



## Implant Placed Simultaneously with Maxillary Sinus Floor Elevation in the Presence of Antral Pseudocysts: a Case Report

Haiyan Lin, Weidan Zhang, tao Weng ,Yanchun Yu

Hangzhou Stomatological Hospital (China Zhejiang Hangzhou 310000 )

**Purpose:** removing pseudocyst in the surgery of maxillary sinus elevation simultaneously with placement of implant and observe its clinical effect.

**Methods:** one patient with missing of the maxillary posterior teeth with pseudocyst was included in this study ,the surgical was performed under local anesthesia,the cyst fluid was sucked and the cyst wall was extirpated after sinus floor elevation through the lateral approach,put the Bio-Gide membrane under the mucosa of the maxillary sinus, the space between the maxillary alveolar and the sinus mucosa was filled with mixture of concentrate grath factor and Bio-Oss,implant placement was carried out simultaneously in a submerged mode according to the guideline of manufacturer,barrier membrane both Bio-Gide and CGF membrane were used to cover the window in the wall of the maxillary sinus and then a mucoperiosteal flap was sutured. Implant crown was restored when osseointegration was achieved.

**Results:** remove pseudocyst in the surgery of maxillary sinus elevation simultaneously with placement of implant, the implant obtained excellent stability and the superstructure obtained ideal function and aesthetic effect also.

**Conclusion:** The described surgical can effectively shorten the patient's teeth deficiency preiod and maintain the function and stability of the implant supported denture.



