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## Abstract

The objective of my research was to evaluate the effectiveness of direct positioning of a dental implant assisted by Bioplast, a dental material in combination with an antibiotic. After the legal loss of a tooth, bone breakage is irreversible, putting a region not including enough bone capacity for effective implant therapy. Bone transplanting and the addition of replacement material is one way to reverse tooth extraction and is a highly-recognized method necessary for 1 to 4 dental implants. The direct insertion of the dental implant after tooth extraction and the addition of Biodent tips 200-1000um with antibiotic in combination with a natural (autogenous) bone substitute increases the efficiency of the implant and reduces or minimizes bone loss in this area. A Investigation and advancement of tools, model and production machineries get evolved across the times to produce effective and durable alveolar transplants for tooth replacement.

**Key words:** Nucleolus dental implant, CBCT diagnosis, Teeth extraction legally, Bioplast-Dent, sterile Lincomycin antibiotic vial solution, socket of immediate extracted tooth

## INTRODUCTION

The results of direct positioning of the transplants in the esthetic area are favorable. However, systematic reviews have reported that implant placement is best performed in a carefully selected patient population to minimize risk [1,3,4]. resource of alveolar bone transplants and bio dental supplies in dental bone alternatives that have been examined or are now accessible on the shop. Bone transplants and alternatives, including organic and artificial supplies, and industrial items accessible [2]. The limits of the available materials are presented. The main purpose of jawbone transplants is to deliver mechanical assistance and promote bone redevelopment, with the greatest target of advancing bone replacements. As an evolving region of improvement, hybrid tissue-engineered constructs with enhanced bone regeneration capability, such as B. cell-based bone replacement or growth factors discussed. most important to successfully fulfilling this role [6,12]. Osteogenesis indicates to the growth of new bone by cells called osteoblasts or progenitor cells show in the transplant substance, and osteoconduction indicates to the capability of the bone transplant substance to produce a bioactive framework upon which the present cells can multiply [1,5]. This configuration permits host vessels, osteoblasts, and progenitor cells to move around to the interlinked osteoma [5].

The purpose of complex bone alternative items is to enhance the mechanical resource of the substance acquired. The capability of the transplant substance to chemically become attached to the bone exterior in the deficiency of a transitional layer of fibrous tissue is referred to as osteointegration. Osteogenesis indicates to the development of new-found bone by osteoblasts or progenitor cells present in the graft material, and osteoconduction refers to the ability of the bone graft substance to produce a bioactive framework upon which compartments can present [2,5]. This arrangement allows host vessels, osteoblasts, and progenitor cells to migrate into the interconnected osteometry (Figure 1). Osteoinduction is the enrollment of present stem cells to the transplant location, where regional proteins and other components stimulate the stem cells to distinguish into osteoblasts [6]. When a small amount of blood is added to the osteodental material, this process is affected by numerous development aspects, involving platelet-derived growth factor (PDGF), fibroblastic growth factor. (FGF), and growth factor- $\beta$  transformants (TGF- $\beta$ ). These 4 simple resource allow brand-new bone creation similar to the immediate bone connection [7,8]. promote brand new bone development and enhance bone therapy through bone conduction. Mesenchymal stem cells are multipotent non-hematopoietic cells that are usually obtained from marrow [7,20].

3

Aim of study to evaluate the effectiveness of direct positioning the dental implant assisted by Bioplast, a dental material in combination with an antibiotic. After the legal loss of a tooth, bone breakage is irreversible, putting a region not including enough bone capacity for effective implant therapy. Bone transplanting and the addition of replacement material is one way to reverse tooth extraction.

### **Biodent-Dental material**

Bioplast-Dent material (deprotein) is a hydroxyapatite of biological origin and is a sufficiently strong and gradually resorbable (6-8 months) matrix, on the surface of which newly formed bone is formed in conditions of bone defects. After deproteinization, the material is free from cellular elements and protein fractions.

material is an ideal structure for blood vessel germination and bone bed cell growth because it has a porous structure of the trabecular and diaphyseal parts of long bones (micropores, macropores, Haversian canals).

Biologically-derived hydroxyapatite promotes angiogenesis, migration and attachment of stromal stem cells from bone marrow to the granular surface, their differentiation into osteoblasts, and repair of osteogenesis. The materials have osteogenic properties (osteoconductive and osteoinductive), contain highly purified sulfated glycosaminoglycans within biological limits. Chondroitin Sulfates (Glycosaminoglycan Sulfates - SGAG) 700 µm. 700-1000 Bioplast Dent Materials (Lincomycin Cubes), (Metronidazole Chloridine Cubes) 0.5cm 1.0cm, 1.5cm; Bioplastic blocks (mineralized, non-mineralized 5x5x5 mm [23].

