Clinical Innovation

Novel approach for better compliance of mask during COVID pandemic

Anshul Chaudhry a,*, Girish Chaudhary b, Abhimanyu Kochhar b

a Department of Orthodontics, Christian Dental College, CMC, Ludhiana, 141010, Punjab, India
b Department of Orthodontics, Baba Jaswant Singh Dental College, Hospital & Research Institute, Chandigarh Road, Ludhiana, 141010, Punjab, India

ARTICLE INFO

Keywords:
Mask
COVID-19
Compliance
Orthodontic wire

ABSTRACT

COVID-19, started as a respiratory illness has affected the human life world-wide. Mandatory guidelines for wearing of masks have been issued by WHO even if you are stepping out. The continuous wearing of masks for prolonged duration has led to some negative consequences.

Material and method: A new method was introduced to increase the compliance of mask by using easily available orthodontic wires in the dental set up.

Results: The new approach was helpful in getting rid of rashes, irritation and erythematous patches behind the ears along with the reduction in the chances of cross contamination.

Conclusion: This method can be incorporated in routine in the dental practice, even when one is not working on the patient.

Conflict of Interest: None.
Source of Funding: None.

Introduction

COVID 19, affecting the upper respiratory tract has become a matter of global concern now. More or less, each and every country is facing the ill effects posed by the virus and making an attempt to eliminate it at their own levels. Till the vaccine does not come out, personnel protection is the solely way to keep one safe which requires the masks to be worn for long hours resulting in a panorama of problems starting from personal safety to health hazards. So, to overcome the issues associated with the wearing of mask with elastic cords, a new technique has been proposed to enhance the compliance of mask along with ease of wearing and preventing cross contamination by avoiding of touching of masks and cords repeatedly.

Technique

Orthodontic Stainless steel wire (23 gauge) was bent in the form of a semicircle by measuring the circumference of the head from temporal to temporal area above the ears (Fig. 1). The two ends of this semicircle were bent in the form of loops (Fig. 2) to engage the cord of the mask (Fig. 3) and it was worn around the parietal or occipital area like a head band (Fig. 4) with the elastic cords of the mask going higher than the ears (Fig. 4).

Discussion

After COVID-19 was proclaimed as a Pandemic, WHO made it mandatory for the general public to cover their faces while stepping out of the house. Considering the severity of the situation, few governments also made it compulsory to wear the mask in the public places. It is now a legal boundaton, where law enforces the covering of mouth
Fig. 1. Checking the circumference of head.

Fig. 2. Loops at the end.

Fig. 3. Engagement of loops in the elastic cords of mask.

Fig. 4. Comfortable wearing above the ear region.
and nose to reduce the transmission, which is known to be by means of droplet infection.

Because of this pandemic, health care workers are wearing the masks for prolonged hours—particularly, the ones working in close proximity to people’s faces. Apart from performing various procedures, doctors have to wear the mask even while examining patients or simply sitting in the operative area.

Because of lengthy and extended periods of wearing masks, certain problems were encountered like:

1. Irritating erythoderma patches behind the ears that are painful
2. An urge to unduly pull ears to relieve pressure of elastics.
3. Unintentional touching of cords of masks to get rid of soreness and irritation, leading to the danger of cross contamination.

With this wire head band, instead of straining ears, there was redistribution of force around the parietal or occipital region (Fig. 5), reduction of soreness and irritation over the ears (Fig. 6) and provision of a snug fit and better protection with no gap between face and mask (Fig. 4).

Although, several companies have come up with newer designs to resolve this issue and are commercially providing with the similar devices, but being expensive, these are not in everyone’s reach.

The orthodontics wire is easily available, effortless to bend and ready to use. Customization is easy depending upon the head size and mask size.

**Conclusion**

The aftermath of Corona has created a recession, people have lost their jobs. More or less, all countries are facing the ill effects and battling at their own levels. Until an effective vaccine is introduced into the public domain, mask is the only solution along with the other personnel protective measures. As one is legally bound to wear mask while in a car or mingling with public, the discomfort associated with long time wear poses a serious challenge to maintain strict compliance and avoid constant touching and fiddling with the mask.

The technique introduced here, is easily reproducible, convenient to use, flexible depending upon the user and size of the mask, economical, provides a proper fit and increases the compliance of wearing mask while at the same time preventing the touching of cords and masks for adjustment, ultimately reducing the probability of cross contamination and droplet infection. So, this technique will facilitate the ease of wearing a surgical mask and might be a great help during this Pandemic.

**Source of Funding**

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**References**

1. World Health Organization. *Advice on the Use of Masks in the Context of COVID-19: Interim Guidance, 6 April 2020.* World Health Organization; 2020.
2. Coronavirus: WHO changes guidelines on masks, says they must be compulsory in public places. Available at: https://scroll.in/latest/963991/coronavirus-who-changes-guidelines-on-masks-says-they-must-be-compulsory-in-public-places.
3. Which countries have made wearing face masks compulsory?. Available at: https://www.aljazeera.com/news/2020/8/17/which-countries-have-made-wearing-face-masks-compulsory.
4. Coronavirus: what are the rules for face masks or face coverings?. Available at: https://www.bbc.co.uk/news/health-51205344.
5. Christopher J, Tharyan P. Masks are mandatory for all now. Available at: https://www.thehindu.com/news/cities/chennai/masks-are-mandatory-for-all-now/article31406601.ece.
6. Wearing Masks Made Mandatory in Delhi Order Vide No. F/02/07/2020/S.I/30 Dated 08/04/2020 Issued by Delhi Disaster Management Authority Government of Delhi.
7. Wearing masks compulsory in Punjab. Available at: https://www.google.com/search?q=masks+are+compulsory&ie=UTF-8&sourceid=chrome&ie=UTF-8.
8. COVID-19: Rajasthan to make wearing of masks compulsory. Available at: https://m.economictimes.com/news/politics-and-nation/covid-19-rajasthan-to-make-wearing-of-masks-compulsory/articleshow/78996016.cms.
9. Iw Staff. One million 3D printed ear savers going to frontline workers. Industry week. Available at: https://www.industryweek.com/technology-trends/article/21128668/one-million-3d-printed-ear-savers-going-to-frontline-workers.