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ABSTRACT

Dental Mini implants are similar to the regular implant based on the structure but the important difference is as the name suggests the mini implants are smaller in diameter. The main advantage of dental mini implants is it avoids the requirement of bone graft. So indirectly it reduces the duration of healing. The advantages are it can fit into any small space, less invasive and less expensive.

Aim: The aim of the study was to find awareness of mini implants among undergraduate students of a Dental College.

Materials And Methods: This is a survey carried out among UG dental students about morse taper in implant . A questionnaire consisting of 10 questions regarding morse taper was framed and shared using a link created by google forms and circulated to 100 UG dental students. And the final result was statistically analysed and interpreted.

Results: Overall the study concluded that 62% of them are aware of morse taper in implant. Remaining 38% of them are not aware about morse tapering in the implant.. It was clear that the majority of I year students and III year students 20% of them are not aware of morse taper implant. 20 % of the I year students don't agree that morse taper implant reduces biofilm. Majority that is 19% of interns, support platform switching along with morse taper, which reduces marginal bone loss and provides space for soft tissue development. On the chi square test p value was found to be statistically significant.

Conclusion : The students were moderately aware of the morse taper in implants. Awareness was created among the students about morse taper in implants, its uses and indications and its significant role in the field of implantology. For them group discussion and seminar can be conducted to create awareness about morse taper.

KeyWords: Mini implant, osseointegration, fabricated, diameter, stability, innovation

INTRODUCTION

Conventional implant systems can be compared with Mini dental implants. Where mini implants are fabricated with single pieces titanium screw along with ball shaped head or square prosthetic head in place of classical abutment. And even bracket-like head design can be used as indirect anchorage in orthodontic treatment. whereas conventional dental implants are made of 2 parts. One is an implant and another one is an abutment. When the implants are placed in gum, mini implants are seen outside the gum but conventional implants submerged into gums. So that the mini implant neck portion should be smooth enough with different length based upon the thickness of the mucosa in relation to the implant site. (1), (2) .

The mini dental implant is made of reduced diameter that is less than 3 mm and shorter in length with the same biocompatible material when compared with standard dental implants which is greater than 3 mm in diameter. Therefore, the use of mini implants to retain overdentures enables the use of less expensive procedures since the reduced diameter of the implant permits its placement in areas with low bone thickness. These implants are

associated with immediate stability, high survival rates, favorable marginal bone loss, less postoperative discomfort, and increased satisfaction and quality of life of patients. The quantity and quality of bone tissue available in the jaw typically define the characteristics (diameter and length) and the number of implants (3), (4).

Mini implants are always considered when retaining overdenture prosthesis comes as an alternative treatment while standard implants can not be placed. Mini implants may be considered for the rehabilitation of patients who express dissatisfaction with conventional dentures and have limitations regarding the placement of standard implants. They are indicated for bridge repair and fixed replacement of the single or multiple teeth in a narrow ridge (5).

Multiple implants can be used for removable full or partial denture stabilization, and are offered at a lower cost. These can also be beneficial for the patients with low economic capabilities. Mini implants are mostly indicated when the facial-lingual width of the bone is found to be insufficient for the placement of a traditional width implant. Mini implants can be easily used in the anterior maxilla because of decrease in the palato-labial bone width and insufficient interdental space. In the atrophic posterior mandible, insufficient buccolingual bone width is the common indication for mini-implant placement (6), (7).

The two major factors that clinicians should consider for mini-implant placement are safety and stability. Safety is related to avoiding root damage during implant placement in the interradicular space. In preventing premature loosening of mini-implants, the initial stability plays an important role that is gained by placing the mini-implants in the alveolar bone with proper quantity and quality (8).