### **Anti-biotic benefit in the cavity dental implant insertion:**

Dental implants fail for many reasons, one of which is the development of bacteremia around the implants. Some dental implant failures can be caused by bacterial contamination during implant placement. Infections surrounding biomaterials are difficult to treat and most infected implants must be replaced [3]. Antibiotic prophylaxis aims to increase the chances of success.

Lincomycin inhibits protein synthesis in microorganisms and exhibits bacteriostatic and bactericidal effects. It is effective against gram-positive organisms and mycoplasma.

In addition, many more resource affect the accomplishment amount of bone grafting. These include, bioresorbability, biocompatibility, structural integrity, sterility necessary permeability for vascular development, flexibility, comfort of usage, price, and compressive strength [13]. The mixture of these

4

6

considerations is the core of their usage, sufficient long-term acceptance by the host soft tissue and a better chance of positive osteo regenerative developments [13].

Findings say shown that nearly all currently available bone graft and bone substitute materials serve primarily as a structural scaffold for the ongoing osteoregenerative processes and therefore respond only to the osteoconductive component of the ideal properties discussed above [14,15]. In addition, potential problems with graft versus host disease remain for all current non-autografting materials. This represents an important area to be refined in the future advancement of new bone substitute materials.

Fig 1: immediate insertion of dental implant

Adhesive bone is a further freshly established idea that utilizes growth factor-enriched bone graft pattern utilizing autologous fibrin glue [16]. The use of adhesive bone can alleviate the bone graft associated in bone defects, which helps speed up bone restoration and lessen bone injury. Composite bone replacements are intended to enhance mechanical osseointegration [9].

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The jawbone grows into the implant, known as osseointegration. This growth takes time (typically 2 to 6 months) to become the solid foundation that you one or more need more new artificial teeth (dental implant) and we started placing an abutment.

#### **Why immediate implants placement:**

There are several benefits and a lot of research has been done. A new idea comes because it's late, since it can be done instantly, there are several advantages and many disadvantages of instant replacement [17].

Intraosseous implants have been the treatment of choice for the reconstruction of missing teeth for years. However, healed tooth processes are required at least 5-6 months after extraction. After several years of research, it was found that the reliability of implants placed during tooth extraction without the need for irrigation 4 to 6 months after extraction due to bone formation and alveolar bone loss is lower for immediately placed implants than for delayed implants. Key Stages in Treatment Planning determine the prognosis for a particular tooth. The reason for a tooth extraction can be an insufficient crown-to-root ratio. only the root remains root fracture caries, endodontic infection [5,8].

Contraindications are [19]

1 cellulitis and granulomatosis in the junction area

extraction of 2 teeth with purulent exudates.

3 - excessive Parkinson's disease

4 - poor bone density

Recent studies have discovered new surgical techniques and biomaterials to accelerate the process of Osseo integration that promote immediate weight loss. Careful therapy planning reduces stress for the patient and procedural steps for the practitioner [20].

### **Jumping distance**

The space stuck between the transplant exterior and the neighboring alveolar edges should be based on membrane and regenerative procedures if there is a deviation of more than 0.5 mm, especially in the buccal gingival area. The achievement of transplant rehabilitation has been complicated to evaluate due to inadequate articles of biological, technical, and esthetic problems. The soft tissue adjustments appeared largely in the first 3 months following the positioning of the restoration and then alleviated by the end of the first year. Minimal bone damage generally happened within the first year after transplant assignment and was mostly less than 1 mm. Disputes concerning hard tissue conservation with the stand changing practice stayed unresolved. Regardless of the high persistence ratio noted, more long-term analyses are necessary to establish the achievement of implant therapy directly after tooth removal [20,21].

### **Success of implant**

This therapy has been difficult to evaluate due to limited reports of biological, technical, and cosmetic complications.

1- Soft tissue changes occurred mainly in the first 3 months

2- after restoration and then stabilized by the end of the first year.

3- Marginal bone loss occurred mainly in the first year after implant placement and was usually less than 1 mm.

4- The controversy regarding the preservation of hard tissue with the platform switching technique remains unresolved. Despite the high survival rate observed,

additional 5-year studies are required to determine the success of implant treatment performed immediately after tooth extraction [18,21].

