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Technical Note
Pre-Implant Surgery

Suction dissector device for sinus membrane elevation

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Abstract. The maxillary sinus floor augmentation technique requires lifting of the sinus membrane with a series of curved elevators. Lifting of the sinus membrane can be difficult due to the presence of bleeding, requiring the alternate use of curved elevators and the aspirator. This technical note presents a new surgical device, a suction dissector specifically designed for sinus membrane elevation. The suction dissector has a curvature similar to that of the curved dissector commonly used for lifting of the sinus membrane and contains an internal channel that allows the aspiration of liquid.

Key words: sinus lift; dissector; aspirator.

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Lifting of the sinus membrane, particularly in the medial recess, presents two surgical difficulties for the surgeon: (1) a reduction of visibility due to residual bleeding, requiring the alternate use of curved elevators and the aspirator, and (2) the possibility of perforating the sinus membrane with the suction tip of the aspirator.

A new surgical device was developed with the aim of resolving these problems – a suction dissector specifically designed for sinus membrane elevation.

Technique

The local institutional review board reviewed and approved this study. The new suction dissector device was conceived and designed by one of the authors (Fabio Costa) and produced by Dentag (Dentag srl, Maniago, Italy). The device is European CE mark certificated and is approved for distribution in Europe. Patients treated with the device signed an informed consent form, in accordance with ethics committee requirements.

The suction dissector has a curvature similar to that of the curved dissector commonly used to lift the sinus membrane. It contains an internal channel that allows the aspiration of liquid near the curved tip of the dissector (Fig. 1). The device is connected to a suction tube. This device works intraoperatively as a standard suction tube to perform lifting of the sinus membrane. In this way, simultaneous dissection of the sinus membrane and aspiration of liquids is performed (**Supplementary Material**, video). Moreover, aspiration occurs near the tip of the dissector but the sinus membrane is protected from injury by the curved shape of the instrument. During dissection of the sinus membrane, the continuous suction performed by the aspiration system allows complete visualization of the bone exposed in the medial and inferior wall of the maxillary sinus. With the use of this new device, the sinus membrane is lifted while avoiding the need for alternate use of the dissector and the aspirator.

Discussion

Surgeons can expect to encounter one case of membrane perforation for every four sinus lift surgery procedures[1]. Anatomical as well as technical factors have been implicated in membrane perforation[2].

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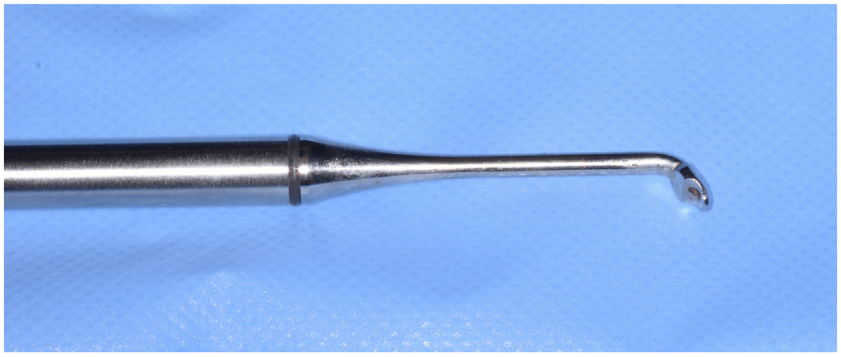

Fig. 1. The tip of the suction dissector containing an internal channel that allows the aspiration of liquid.

Regarding technical factors, the importance of avoiding direct contact of the suction tip with the membrane during surgery has been reported[3]. The possibility of this occurring is greater if a second operator with a different field of view to that of the surgeon controls the suction tip.

The new suction dissector device designed for sinus membrane elevation has proven to be an effective instrument for two reasons. First, it allows the surgeon to perform lifting of the sinus membrane in conditions of good visibility without the need to use two distinct instruments (dissector and aspirator). Second, a device that is able to dissect the membrane with an integrated suction function is extremely useful as it avoids direct contact of the suction tip with the sinus membrane and possible resulting perforation.

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Competing interests

The authors declare that they have no conflict of interest.

Ethical approval

The local institutional review board reviewed and approved this study.

Patient consent

Not required.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.ijom.2019.06.008.

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