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قسم جراحة الفم والوجه والكفين

تقييم صفائح الدم الغنيه بالفيبرين مقابل النانو هيدروكسي اباتيت في تدعيم الجيب الانفي : دراسة اكلينيكيه

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Ain Shams University
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Assessment of Platelet rich fibrin versus Nano-crystalline hydroxyapatite in antral floor augmentation: Clinical Study

Thesis submitted for partial fulfillment of requirements of Doctoral Degree in Oral and Maxillofacial surgery

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In the memory
of my father

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List of Contents

List of Tables

List of Figures

List of Abbreviations

Item	Abbreviation
FDBA	Freezed dried bone allograft
DFDBA	Decalcified freezed dried bone allograft
BMPs	Bone morphogentic protiens
ABB	Anorganic bovine bone
ncHA	Nano crystalline Hydroxyapatite
TRAP	Tartrate-resistant acid phosphatase
PRF	Platelet rich fibrin
PRP	Platelet rich plasma
b-TCP	Beta-tricalcium phosphate
ASA	American society of Anesthesiologists
CBCT	Cone beam computed tomography
H-E	Hematoxylin and Eosin stain
MT	Masson trichrome stain

Introduction

Dental implants have become an excellent treatment modality since its introduction into the modern era of dentistry. It allows not only for a conservative and esthetic alternative for treating partial edentulism, but also provides a stable foundation for treating complete edentulism. Dental implants are a viable treatment option when there is sufficient quantity and good quality of bone. However, when patients present with deficient alveolar ridges, it could adversely affect the placement and stability of implants. This problem is especially magnified in the posterior maxilla where ridge resorption and sinus pneumatization, compounded with a poor quality of bone, are often encountered. (1)

Placement of dental implants in the atrophic posterior maxilla is a challenging procedure in the presence of reduced maxillary bone height. Various clinical procedures and materials have been developed to overcome the problem of reduced bone volume. One of the most frequently used surgical interventions for obtaining adequate bone volume prior to the placement of endosseous implants in the posterior maxilla is grafting the floor of the maxillary sinus.(2)

Review Of literature

Anatomy of the Maxillary Sinus:

The maxillary sinuses are pneumatic compartments of the paranasal sinuses group, which includes the ethmoidal, frontal and sphenoidal sinuses. (3)

The maxillary sinus, the largest paranasal sinus, serves many functions, including air conditioning, pressure damping, vocal resonance, and the reduction of the weight of the skull. It also thermally insulates the upper nerve centers and protects the skull base from trauma. (4, 5, 6)

Maxillary sinus is located within the bone of the maxilla on each side of the nasal cavity,it communicates with the nasal cavity through an opening (called an *ostium*) that is located high on the medial wall and opens into the semilunar hiatus of the middle nasal meatus on the lateral nasal cavity. (7)

The increase in the sinus volume as a person ages is called *pneumatization*, which results in a pyramidal structure in which the base is oriented toward the nasal wall and lateral apex extends into either the zygomatic process of the maxillary bone or the zygoma. (8, 9)

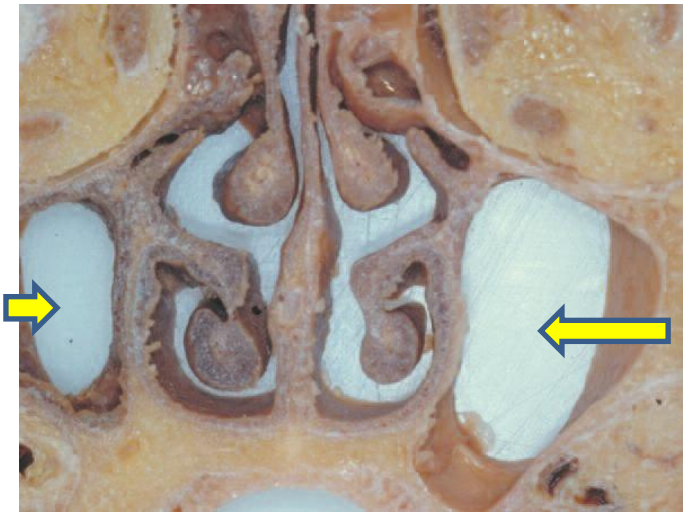

Fig (1): Maxillary sinus adopted from: Maxillary sinus surgery: Anatomy and advanced diagnostic imaging. *Journal of Implant and Reconstructive Dentistry® 2011 Vol. 3*

Anteriorly, the sinus extends to the canine and premolar area; the most inferior point of the floor extends to the first molar region. The roof is formed by the orbital floor and transected by the course of the infraorbital nerve that exits through the infraorbital foramen. [10]

Following teeth loss, the process of pneumatization usually leaves a thin bone in both the occlusal and lateral walls of the posterior maxilla. [9]

The average dimensions of the maxillary sinus are 33 mm in height, 23-25 mm in width, and 34 mm in the anteroposterior axis; the average volume is 15 mL. [11]

Maxillary sinus septa are usually defined as an anatomical variation found in 16%- 58% of the population; a single septum is more common than multiple septa. [12] They were first mentioned by Underwood in 1910 [13] and described as barriers of cortical bone that arise from the floor or the walls of the sinus and may divide the sinus into several recesses. The presences of these septa usually complicate sinus augmentation procedure. [12, 14]

Based on their origin, septa can be further subdivided into primary septa, formed during maxillary development and tooth growth, or secondary septa, acquired during the pneumatization of the maxillary sinus after teeth loss. [15]

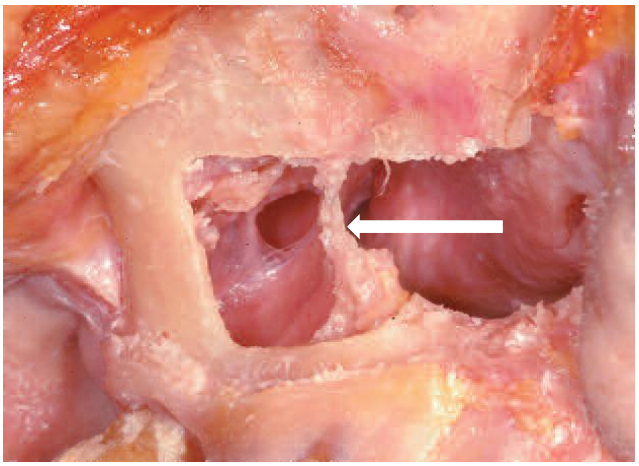

Fig (2): Maxillary sinus septa adopted from: Maxillary sinus surgery: Anatomy and advanced diagnostic imaging. *Journal of Implant and Reconstructive Dentistry® 2011 Vol. 3*