



PROCEEDINGS

The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

Universitas Muhammadiyah Yogyakarta (Indonesia)

October 13 - 14 2020

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Focal Conferences



- ✔ (ICPU) The 2nd International Conference on Pharmaceutical Updates
- ✔ (ICOMS) The 6th International Conference on Management Sciences
- ✔ (ICLAS) The 9th International Conference on Law and Society
- ✔ (ICMHS) The 4th International Conference Medical and Health Sciences
- ✔ (ICAF) The 6th International Conference for Accounting and Finance
- ✔ (ILEC) The 2nd International Language and Education Conference
- ✔ (ICONURS) The 2nd International Conference on Nursing
- ✔ (ICITAMEE) The 1st International Conference on Information Technology, Advanced Mechanical and Electrical Engineering
- ✔ (IConARD) International Conference on Agribusiness and Rural Development
- ✔ (ISHERSS) The 2nd International Symposium on Social Humanities Education and Religious Sciences
- ✔ (ICONPO) The 10th International Conference on Public Organization
- ✔ (DREAM) The 5th Dental Research and Exhibition Meeting
- ✔ (ICHA) The 5th International Conference on Hospital Administration
- ✔ (ICOSA) The 3rd International Conference on Sustainable Agriculture





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Preface by the Chairperson of the 4th ICoSI 2020



Dr. Yeni Rosilawati, S.IP. S.E., MM.

Assalamu'alaikum Wr. Wb.

All praise is due to Allah, the Almighty, on whom we depend for sustenance and guidance. Prayers and peace be upon our Prophet, Muhammad SAW, his family and all of his companions.

On behalf of the organizing committee, it is my pleasure and privilege to welcome the honourable guests, distinguished keynote & invited speakers, and all the participants.

With the main theme of “Cutting-Edge Innovations on Sustainable Development Goals (SDGs)”, the 4th International Conference on Sustainable Innovation (ICoSI) 2020 serves as a forum to facilitate scholars, policy makers, practitioners, and other interested parties at all levels from Indonesia and abroad to present their novel ideas, promote cutting-edge research, and to expand collaboration network. The conference has about 1373 participants participating from more than 8 countries 4 continents all over the world, making this conference a truly international conference in spirit.

This multidisciplinary conference was first held in 2012 and has undertaken various changes and adopted to the current technological trends of our education system. From having this conference with just 175 participants back in 2012 we have come a long way in making the conference a huge success with more than 1373 participants participating in this two-day conference.

Formerly, this conference consisted of only 9 (nine) focal conferences. This year, there are 14 focal conferences from various disciplines, namely: 1) The 2nd International Conference on Pharmaceutical Updates (ICPU), 2) The 6th International Conference on Management Sciences

(ICoMS), 3) The 9th International Conference on Law and Society (ICLAS), 4) The 4th International Conference Medical and Health Sciences (ICMHS), 5) The 6th International Conference for Accounting and Finance (ICAF), 6) The 2nd International Language and Education Conference (ILEC), 7) The 2nd International Conference on Nursing (ICONURS), 8) The International Conference on Information Technology, Advanced Mechanical and Electrical Engineering (ICITAMEE), 9) The 2nd International Conference of Agribusiness and Rural Development (IConARD), 10) The 10th International Conference on Public Organization (ICONPO), 11) The 2nd International Symposium on Social Humanities Education and Religious Sciences (ISHERSS), 12) The 5th Dental Research and Exhibition Meeting (DREAM), 13) The International Conference on Hospital Administration (ICHA), and 14) The 3rd International Conference on Sustainable Agriculture (ICoSA).

Accordingly, We are proud to announce that this year, the 4th ICoSI 2020 breaks the Museum Rekor-Dunia Indonesia (MURI) record as the Virtual Multidisciplinary Conference with the Largest Number of Area of Fields in Indonesia

In addition, this year, this conference holds special value since this is the first conference in the history of our university where the entire conference is taking place remotely on a digital platform through the use of advance technologies due to the Covid-19 Pandemic.