For patients who are medically unfit, mini implants should be avoided. Prospective patients must be thoroughly evaluated for all known risk factors and conditions related to oral surgical procedures and subsequent healing before any clinical treatment. Contraindications include but are not limited to the following Vascular conditions, Uncontrolled diabetes, Clotting disorders, anticoagulant therapy, smoking, chemotherapy and radiation therapy (9). Like this Various studies have been done in our instruction Our team has extensive knowledge and research experience that has translated into high quality publications (10–12) (13–28)

MATERIALS AND METHODS

This was a questionnaire based study that was a cross sectional online based survey, which was done in the month of June 2020 among the Undergraduate students of Saveetha Dental College. The participants were from 1st, 2nd, 3rd, 4th and Intern years of BDS. The Institutional Review Board approved this study. The predesigned validated questionnaire was used to analyze the awareness of mini implants among undergraduate students of a dental college. Validated and structured questionnaires containing 10 questions were framed and it was distributed among dental students through an online link from google form. It consists of two parts: section I demographic data of the participants which includes students' year of study were obtained from the responses and further analysis. and section II awareness of mini implants. The sample size was 100 undergraduate dental students and the sampling method used was a simple random sampling method and only the completed surveys were included for analysis. In the way to reduce the bias all variables were included (Randomisation) and no sorting process was done. Participants in this study were voluntary. Independent variables were demographics such as year of the study of participants. Dependent variables were mini implants. Data collected was verified by 2 reviewers. Internal validity was a questionnaire and external validity was Homogenisation, replication of experiment and cross verification with other existing studies. The Data analysis was done using SPSS software 20.0 and the statistics used for analysis was Descriptive statistics and comparison of variables were done using chi square test where $p < 0.05$, statistically significant. Type of analysis used was association and the results were tabulated in excel sheet and transferred to SPSS software to analyze and represent in the bar graph.

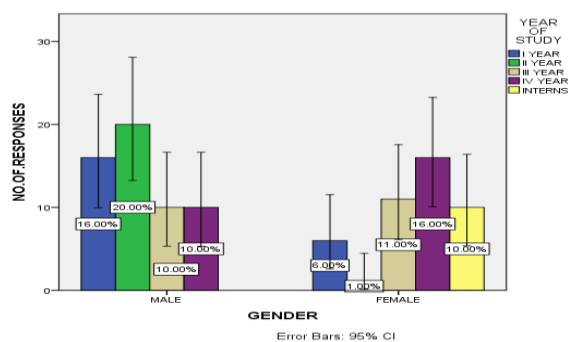


Figure 1: This Bar graph shows association between gender and year of study. In that X axis represents responses to the questionnaire, Male population are higher in II year and female population are higher in IV year.

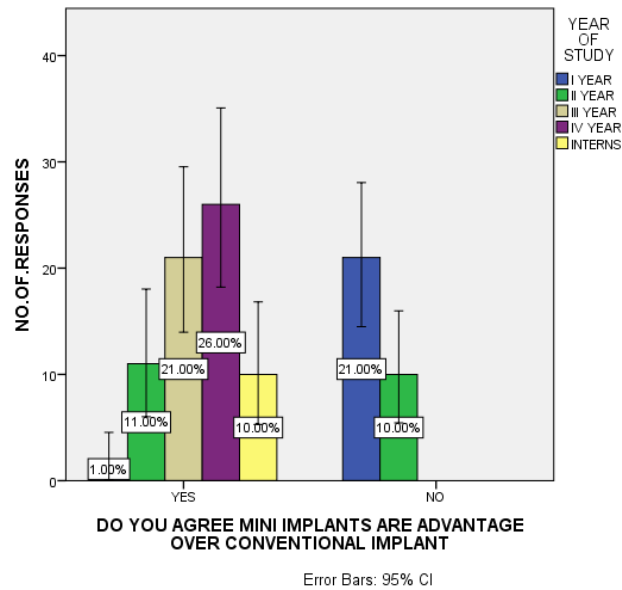


Figure 2: This Bar graph shows the association between Do you agree that mini implants are advantageous over the conventional implants and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year agrees that mini implants are advantageous over the conventional implants. The chi square test shows that p value is 0.000 which is $p < 0.005$. This shows that there is a statistically significant difference between year of study and awareness of morse taper implant.

