 12: Radiograph taken after 5 years showing less than 3 mm of crestal bone loss

up for a period of 5 years after implant placement. After 5 years, the patient had successfully maintained the implant with no more than 2 mm of crestal bone loss. The remaining teeth also showed no signs of disease recurrence over the 5-year period.

For an implant to be deemed successful, the first year mean bone loss of about 0.9 to 1.6 mm has been reported to be acceptable. During the subsequent years, the mean bone loss has been reported to decrease to 0.05-0.13 mm annually.[12,13]

This case showed 3 mm of bone loss over the 5-year follow-up period (Fig. 12), which is well within the acceptable limits.[13] The patient did not show any signs of inflammation or report any other adverse events in the 5-year follow-up period. This case report, thus, confers with studies reporting successful placement of implants in patients with generalized aggressive periodontitis.

Though most current data show successful placement of implants in patients with aggressive periodontitis, there is still a general lack of consensus in placement of implants in these patients. Given the disparity in results of various studies, the clinician is more often than not in quandary whether to place an implant or not. Case selection and patient compliance are of prime importance. Even the studies which have reported success say that there is still an increased risk of breakdown in these cases. More long-term studies, like those by Mengel et al,[6,7,11] could address these issues of breakdown. Till then success of implants in patients with generalized aggressive periodontitis will be nothing more than an educated guess.

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