I would take this opportunity to express my highest respect to the Rector of Universitas Muhammadiyah Yogyakarta, Dr. Gunawan Budiyanto who gave approval and ensured the maximal support from all the faculty members of Universitas Muhammadiyah Yogyakarta (UMY) that made this event a big success. In addition, my appreciation goes to all the support teams who have provided their valuable support and advice from planning, designing and executing the program.

Let me conclude my speech by encouraging the delegates to participate with an increasing number in all the activities and discussions through the digital platforms for the next two days. I wish everyone a successful, safe, and fruitful conference.

Thank you!

Wassalamu'alaikum Wr. Wb.

Yogyakarta, Indonesia, 14 October 2020



Welcoming Remarks by the Rector of Universitas Muhammadiyah Yogyakarta



Assoc. Prof. Dr. Gunawan Budiyanto

Innovation is the beginning of the development of technology, and technology is a development machine that is expected to provide benefits to humans and provide the smallest possible impact on environmental quality. In the concept of sustainable development, development must improve the quality of human life without causing ecological damage and maintain the carrying capacity of natural resources.

International Conference on Sustainable Innovation (ICoSI) is an international conference which is an annual conference held by the University of Muhammadiyah Yogyakarta (UMY), Indonesia. In 2020 this raises the issue of "Cutting-Edge Innovations on Sustainable Development Goals." Therefore, on behalf of all UMY academics, I would like to congratulate you on joining the conference, hoping that during the Covid-19 Pandemic, we can still provide suggestions and frameworks for achieving sustainable development goals.

About The 4th International Conference on Sustainable Innovation (ICoSI) 2020

Cutting Edge Innovations for Sustainable Development Goals

The 2030 Agenda for Sustainable Development is enacted by the United Nations as a shared blueprint for peace and prosperity for people and the planet, now and into the future. It consists of strategies to improve health and education, reduce inequality, and spur economic growth while also conserving natures by 2030.

This year, however, at the first one-third of its timeline, the SDG Reports shows that the outbreak of COVID-19 did hinder the achievement, or at least decelerate the progress of achieving the 17 goals. In fact, according to the report, “some number of people suffering from food insecurity was on the rise and dramatic levels of inequality persisted in all regions. Change was still not happening at the speed or scale required”, accordingly.

Therefore, in this event of pandemic, the quantity and quality of research, innovation, and more importantly multi-disciplinary collaboration are indispensable. Furthermore, there needs to be clear ends of those works. That is how those research are applicable and benefits directly to the society. That is how those research is incorporated as the drivers of policy making, and used practically in the society. Hence, the stakeholders especially the triple helix of higher education institution, government, and industry must be re-comprehended and supported to reach the common goal of the SGD.

International Conference on Sustainable Innovation (ICoSI) has been essentially attempting to strengthen this regard since its first establishment. One of the goals of ICoSI is to provide primarily a platform where scholars, practitioners, and government could grasp the development and trends of research. Hopefully, meeting these actors altogether would result in stronger collaboration, sophisticated and advantageous research, and brighter ideas for further research. Based on these reasoning, this year, the 4th ICoSI 2020 UMY is themed ‘Cutting-edge Innovations for Sustainable Development Goals’.

Improving from last year conference which brought nine focal conference, this year ICoSI 2020 UMY brings 14 disciplines, from social sciences, natural sciences, and humanities. ICoSI 2020 received as much as 1005 papers. The paper works submitted in ICoSI 2020 UMY will be published in Atlantis Proceedings, IOP Proceedings, National/International Journals, and ICoSI ISBN-indexed Proceedings.

Nevertheless, ICoSI believes that publication is only the beginning of research dissemination. The publications will enhance the chance of the research known by wider audience, and then used, applied, and incorporated at either system, institutional, or personal level of human lives.