### Material and methods

52 Iraqi Patients Volunteers from Al Esraa University College Attend Tooth Extraction College. Providing Information and Instructions on Tooth Extraction and Immediate Placement of Dental Implants.

All volunteers examine CBCTplanmeca romixes device patients radiographically to obtain a correct diagnosis and evaluation of treatment planning for the disease. will use NucleosT6 and perform an assessment with 2D-OPG or3D CBCT radiology for loading at 3 months.

It is necessary to know how to be considerate of all who are sick. (a) the patient's gingival biotype; (b) the thickness and integrity of the alveolar bone walls; (c) implant selection and correct vertical and horizontal positioning of the implant; and (d) the ideal patient (non-smoker with good plaque control).

found an average benefit in reducing trauma surgery for patients by placing implants in the same procedure as tooth extractions. In addition, there is no healing time for the extraction socket, which shortens the overall treatment time.

Conventional Loading - All of our patients in this study will load the implant after 3 months of subgingival healing. Bone density ranges from 720 to 500 Hu in Planmeca romexis 4.2 CBCT. granted to: esraa University.

Fig 2; patient with multiple retained roots      fig 3; NucleosT6 surgical and prosthetic kit      fig 4: CBCT implant soft ware

Fig5 ; canine image prepared after wearing      Fig 6;canineCBCT      Fig 7; Bioplast-Dent material      Fig 8::patient

For immediate implant

prosthetic teeth

Table:1 Type of teeth extracted according to the CBCT and OPG diagnosis.

Type of teeth extracted according to the CBCT and OPG diagnosis	No.	%
pre apical changes	5	9.62
chronic pulp	18	34.6
fracture crown	2	3.85
root fracture	5	9.62
badly caries tooth with vital pulp	15	28.8
root canal failure	7	13.5
<b>Total</b>	<b>52</b>	<b>100</b>

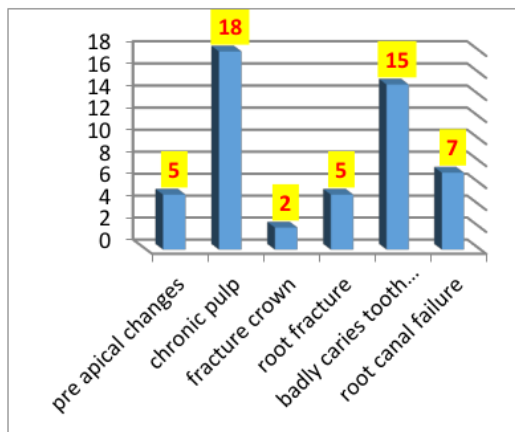




Table (2) **Teeth selection**

Type of teeth	Upper jaw	Lower jaw
1st premolar	10	6
2nd premolar	8	2
canine	2	1
central and lateral incisor	0	3
1st molar	6	7
2nd molar	4	9
<b>Total</b>	<b>30</b>	<b>22</b>

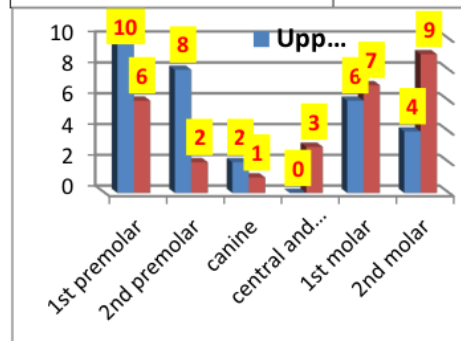


Table (3) **Number of dental implant inserted in mouth**

No. of dental implant	No.	%
posterior teeth	46	88.46
anterior teeth	6	11.54
<b>Total</b>	<b>52</b>	<b>100</b>

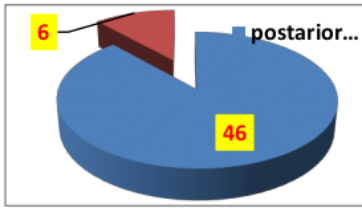


Table (4) age distribution according to Number of teeth selected

	class	No. of teeth	%
age distribution to No. of teeth	20-29	19	36.5
	30-39	8	15.4
	40-49	10	19.2
	50-59	12	23.1
	60-69	3	5.77
	<b>Total</b>	<b>52</b>	<b>100</b>

