Preformed stainless steel crown in special conditions in adults: Two case reports

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Stainless steel crowns (SSC) are extensively used in child patients. They are mainly used following the pulp therapy in deciduous teeth. They are also used in multi-surface restoration, as an abutment in space maintainers, correction of anterior tooth cross bite, restoration of hypoplastic teeth, etc. In permanent teeth, they are mainly used as interim restorations following root canal treatment in first molars prior to the eruption of permanent second molars. The main advantage of SSC is its limited chair side time, durability and ease of placement. Patients with conditions such as pregnancy and old age who cannot tolerate multiple and long appointments can greatly benefit from the use of SSC. Though SSC can be used by other dental specialties very effectively, its use seems to be limited to pediatric dentistry. Presented here are few adult cases in which SSC is given with good success.

Key words: Geriatric patient, pregnancy, stainless steel crown

CASE REPORTS

Case 1
A young 24-year-old lady in her third trimester of pregnancy came with the complaint of suspected fracture of her endodontically treated tooth. Intra-oral examination showed asymptomatic 45 with temporary restoration [Figure 1]. Root canal treatment was done 6-month back, and the tooth was totally asymptomatic, but the cusps showed the signs of fracture. Since the medical condition of the patient did not allow elaborate tooth preparation, temporization, impression procedure and recall appointment for permanent crown fit in, it was decided to consider SSC as an interim restoration. No confirmatory radiograph was taken to avoid the risk of radiation exposure. Minimal crown preparation in accordance with the standard crown cutting norms for SSC was done [Figure 2]. Number five size SSC (3M ESPE) of 65 was found to adapt lower right second premolar. Contouring was done with Johnsons contouring pliers (API Germany) [Figure 3]. Margins of the SSC were crimped to increase the retention with no. 800–417 crimping pliers (API Germany) [Figure 4]. The final fit of SSC was

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Case 2
An 85-year-old geriatric patient came to the dental clinic, complaining of lost restoration on her right lower back tooth. The patient had diabetes and arthritis as medical problems and was found difficult to walk and sit in the dental chair. On intra-oral examination, 45 was found with fractured restoration and cusp tip [Figure 6]. The intra-oral periapical radiograph revealed the tooth was endodontically treated. A permanent ceramic crown was suggested to the patient. Due to difficulty in walking and sitting in a dental chair, the patient requested the treatment to be completed in single sitting. An SSC was planned, and patient accepted since she was not concerned about esthetics. Tooth preparation was done. Number 5 size SSC (3M ESPE) of 65 was found to be suitable. The cervical margin was trimmed according to the marginal contour with crown cutting scissors. The SSC was contoured and adapted and was found without blanching and occlusal irregularities. Crimping was done using crimping pliers, the cervical margin was polished and the SCC cemented to the tooth with luting GIC [Figures 7 and 8]. The case found very satisfactory. The SSC was cemented with luting glass ionomer cement (Fuji I) [Figure 5]. The patient was recalled for the permanent crown after improvement of her systemic condition.
DISCUSSION

Chrome steel crowns introduced by Humphry in 1950 are extensively used in children and adolescent and are now commonly called as SSC. The indications for the use of SSC include the restoration of primary and young permanent teeth following pulpal therapy, restoration of the multi-surface carious lesion, hypoplasic teeth, part of space maintainer, etc., and it is also used in the treatment of anterior single tooth cross bite and for protection of the fractured tooth.

Though it is very popular among pediatric dentist, its extended use in adult and geriatric patients is limited. In conditions like pregnancy, medically compromised conditions and geriatric patients, the chair side time has to be limited. Permanent restorations such as ceramic crowns require lengthy chair side time for crown preparation, impression procedure, temporization, etc. Patient also needs to have multiple visits to complete the treatment.

Advantages of SSC include less chair side time since the crown cutting is limited, and the procedure could be completed in a single visit. It can also be safely used in adult patients with the temporo-mandibular joint problem and reduced vertical facial height.

Pregnancy is a unique period of physiological changes that support the formation and maturation of new life. Every gestational woman should be encouraged to seek the medical and dental care during pregnancy as failure to that developing problem affects the health of both the mother and the unborn child. Gestational mother may be prone to muscle cramps, back pain, positional hypotension, etc., when remained in the dental chair for a long time. There are also chances of anxiety which can lead to a transitional increase in blood pressure. Gastro intestinal upset, hyper ventilation for lengthy procedures.

In the first case discussed here, a pregnant lady who could not manage multiple visits and lengthy procedure, the protection of tooth following endodontic treatment was done with SSC. It was decided to change the SSC and give permanent crown following her delivery. Acrylic crowns are the common choice for temporary crowns till the ceramic crowns are fit in. However, the cementation of permanent crowns is done usually within a week. In the present case, patient was not expected to come back for the permanent crown for nearly 1-year. Hence, SSC was considered.

Increased longevity of the dentition with expanding fields of advanced restorative procedures and periodontology lends support that dentistry will see a substantial growth in the number of older patients. Every tooth is strategic to the
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The desire for preserving the tooth through RCT and crown has increased considerably in recent years. Older patients are aware that treatment can be performed comfortably, and age is not a factor.\textsuperscript{11,16-18}

In the second case explained here, an 85-year-old lady with the compromised medical condition was not concerned about aesthetics. Hence SSC, which required minimal chair time was used, and 5-year post treatment showed the excellent result. Excellent wear resistance and retention was noted. Though the SSC was expected to show wear changes, 5-year post treatment clinical examination revealed minimal occlusal wear. Though it may be used in elderly patients for a long duration with minimal occlusal wear, its long-term prognosis in younger patients with much higher occlusal masticatory force needs to be studied.

This case report presents a novel approach to extended use of SSC in conditions such as pregnancy and old age.

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There are no conflicts of interest.

REFERENCES