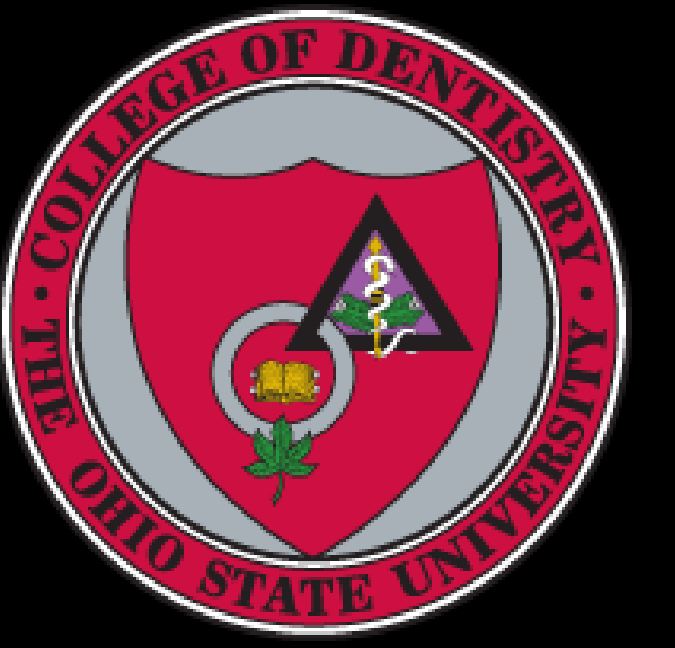




ANODIZING TECHNIQUE TO IMPROVE ESTHETICS: CASE PRESENTATION



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INTRODUCTION

- Although titanium has excellent properties, such as high strength, low density, low thermal expansion coefficient and thermal conductivity making it compatible with ceramic materials, corrosion resistance and biocompatible, it can appear unesthetic.
- Titanium has the potential esthetic complication of metal show through and could result in a dissatisfactory restoration appearance and decreased patient acceptance.
- Translucent restorative materials used in dentistry can complicate esthetics, as these materials may not be able to disguise the titanium metallic undertones of the supporting substructures.
- Therefore, anodization is used to color abutments and conceal these grey undertones via light interference pattern phenomenon.

PURPOSE

- The primary objective of this case presentation is to demonstrate how anodizing can be used to improve the esthetics and patient acceptance of prosthetics in dentistry such as implant abutments and metal frameworks of fixed hybrid prostheses.

MATERIALS AND METHOD

CASE REPORT (TECHNICAL STEPS)

- The technique is a relatively straightforward process that utilizes a power generator, electrolyte solution, aluminum foil, and wax.
- Before anodizing, the abutment or framework is cleaned, and the electrolyte solution is prepared by mixing distilled water and TSP-PF.
- The solution is poured into container, the cathode is attached to a piece of aluminum foil and placed into the container.
- A strainer is placed top of the container, so it is partly submerged in the solution. Transfer prosthetic to strainer/container.



Figure 1: non anodized temporary cylinder

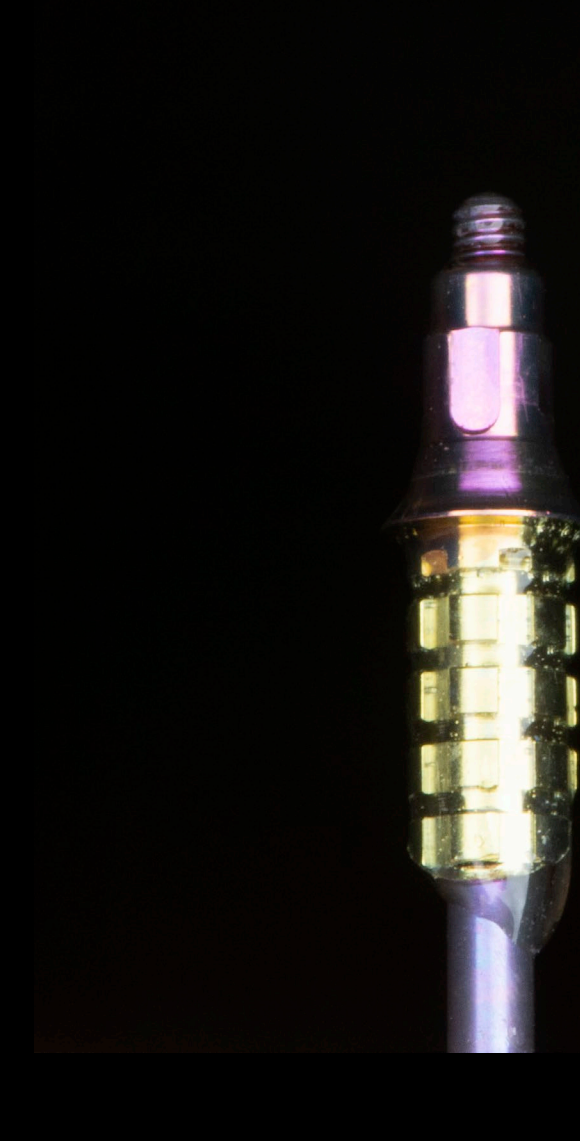


Figure 2: anodized temporary cylinder



Figure 3: anodized temporary cylinder provisional



Figure 4: non-anodized framework of a traditional metal acrylic hybrid



Figure 4: pink anodized framework of a traditional metal acrylic hybrid

MATERIALS AND METHOD

CASE REPORT (TECHNICAL STEPS)

- Colors can be chosen based on voltage.
- Turn on power and turn up voltage to desired color.
- Touch prosthetic with anode wand to achieve prescribed color.
- Once the color is achieved remove prosthetic and rinsed with distilled water.

DISCUSSION

- Despite titanium's excellent properties it can have dissatisfactory esthetics; this can be compounded with high smile lines or thin mucosa.
- Anodizing the titanium substructure can mask the usual greyish hue and improve the esthetics of the prosthesis.
- This case presentation illustrates the masking abilities of anodization to improve esthetic outcomes for a single implant restoration and a traditional metal acrylic hybrid.

RESULTS

- Metallic undertones were able to be disguised with anodization.

CONCLUSION

- Titanium implant abutments or metal frameworks colored by this light interference pattern phenomenon has been a beneficial technique to create excellent esthetics with dental implant restorations.

REFERENCES

Wadhvani, C., Brindis, M., Kattadiyil, M. T., O'Brien, R., & Chung, K. H. (2018). Colorizing titanium-6aluminum-4vanadium alloy using electrochemical anodization: Developing a color chart. *Journal of Prosthetic Dentistry*, 119(1), 26-28. <https://doi.org/10.1016/j.prosdent.2017.02.010>

Wadhvani, C. P. K., O'Brien, R., Kattadiyil, M. T., & Chung, K. H. (2016). Laboratory technique for coloring titanium abutments to improve esthetics. *Journal of Prosthetic Dentistry*, 115(4), 409-411. <https://doi.org/10.1016/j.prosdent.2015.09.024>