figure1.Intraoral biting image preoperative



figure2.Intraoral occlusive image Preoperative

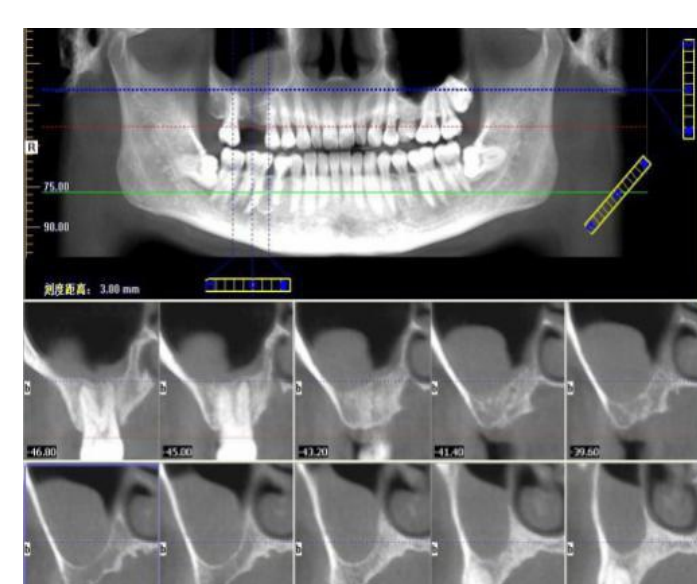


figure3.Preoperative CT image



figure4.flap image after surgical flap



figure5.remove buccal bone wall



figure6.elevate membrane of sinus



figure7.suck the cyst liquid from a different direction

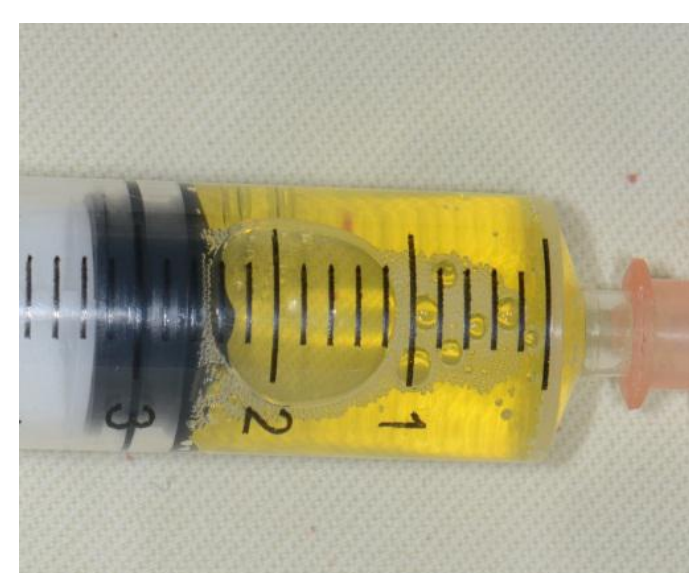


figure8.cyst liquid



figure9.remove cyst wall

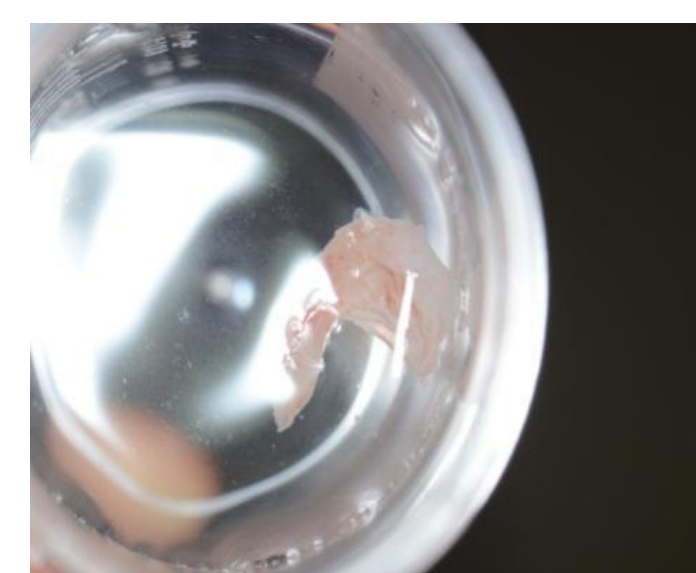


figure10.cyst wall



figure11.sinus after removing the cyst wall



figure12.CGF



figure13.mix up the lowest blood of CGF and Bio-oss colleague



figure14.sinus is filled with mixture of CGF with Bio-oss colleague

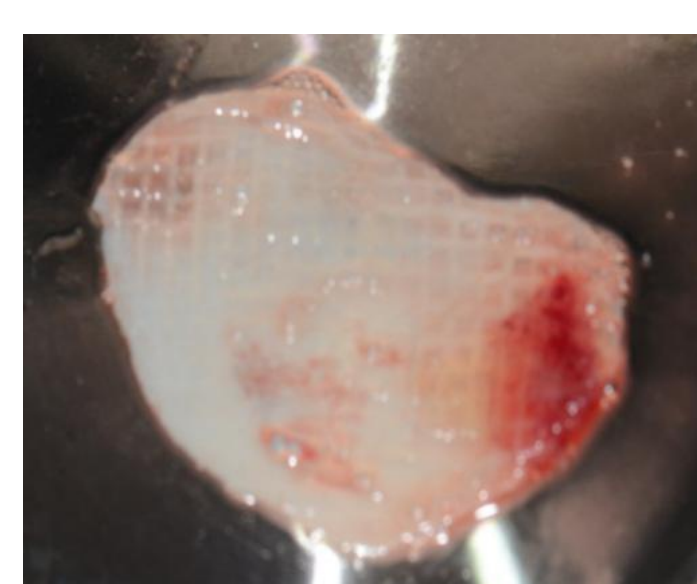


figure15.prepare CGF membrane



figure16.the surface covered with CGF



figure17.lay Bio-gide membrane over CGF membrane

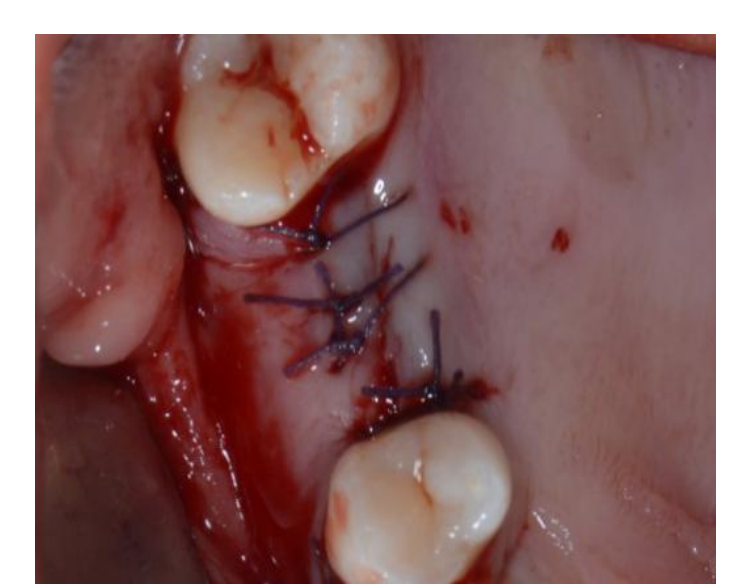


figure18.Intraoral image after the suturing

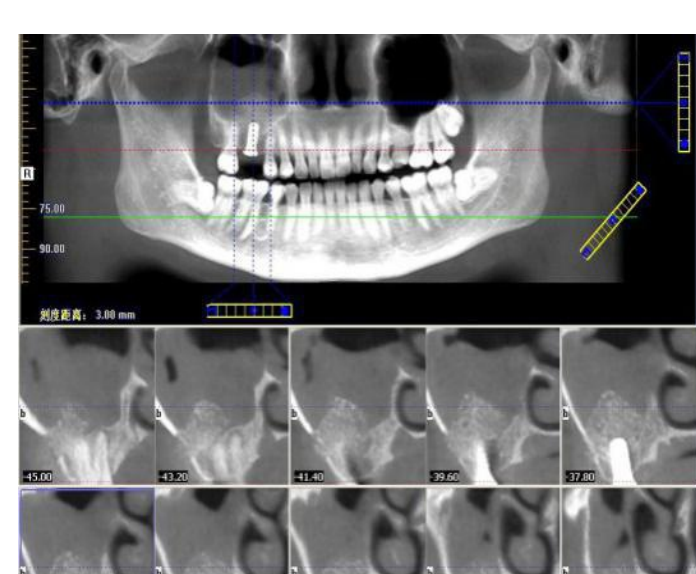


figure19.the CT scan of one day after operation

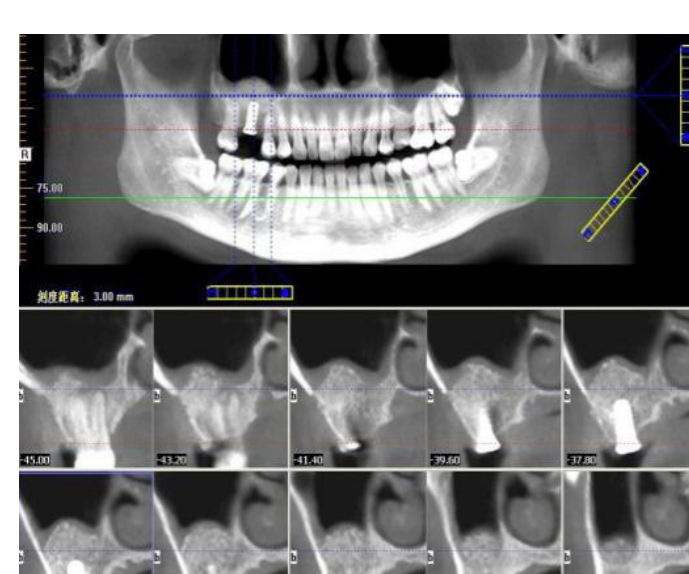


figure20.the CT scan of one month after operation



figure21. the panoramic radiograph nine months after operation



figure22.the the intraoral image after restoration of implant



figure23.the occlusive image of permanent superstructure of implant



figure24.X-ray after Implant restored

## Discussion

Antral cyst is one of the most common benign maxillary sinus diseases, the majority of patients with no obvious clinical symptoms, a few patients have symptoms such as facial, tooth numbness and pain.

According to its clinical features and biological behavior, the maxillary sinus cyst can be classified as four types:

1. The antral mucocele is true cyst, goblet epithelial cells metaplasia in respiratory epithelial cells, with the epithelial lining,can destruct the bone or the adjacent tissues by expansive growth and should be removed before the sinus augmentation.
2. Retention cyst ,due to partial blockage of a duct from a mucous plug or sialolith or from an epithelial invagination,this cysy is small and with epithelial lined, Usually, the X - ray shows that the boundary is not clear.
3. Pseudocyst, Due to inflammatory, allergic or malignant disease, Especially odontogenic infection, pools of “mucoïd” mate-rial in connective tissue, lined by periosteum no epithelial lining, a circular cystic lesion displayed on a X - ray image.