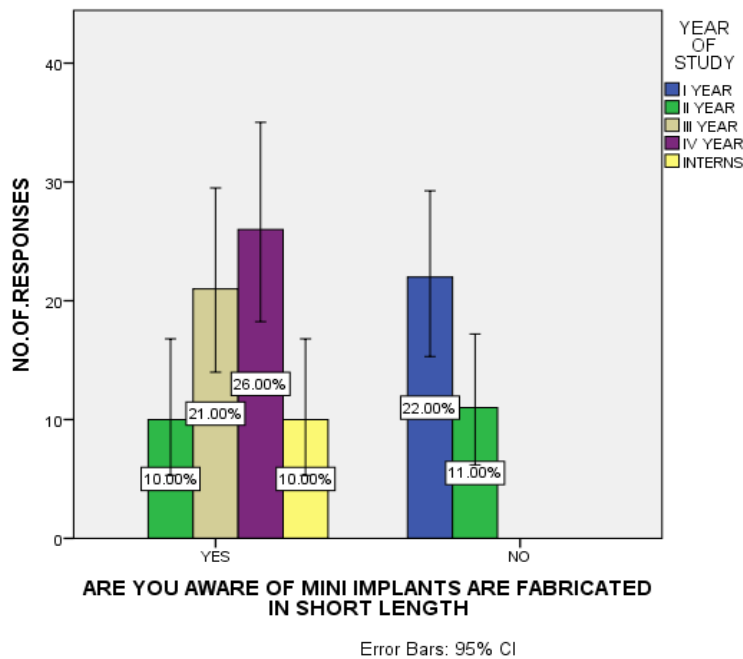


Figure 3: This Bar graph shows the association between Awareness whether mini implants can be fabricated in short length and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) are aware that mini implants can be fabricated in short length. There is a statistically significant difference between year of study and awareness of mini implants.

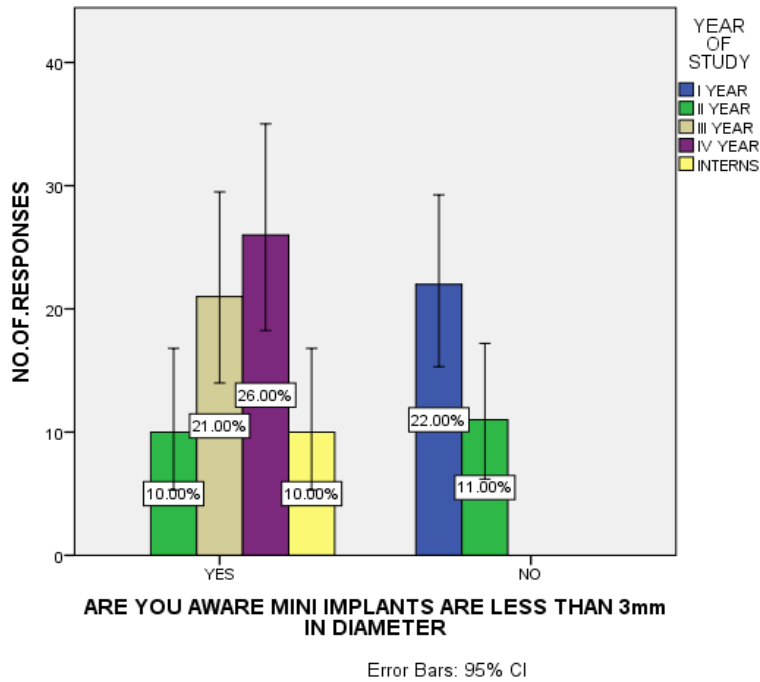


Figure 4: This Bar graph shows the association between Awareness whether mini implants are less than 3mm in diameter and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) are aware that mini implants are less than 3mm in diameter and year of study. There is a statistically significant difference between year of study and awareness of mini implants.

