

Assesment of anatomical features of maxillary sinus for sinus augmentation

Hosseinpour Amir Mohammad

Белорусский государственный медицинский университет, Minsk

Научный(-е) руководитель(-и) – phd, associate professor Melnichenko Yuliya Michailovna, Savrasova Nina Alexandrovna Белорусский государственный медицинский университет, Minsk

Introduction

Anatomically, anastomosis between the posterior superior alveolar artery and anterior superior alveolar artery from infraorbital artery is always found at the lateral antral wall (so called alveolar antral artery) (Rosano et al. 2010; Kqiku at al. 2013). Well-defined bony canal containing alveolar antral artery can be detected radiographically in 47%-89.3% of cases (Rosano et al. 2010; Güncü et al., 2011). This anastomosis has the potential to cause bleeding complications during sinus floor elevation and implantation of grafting materials. Maxillary sinus septa are barriers of cortical bone that divide the sinus into multiple compartments, known as recesses. Prevalence of sinus septa is between 16% and 58% according to published data (Underwood 1910; Ulm et al. 1995; Jensen et al. 1992; Betts & Miloro 1994; Krennmair et al. 1997). The presence of maxillary sinus antral septa has been associated with an increased risk of complications of sinus lifting procedure.

Aim of study

To determine the prevalence, diameter of the alveolar antral artery (bony canal) and its relationship with the alveolar ridge, the medial wall of the maxillary sinus and sinus floor and evaluate frequency, morphology, and locations of antral maxillary sinus septa.

Materials and methods

Ninety nine CBCT scans of 47 dentate women and 52 dentate men who visited dental outpatient hospitals of Minsk, Belarus were retrospectively analyzed. Reformatted axial, coronal and sagittal images from 198 sinuses were analyzed using imaging software.

Results

The alveolar antral artery was detected in 167 out of 198 sinuses examined (84.3% of cases). The vertical distance from the lowest point of the vessel, corresponding to the first molar area, to the alveolar crest averaged 15.97 ± 3.56 (SD) mm (range between 4.82 and 22.68 mm). The diameter of bony canal was ≥ 1 mm in 141 sinuses (84.4% of 198 cases), 1-2 mm in 26 sinuses (15.6%). In the 198 maxillary sinuses evaluated, a total of 33 (16.7%) antral septa were present. The most common orientation of septa was coronal (69.7%; n = 23), followed by sagittal (30.3%; n = 10).

Conclusions

Using CBCT the alveolar antral artery can be found in 84.3% of cases. Its diameter was 0.76 ± 0.27 (SD). Antral septa were detected in 16.7% of cases. In the majority of cases, septa were observed in the first or second molar region.