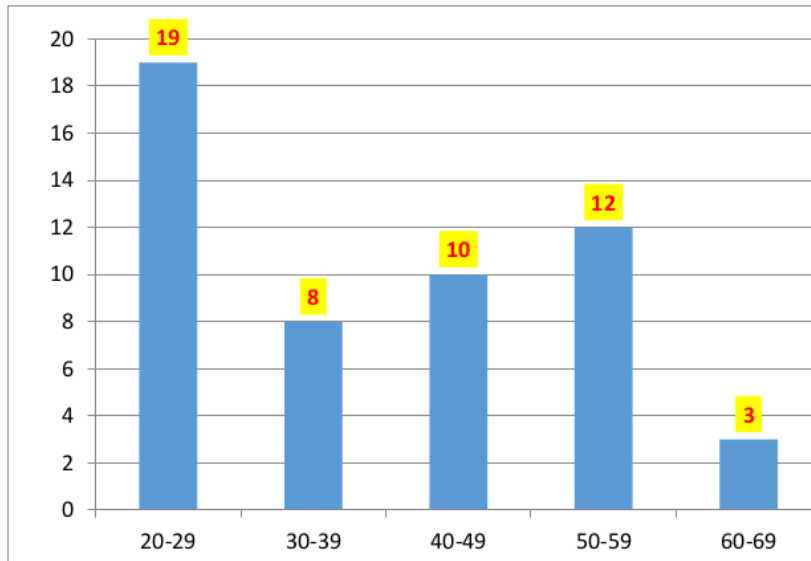
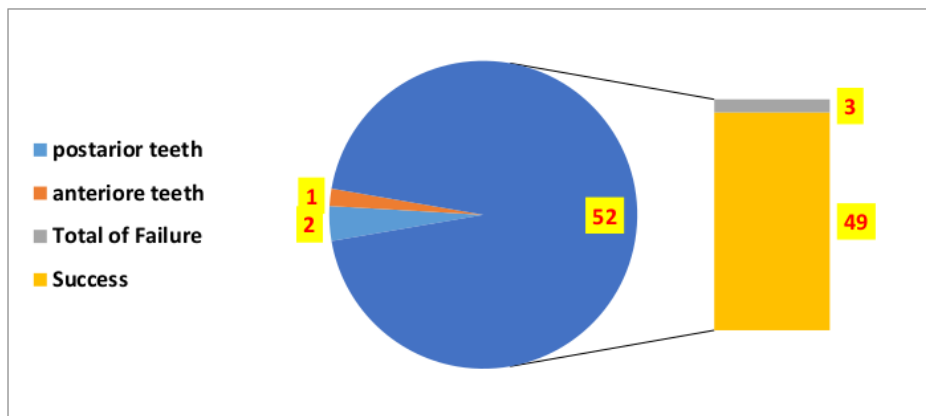


Table (5) The percentage between anterior teeth and posterior teeth failure according to total number of teeth insertion.

	failure		P-value	Sig
	No.	%		
posterior teeth	2	3.8	0.004	P<0.05 S*
anterior teeth	1	1.9		
Total of Failure	3	5.7		
Success	49	94.3		
Total	52	100		

\*Significant



Chi- square between anterior teeth and posterior teeth.

## Result

The extracted and do for them immediate implant diagnosis according to table1 and their age distributed according to table4 and the type of teeth selected according to table 5

The result of this study is significant with 94.3/with a P-value of 0.004 when implanted with Bioplast-Dentbits 200-1000um (osteoplastic material) + Lincomycin liquid solution prepared from Lincocin 500mg vial.

Chi- square between the success implant teeth and failure as in table 5 there is 49 teeth success and three teeth are failure.

A few drops taken and conjugated with bioplast is inserted, then let stand two minutes after mixing, and put directly into the socket of the extracted tooth, then insert the dental implant into the socket without do drilling in socket select the size of dental implant according to the size of root tooth that extracted confirm to the radiography taken.

## Discussion

Dental implants placed immediately after the introduction of a GBR conjugate antibiotic into selected extraction sockets have high survival rates comparable to delayed implants placed in healed sites. Immediate implants offer significant benefits and a high success rate, including no surgery, fewer post-

implant infections, no expertise required for placement, shorter healing times, and improved esthetics that finally gives the surgeon confidence with dental implants this agree with [21,22] just operated on. but with experience in the oral cavity and maxillofacial radiologists with a good clinical diagnosis failure in three dental implant due to deficiency in D3 one case with reduce calcium concentration

## Conclusion

Dental implants placed immediately after the introduction of a GBR conjugate antibiotic into <sup>2</sup>selected extraction sockets have high survival rates comparable to delayed implants placed in healed sites. Immediate implants offer significant benefits and a high success. In blood and two cases without reduce calcium in blood only deficiency in D3 this agree with [23] this result need more research and data to confirmed it.

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