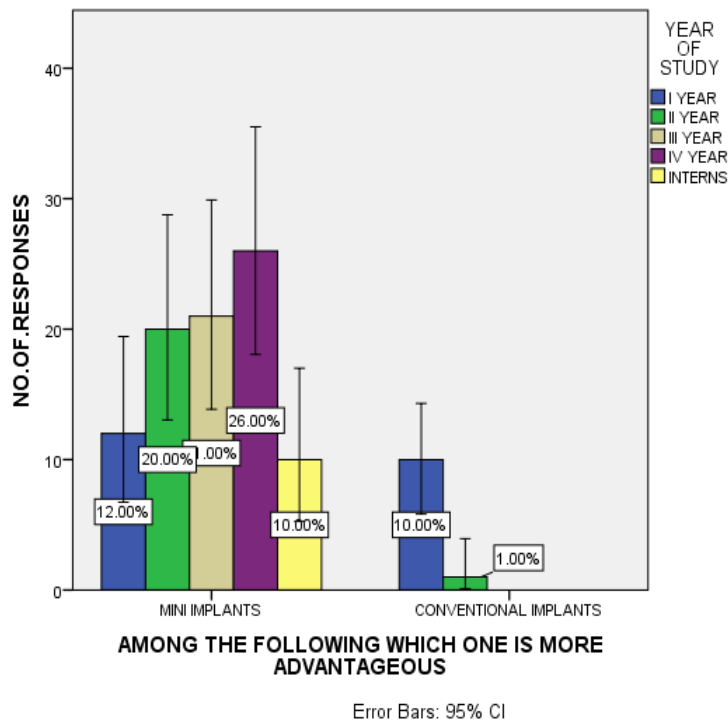


Figure 5: This Bar graph shows the association between which one is more advantageous mini implants or conventional implants and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) choose mini implants are more advantageous over conventional implants. There is a statistically significant difference between years of study and the advantages of which implants.

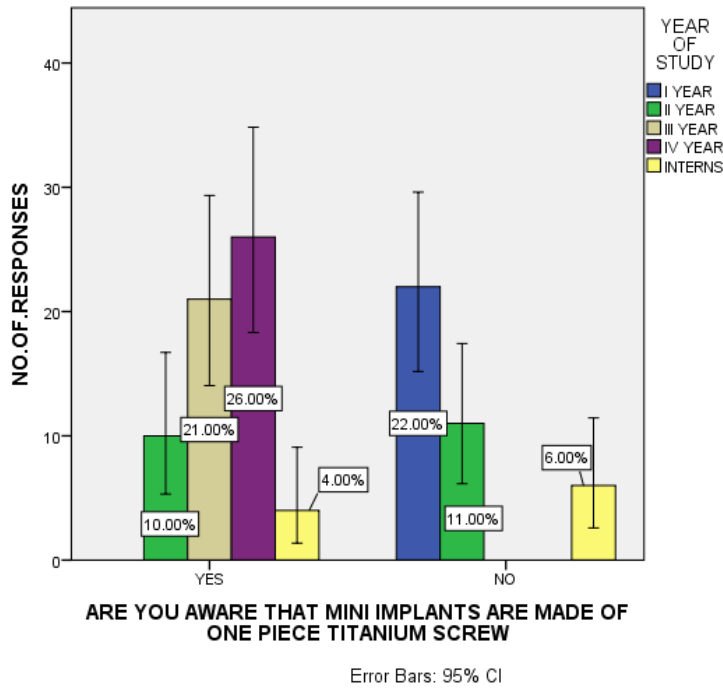


Figure 6: This Bar graph shows the association between awareness that mini implants are made of one piece titanium screw and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) are aware that mini implants are made of one piece titanium screw. Whereas (22%) of I year students are not aware of mini implants. There is a statistically significant difference between years of study and the advantages of which implants.

