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All Ceramic Pressable Lithium Disilicate Maryland Bridge: A Case with Two-year Follow-up

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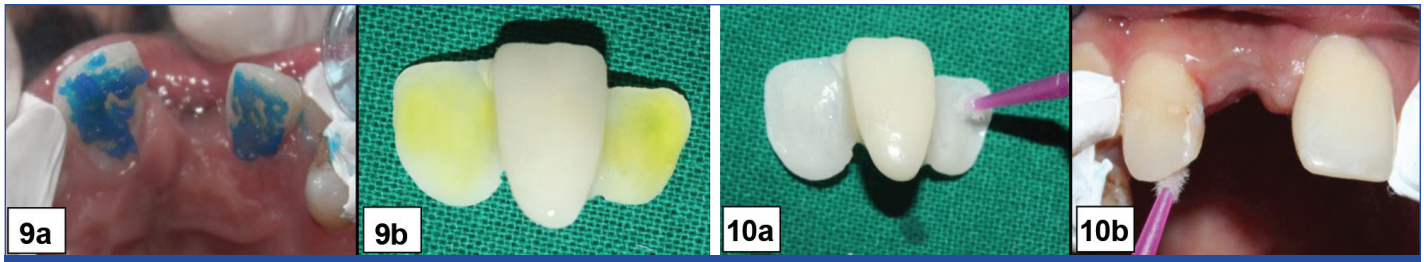
A 28-year-old male patient reported with a chief complaint of poor aesthetic due to missing tooth in upper front region of jaw since two years. Extraoral examination [Table/Fig-1] showed squarish facial form, straight profile and adequate lip support with thin long competent lips. Intraoral examination showed Ellis class III fracture with maxillary Right Central Incisor (11) [Table/Fig-2]. As the amount of tooth structure was less and it was carious so it was decided to extract 11. The site was allowed to heal for three weeks. The patient did not agreed for the implant placement due to the time and cost factor. So a minimally invasive all ceramic maryland bridge was planned to restore missing maxillary right central incisor. Shade selection of A2 was done with maxillary left central incisor as reference. A diagnostic impression was made using irreversible hydrocolloid [Table/Fig-3] and diagnostic mock-up was done [Table/Fig-4] followed with mock trial for patient approval [Table/Fig-5]. Minimal tooth preparation on the lingual surfaces of the abutments 12 and 21 was done using deep chamfer 1.0 diamond bur and finished using finishing bur. Preparations were not extended beyond the linguo-proximal line angles on the abutments. Lingual preparation ended 0.5 mm from the incisal edge and a feather finish line was prepared 0.5 mm supragingivally [Table/Fig-6] [1]. Single step final impression was made using addition silicone (flexceed). Final wax up was done on the final cast for all ceramic lithium disilicate maryland bridge [Table/Fig-7]. Lithium disilicate bridge was fabricated using pressable technique [Table/Fig-8]. Shade, aesthetic, fit and occlusion was evaluated during bisque trial. The final finishing and polishing was done. Following bonding protocol was followed for lithium disilicate maryland bridge with 12, 21. Ceramic was etched with 10% of hydrofluoric acid for 10 seconds and teeth were etched using 37% of phosphoric acid for 20 seconds followed by cleaned and washed under water and air dried giving a white frosty appearance [Table/Fig-9] [2]. Followed by application of bonding agent to the teeth and bridge and light cured using light curing unit [Table/Fig-10]. Following this final cementation of maryland bridge with 12, 11 and 21 was done using variolink resin cement [Table/Fig-11]. The following post cementation instructions were given to the patient. Do not bite from the front teeth as the prosthesis can get fracture. Oral hygiene instructions to be followed of 45° angle brushing twice a day and flossing once a day to avoid getting a cavity or gum disease around your new prosthesis. Flossing is especially important in preserving the health of your bridge [3]. The patient follow-up was done at interval of 1 day, 1 week, 3 months and yearly; the prosthesis was in good condition [Table/Fig-12,13].

DISCUSSION

Implants fixed prosthesis, three unit fixed dental prosthesis, adhesive bridges, fibre reinforced prosthesis are various treatment options available for replacement of missing single anterior teeth. Implant is a surgical procedure and requires longer time, three unit fixed dental prosthesis requires more preparation of the abutment teeth, fibre reinforced prosthesis are temporary option to overcome these disadvantages a conservative treatment option of all ceramic lithium disilicate maryland bridge was chosen. The maryland bridge, also known as resin-bonded bridge can be used for anterior as well as for

[Table/Fig-1]: Preoperative extraoral picture; **[Table/Fig-2]:** Preoperative intraoral picture; **[Table/Fig-3]:** Diagnostic impression; **[Table/Fig-4]:** Wax pattern for mock-up trial. (Images from left to right)

[Table/Fig-5]: Mock-up trial; **[Table/Fig-6]:** Conservative teeth preparation with 12 and 21; **[Table/Fig-7]:** Wax pattern for final prosthesis; **[Table/Fig-8]:** Fabricated final all ceramic maryland bridge. (Images from left to right)



[Table/Fig-9]: a) Etching of the palatal surface of tooth with phosphoric acid. (b) Etching of the retainer surface with hydrofluoric acid [2]; **[Table/Fig-10]:** a) Application of bonding agent on maryland bridge surface. b) Application of bonding agent on teeth surface (Images from left to right).

[Table/Fig-11]: Bonding of all ceramic maryland bridge with dual cure variolink resin cement; **[Table/Fig-12]:** Postoperative intraoral picture; **[Table/Fig-13]:** Postoperative extraoral picture after two year follow-up. (Images from left to right)

posterior single missing tooth as concluded by Gulati JS et al., [4]. A maryland bridge consists of a metal framework with porous surface and a porcelain tooth connected onto the front of the framework [5]. Advantages of maryland bridge are conservative, reversible, less trauma to pulp of abutment tooth, unaltered natural teeth and less periodontal irritation [6]. Disadvantages of maryland bridge are indicated for single missing tooth, colour change due to metal hue, debonding of metal wing and recementation [6].

To overcome the problems of metal wing and with the advancement in metal free materials we have opted for all ceramic pressable lithium disilicate maryland bridge (IPS e.max) which has increased strength, better retention and aesthetics as compared to metal adhesive bridges [7]. However, the failures can occurs in the form of debonding (78%), fracture (13%) as concluded by Balasubramanian GR in 2017 [8]. On two year follow-up the maryland bridge was in good condition without any signs of failure or fracture or debonding.

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