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*Forcing of the root into the maxillary sinus during tooth extraction
– and what next?*

In the everyday practice of a dental surgeon there may sometimes occur complications during tooth extraction. Extractions of upper molar teeth, and especially their roots ought to be performed with utmost caution. The anatomical vicinity of the alveolar recess of the maxillary sinus (Fig. 1) predisposes this area to the occurrence of complications in the form of joining of the oral cavity to the maxillary sinus.

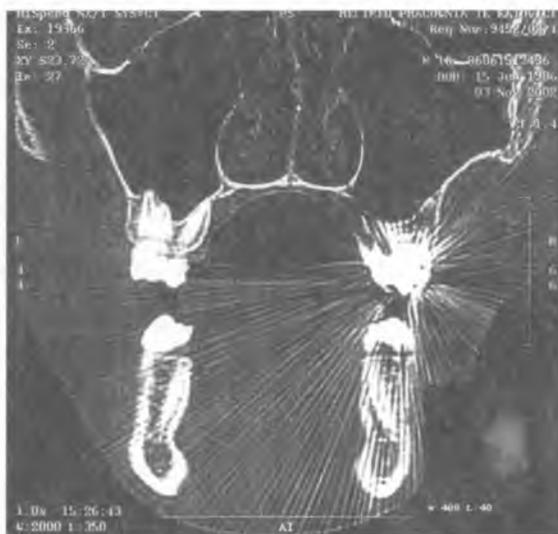


Fig. 1. Computer Tomography – a photograph depicting the relation of the roots of the first premolar to the fundus of the maxillary sinus

Accidental forcing to the maxillary sinus usually affects the roots of first upper molar teeth (1,2), especially during careless attempts to chisel a broken root apex. In such a situation the root disappears from the dental alveolus during the procedure as the thin side of the dental alveolus residing in the sinus lumen undergoes infraction, or as the sides of the dental alveolus have previously been damaged by an inflammatory process.

CASE DESCRIPTION

Patient W. M., 63, reported for treatment directly after the procedure of tooth 16 extraction in order to close the oral-sinus junction. As the panoramic roentgenogram depicted the root of tooth 16 residing in the right maxillary sinus lumen, an attempt to remove this root via the postextraction dental alveolus was made. The dental alveolus was widened and cautious attempts to remove the root with the implementation of a surgical aspirator were undertaken, but without success. Accordingly, an opening was created in the side wall of the maxillary sinus – an osteal window was created, as in the procedure of sinus lifting.



Fig. 2. Panoramic roentgenogram, patient W. M., 63. The photograph was taken directly after accidental forcing of the palatal root of tooth 16 into the maxillary sinus lumen

Numerous attempts were made to retrieve the root with the use of a surgical aspirator and by lighting up the inside of the sinus with a polymer lamp. After the removal of the root, antibiotic treatment was prescribed and the stitches were removed after 10 days. A follow-up examination half-a-year after the procedure did not display any symptoms of an inflammatory state in the right maxillary sinus.

CASE STUDY

Oral-sinus junction takes place in 3.8% of upper side tooth extractions (1); in the case of a lack of such a junction an oro-antral fistula may ensue, resulting in an inflammatory state of the maxillary sinus, often of recurring character (3).

Based on biopsy material taken from the mucosa of the maxillary sinus following the forcing of the root into the lumen, it was observed that within an hour, infection of the maxillary sinus mucosa took place, followed by a reaction in the form of an inflammatory state approximately 6 hours later (4).

Although if treated early enough, the occurrence of the junction per se does not generally carry any further consequences, nevertheless the forcing of the tooth into the sinus lumen and its remaining there may necessitate surgery within the maxillary sinus together with the patient's hospitalization, and if possible, the conduct of an endoscopy.

A rare case has been described where a premolar's root forced into the maxillary sinus caused a chronic inflammatory state that gave rise to a subdural abscess and hemiplegia. Therefore, bearing in mind the possibility of complications, early surgical intervention leading to the removal of the root from the maxillary sinus lumen is highly recommended (5).

As leaving the root in the maxillary sinus lumen may result primarily in the occurrence of a chronic inflammatory state of the sinus, there follows the importance of attempts to remove the root directly after its forcing; however, it does not need to take place through interference into the sinus with the implementation of the Caldwell – Luca procedure.

This work presents possibilities of root removal, directly after its forcing, through the postextraction dental alveolus or via access in the sinus's side wall, similar to the procedure of sinus lifting.

CONCLUSIONS

Early surgical intervention leading to the removal of the forced root from the maxillary sinus lumen is advisable in light of the possibility of complications, mainly inflammatory states ensuing from the root's residing in the sinus lumen.

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SUMMARY

In the everyday practice of a dental surgeon there may sometimes occur complications during tooth extraction. The anatomical vicinity of the alveolar recess of the maxillary sinus predisposes this area to the occurrence of complications in the form of joining of the oral cavity to the maxillary sinus. However, leaving an accidentally forced root in the maxillary sinus lumen may cause a chronic inflammatory state of the sinus or other complications; hence the vital importance of attempts to remove the root directly after its forcing. This work presents possibilities of root removal, directly after its forcing, through the postextraction dental alveolus or through access in the sinus side wall, similar to the procedure of sinus lifting.

Przepchnięcie korzenia do zatoki szczękowej w trakcie ekstrakcji zęba – i co dalej?

W codziennej praktyce lekarza stomatologa czasami mogą zdarzyć się powikłania w trakcie ekstrakcji zębów. Bliskość anatomiczna ząbodołowego zatoki szczękowej predysponuje tę okolicę do występowania powikłania w postaci połączenia jamy ustnej z zatoką szczękową. Pozostawienie przypadkowo przepchniętego korzenia w świetle zatoki szczękowej może skutkować powstaniem przewlekłego stanu zapalnego zatoki lub innymi powikłaniami, dlatego też jest istotne podjęcie próby usunięcia korzenia bezpośrednio po jego wtłoczeniu. W niniejszej pracy przedstawiono możliwości usunięcia korzenia, bezpośrednio po jego wtłoczeniu, poprzez ząbodoł poekstrakcyjny lub z dojścia w ścianie bocznej zatoki, podobnie jak w zabiegu sinus liftingu.