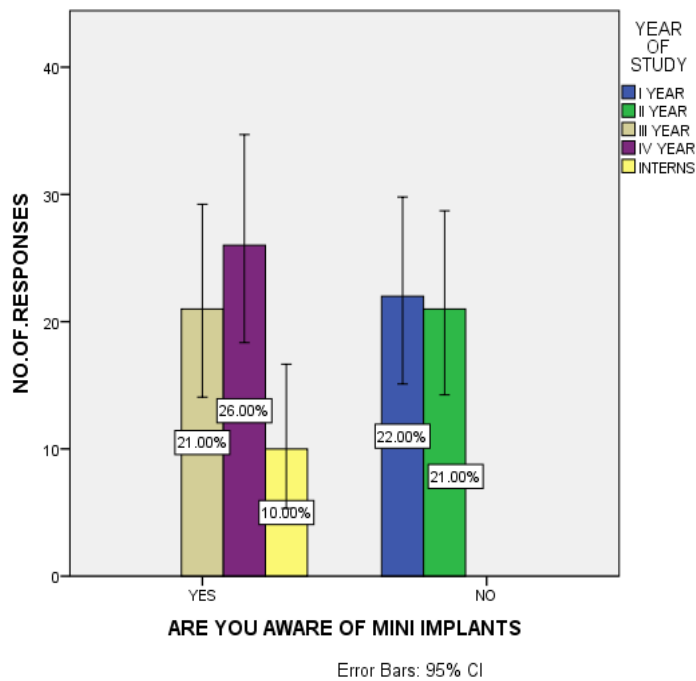


Figure 7: This Bar graph shows the association between awareness of mini implants and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) are aware of mini implants. Whereas (22%) of I year students are not aware of mini implants. There is a statistically significant difference between years of study and the advantages of which implants.

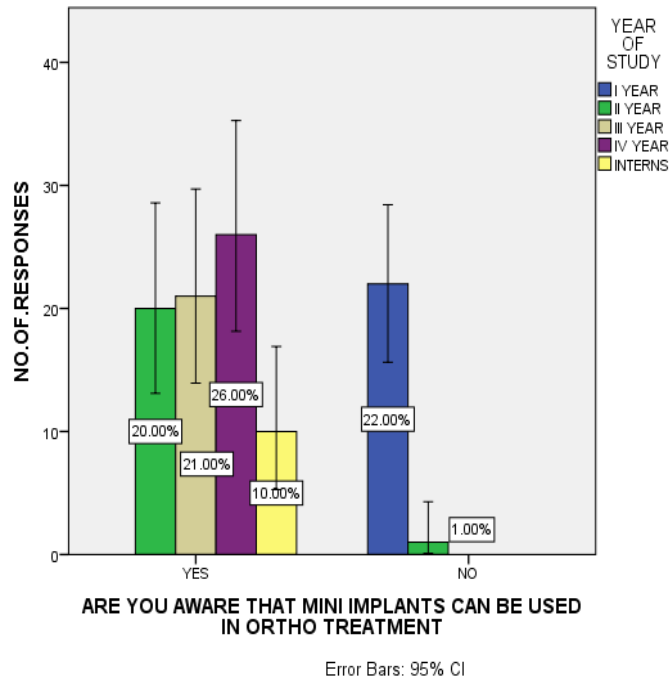


Figure 8: This Bar graph shows the association between awareness of mini implants used in orthodontic treatment and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) are aware of mini implants used in orthodontic treatment. Whereas (22%) of I year students are not aware of mini implants used in orthodontic treatment. There is a statistically significant difference between years of study and the advantages of which implants.

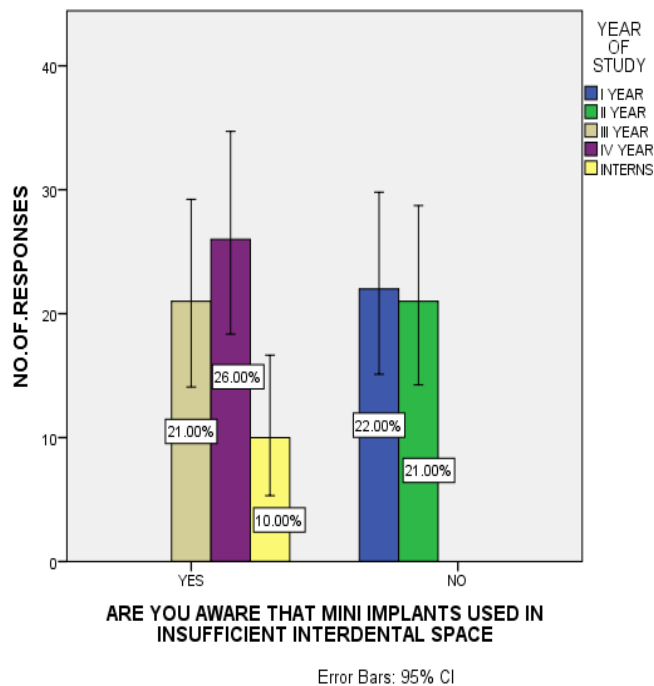


Figure 9: This Bar graph shows the association between awareness of mini implants can be used in insufficient interdental space and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) are aware of mini implants can be used in insufficient interdental space. Whereas (22%) of I year students are not aware that mini implants can be used in insufficient interdental space. There is a statistically significant difference between years of study and the advantages of which implants.