4. Postoperative cysts, reported in Japan in a very high incidence, rarely described in other countries.

Most scholars hold a conservative attitude about the influence of cyst on maxillary sinus lifting.The maxillary sinus cyst has been regarded as an absolute contraindication for the maxillary sinus augmentation all the time although antral cyst is one of the most common benign maxillary sinus diseases,because the key for the antral augmentation is the complete dissection and the elevation of the mucosa of the antral .The presence of cyst changes the anatomical morphology of the normal maxillary sinus, maxillary sinus elevation through the crestal approach is a blind operation, it will cause traumatic impact on the maxillary sinus and unforeseeable consequences for the pathological sinus, especially the cyst cavity. Mucous retention cause sinus membrane swelling and thick, easily rupture in the maxillary sinus elevation through the approach of Caldwell-Luc, thus, mucous spillover and causing maxillary sinusitis.In addition, the presence of maxillary sinus cyst changed the physiological and natural drainage state of sinus , alough without perforation of the mucosa in surgery ,but elevating the mucosa of the maxillary sinus under the cyst will increase disturbance of the natural drainage of the sinus and easily cause infection or inflammation of the maxillary sinus,finally result in sinusitis.

In this study, the removal of antral pseudocyst simultaneously with maxillary sinus augmentations and implant placed . It effectively avoids the risk of maxillary sinusitis caused by mucous spillover, this mode of operation effectively avoid the risk of maxillary sinusitis due to mucus spillover.Although the perforation of sinus membrane in the removal of pseudocyst is inevitably, but the inflammation in the maxillary sinus can still be effectively controlled, all this is attributed to physical drainage in the maxillary sinus still exists. At the same time, the use of CGF can accelerate the integration and restruction of the biological material grafted into the sinus,and effectively reduce the risk of infection, make the antral augmentation become a perfectly expected operation, further more ,it lays a solid foundation for the good functional and aesthetic effect of the permanent superstructure of the implant,finally, the posterior teeth has a good masticatory function.