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TRACK ECONOMICS, LAW, EDUCATION, SOCIAL, AND HUMANITIES



Black Triangle Treatment with Non Surgeryaesthetic Restoration (Case Report)

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ABSTRACT

Introduction: Black Triangle is a periodontal problem which is very disturbing to esthetics because it disturbs the patient's appearance. In the case of black triangle, the patient's teeth will appear elongated with a large embrassure and often feel sore. The usual treatment is surgery, but often the end result is unsatisfactory because from the aesthetic point of view it is not corrected and the post-surgical healing process is long, and the lack of success in surgical treatment makes the teeth appear elongated with visible embrassure gaps still present. **Purpose:** This case report informs us that the black triangle case was successfully treated by non-surgical aesthetic restoration. **Procedure:** A 22-year-old female patient with complaints of impaired appearance because teeth 43, 42, 41, 31, 32, and 33 have black triangles and often have pain in these areas. Patients object to surgery because they are afraid and do not want repeated visits. The case analysis was carried out, then, the preparation was in the embrassure area. First, color matching with a shade guide, applying PTFE, then applying bonding and drying it moist, then shining with LEDs for 20 seconds. Application of color A2 pacable composite resin and forms all exposed parts of the embrassure. Then do the finishing and polish. **Result:** the open embrassure area is corrected. The patient feels very satisfied. **Conclusion:** black triangle cases can be corrected by non-surgical aesthetic restoration treatment.

Keywords: black triangle, non surgery, aesthetic restoration

1. INTRODUCTION

Black Triangle is a periodontal problem which disturbs the aesthetics so much that it disturbs the patient's appearance. In the case of black triangle, the patient's teeth will appear elongated with a large embrassure and often feel sore. Loss of the papillae can cause deformities that interfere with esthetics because the teeth appear to appear elongated and phonetic problems because there is a feeling of space allowing air or saliva to interfere with the patient's pronunciation. Often the loss of the papillae is a consequence of periodontal disease due to gingival inflammation, loss of adhesions and high resorption of interproximal bone¹. Missing papillae can also occur as a result of periodontal surgical therapy, because the soft tissue usually contracts during the healing period². A clinical study shows that the cut interdental papillae do not regenerate fully to their original height and line³. Aesthetically, the presence of a gap in the embrasure can affect the patient's smile. In one study⁴, orthodontists rated a 2 mm gap in the gingiva of the embrassure area to be less attractive than a smile with normal gingiva without gaps in the embrassure area. An open embrasure gap greater than 3 mm is considered less attractive by dentists and the general public. Gaps in the embrassure area are visible and don't go unnoticed when people smile. Corrective action must be taken to minimize and correct the condition. Restorative, periodontal, and orthodontic

treatment planning can play an important role in closing the gingival opening⁵. The usual treatment is surgery, but often the end result is unsatisfactory because from the aesthetic point of view it is not corrected and the post-surgical healing process is long, and the lack of success in surgical treatment makes the teeth appear elongated with visible embrassure gaps still present. This case report informs that the black triangle case was successfully treated with one visite non-surgical aesthetic restoration

2. CASE REPORT

A 22-year-old female patient who complained of impaired appearance because teeth 43, 42, 41, 31, 32, and 33 had black triangles and often felt pain in these areas (Figure 1). Patients object to surgery because they are afraid and do not want repeated visits. Case analysis is performed and treatment is carried out by performing restoration to correct the black triangle that occurs. Initially, measurements of the vertical direction of the contact point with the sliding calipers were taken. There is a vertical distance under the contact point, namely 3 mm in the mesial embrassure area of teeth 31 and 41, 2 mm in the distal area 31 and mesial 32, and 1.5 mm in the distal area 41 and mesial 42. Next, preparations are carried out with a round bur to roughen it. embrassure area (Figure 2). At first, the color was matched with a shade guide and the color matched, A2 according to the color of the natural teeth. After the preparation is complete, PTFE is used

as a matrix and helps form the embrassure area (Figure 3), then applies the 7th generation bonding and is moisturized, then illuminated with an LED for 20 seconds. Application of a pacable composite resin and forming all exposed parts of the embrassure (Figure 4). After that, finishing (Figures 5 and 6) and polishing (Figure 7) were carried out after PTFE was removed from the tooth surface. The final result shows the open embrassure area corrected (Figure 8). The patient feels very satisfied. Control results 1 week later there were no complaints, gingiva looked normal and the patient was very satisfied.



