

Anatomy! Essential Knowledge for Effective Clinical Practice

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Anatomy is the fundamental study in dentistry. However, when performing clinical practice, there are often cases where many aspects are overlooked due to a lack of understanding of anatomical structures. This lecture covers the anatomical structures that are essential to know when treating patients, especially anesthesia and implant treatment.

1. Anesthesia anatomy

Anesthesia is the first procedure performed during most dental treatments. The nerves in the maxilla teeth are consisted of the anterior, middle, and posterior superior alveolar nerves. These nerves are also divided into extraosseous branches and intraosseous branches. The intraosseous branches are located in the corresponding teeth while the extraosseous branches are located in the buccal mucosa of the corresponding teeth. In addition, the greater palatine nerve is distributed to the palatal mucosa of the corresponding teeth. The lack of precise understanding of these distribution patterns often leads to excessive anesthesia being performed.

The anesthesia of inferior alveolar nerve often results in a high failure rate due to the difficulty in accurately predicting the anesthesia injection site. Therefore, it is necessary to have a better understanding of the pathway of the inferior alveolar nerve, but also the structure of the mandible, which can be a critical spot for anesthesia. The mandibular basal angle of the lower jaw in males averages 74.8 degrees(ranging from 62 to 84 degrees), while in females, it averages 71.5 degrees(ranging from 65.5 to 78 degrees). Therefore, there is considerable variability in the mandibular basal angle. By anticipating the degree of variation in this angle, simply adjusting the direction of the anesthesia injection can help reduce the failure rate of anesthesia.

2. Implant anatomy

The biggest problem during maxillary implant surgery is bleeding that occurs during the sinus lift procedure. This bleeding is caused by damage to the intraosseous branches of the posterior superior alveolar artery. Therefore, if the exact pathway of the intraosseous branches is understandable, such bleeding can be prevented in advance.

Side effects that occur during mandibular implant surgery are paresthesia due to the damage to the mental nerve and bleeding caused by the submental artery (a branch of the facial artery), and the sublingual artery (a branch of the lingual artery). Since the mental nerves form an anterior loop before exiting through the mental foramen, it is essential to always be aware of the presence of this loop, and clinical symptoms due to the partial damage of the mental nerve can vary widely from person to person. Bleeding from the submental artery is an important area that can endanger one's life, so predicting this aspect is absolutely necessary, and having a good and clear understanding of the pathway of the sublingual artery can prevent bleeding.

Profile

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