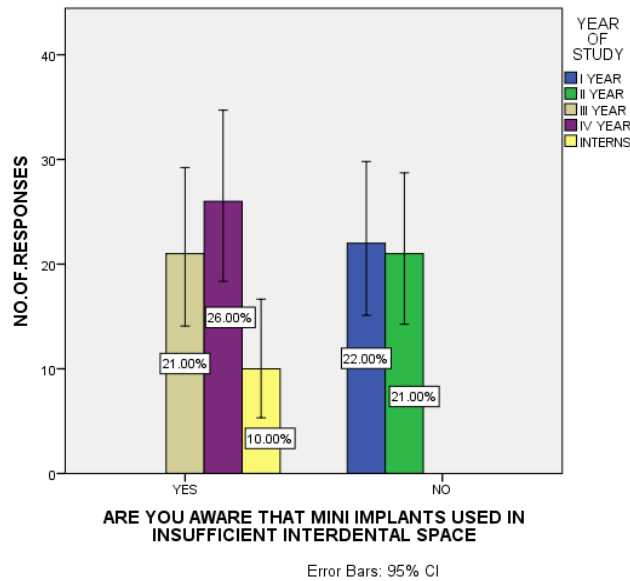


Figure 10: This Bar graph shows the association between which quality is more advantageous and year of study. In that X axis represents responses to the questionnaire, In that the majority of the IV year (26%) choose all the qualities are beneficial. There is a statistically significant difference between years of study and the advantages of which implants.

RESULTS AND DISCUSSION

In our study male population is higher in II year and female population is higher in IV year. Most of the IV year agrees that mini implants are advantageous over the conventional implants. Majority of the IV year (26%) are aware that mini implants can be fabricated in short length. majority of the IV year (26%) are aware that mini implants are less than 3mm in diameter and year of study. The majority of the IV year (26%) choose mini implants as they are more advantageous over conventional implants. Majority of the IV year (26%) are aware that mini implants are made of one piece titanium screws. Whereas (22%) of I year students are not aware of mini implants. majority of the IV year (26%) are aware of mini implants. Whereas (22%) of I year students are not aware of mini implants. The majority of the IV year (26%) are aware of mini implants used in orthodontic treatment. Whereas (22%) of I year students are not aware of mini implants used in orthodontic treatment. majority of the IV year (26%) are aware that mini implants can be used in insufficient interdental space. Whereas (22%) of I year students are not aware that mini implants can be used in insufficient interdental space. The majority of the IV year (26%) choose all the qualities that are beneficial. In another study they have proved that mini-implants are more successful in replacing the congenitally missing lateral incisor post opening space. Over that the zirconium crowns can improve aesthetically (29). The mini dental implants have less insertion torque compared with that of conventional implants. The mini implant insertion torque, when loaded immediately with mandibular dentures, is found not to be a risk factor associated with failure when two years follow-up was done (30). Mini-screw implants when placed at the alveolar ridge crest in patients who are growing may result in impediment of vertical development of the alveolar ridge in some cases. So mini-screws inserted perpendicular to the alveolar process from the palatal side were found to be more beneficial (31). The mini implants provide proper aesthetic appearance and satisfactory mastication in patients while immediately restored (32).

Limitations

There are few limitations in our survey. There is a small sample size used for our survey which cannot be generated for a large population. And the survey doesn't represent the ethnic group and population.

Future Scope

The survey should be done in a larger population. Multicentered surveys should be done including other criterias.

CONCLUSION

Within the limitations of the study, we conclude that IV year, Interns and III Year had higher awareness about mini implants than I year and II year undergraduate dental students. Therefore for them group discussion and seminar can be conducted in order to create awareness on cyclic loading testing machines.

Author Contributions

First author did the study. The second author corrected the article and the third author rechecked once.

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Conflict Of Interest

Nil

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