Fig 1. Black triangle Anterior Mandibular



Fig 2. Preparation



Fig 3. PTFE and bonding



Fig 4. Composite Application



Fig 5. Finishing



Fig 6. Labial finishing



Fig 7. Polishing



Fig 8. Black triangle was corrected

3. DISCUSSION

In this case it is included in class 3 with details of size, namely there is a vertical distance below the point of contact is 3 mm in the mesial area of teeth 31 and 41, a vertical distance of 2 mm in the distal area 31 and mesial 32, a vertical distance of 1.5 mm in the distal area 41 and mesial 42. After treatment, it can be seen that the distance is corrected. Classification according to Nordland and Tarnow⁶, which is based on 3 anatomical signs, namely the interdental contact point, the most coronal point of the cemento-enamel junction (CEJ) on the interproximal surface, and the most apical point of the CEJ on the labial surface. There are 4 classes in this classification, namely:

a. Normal, that is, the interdental papillae fill the entire interdental space to the apical part of the interdental contact point

b. Class 1, ie the tip of the interdental papillae lies between the interdental contact point and the most coronal part of the CEJ on the surface. Interproximal.

c. Class 2, ie the tip of the interdental papillae lies between the most coronal part of the CEJ on the interproximal surface and the most apical part of the CEJ on the labial surface.

d. Class 3, ie the tip of the interdental papillae is at the CEJ or more apical than the most apical part of the CEJ on the labial surface. In addition, if there is a black triangle case with a vertical distance of 2 mm below the point of contact, it is classified as class 1-2.

There are several considerations in planning restorative treatment for papillae that are wide open. Mesiocervical and distocervical restorations will improve appearance by changing the shape of the crown. Composite resin can be inserted into the gingival sulcus to guide tooth formation in the embrassure area. Restoration should not affect the interdental tissue as this will irritate the gingiva and create retention for plaque. Restorative treatment alone is used to reduce the space in the large embrassure area. A combination of orthodontic and restorative treatment may be required. Restorative treatment requires maintaining a proper crown height ratio between the connector and the central incisors. The connector is where the teeth appear for contact, the point of contact is where the teeth actually connect. The maxillary anterior connector has a proportional relationship with the height of the central incisors. The ratio (Figure 9) of joints to the tooth height for central, lateral, and canine were 50, 40, and 30%, respectively⁷. To hide severe tissue damage, it is recommended to use pink porcelain or a removable prosthetic device⁸. A comprehensive understanding of anterior aesthetics is essential in determining the appropriate treatment⁹.

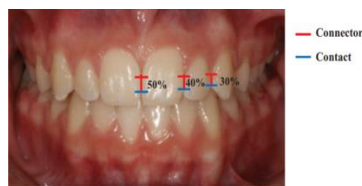


Fig 9: Ratio of connector height to gear height

The choice of restoration material can be combined with a pink resin restoration material to improve aesthetics. Use of pink resin also to form the appearance of the interdental papilla. This condition is more common, especially in adult patients than in young patients¹⁰. In this case, the addition of pink color was not carried out for the composite resin because by restoring the formation of embrasure areas 32 and 41, 41 and 42 and 31 and 32 it was possible to correct the black triangle area that occurred. The use of direct composite resin has the advantage of being cost effective when compared to veneer. Long-term satisfaction (5 years) with composite restoration has been reported⁶. In addition, both pink and white composite materials have been shown to have the same bond strength¹¹. The use of composite resin is more aesthetic and can be used to correct the anatomical shape and color of the teeth so that they resemble natural teeth. In direct restoration treatment with composite resin, the treatment procedure should be discussed with the patient and careful when working out, as this is very important for the long-term success of the restoration¹².

4. CONCLUSION

Black triangle cases can be corrected with one-visit restorative measures so that the esthetic problems complained by patients can be corrected and the patient is very satisfied with the results of the treatment. There needs to be a case analysis beforehand so that it can support the success of treatment.

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