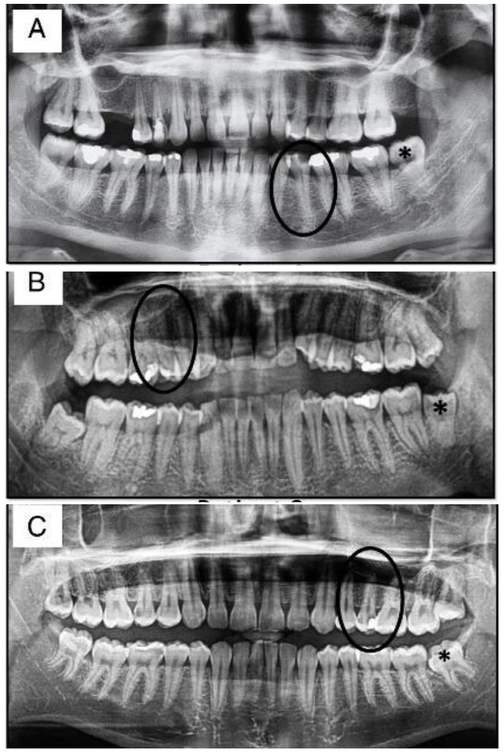
39th IACDE National Conference

Dental Pulp Autotransplantation:A New Modality of Endodontic Regenerative Therapy

Introduction

Restorative dentistry & endodontics are trending towards a regenerative approach for the pulp/dentin complex.In order to aid the regenerative process, growth factors,cytokines and several micro environments were introduced.However, little of these thechnologies actually reached the clinical case series.

The autotransplantation of the entire pulp might yield the optimal *scaffold* for the differentiation of DPSCs in their natural environment.



A,B,C-Patients 1,2 & 3 respectively
◯ — recipient tooth
✱ — donor tooth (3rd premolar)

Materials & Methods

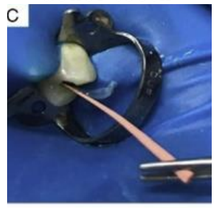
Necrosed tooth(receptor) with Periapical radiolucency

Anaesthetised & rubber dam placed

Pulp chamber access with canal instrumentation

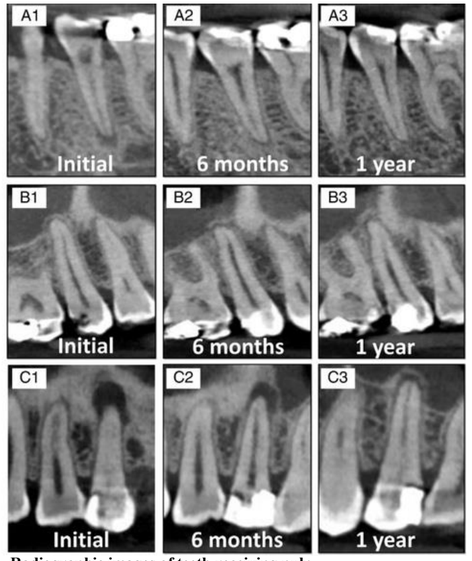
3rd molar extracted & sectioned into 2 halves

Pulp removed from donor tooth

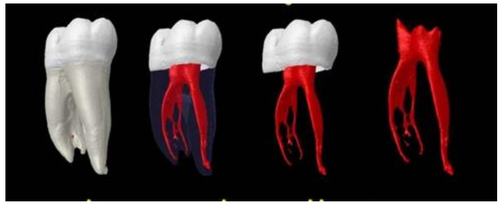


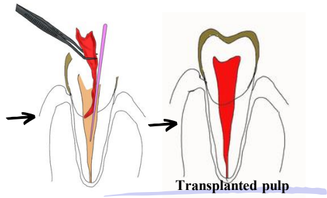
Insertion of the harvested pulp into the receptor tooth with the aid of gutta percha cone

Results



Radiographic images of teeth receiving pulp autotransplantation. A1-A3 are related to the first patient's lower second premolar, which (A1) depicted periapical radiolucency initially, (A2) was notably reduced at the 6-month follow-up, and (A3) disappeared after 1 year of the treatment. (B1-B3) The same trend occurred in patient 2 as well as in patient 3, with (C1-C3) a striking reduction of periapical lesions over time,although the 1-year period was not enough to demonstrate total absence of periapical radiolucency.At the 1-year follow-up, all teeth showed





Transplanted pulp (vital)

Advantages of preserving the vitality of dental pulp

It gives sensational ability to changes of acidity, temp &pressure

Serves as a pain alert to any local injury-caries,fracture, trauma

Works in the hierarchal & homogenous distribution of stress

Helps in differential diagnosis of distinct pupal injuries

Significance

- **Preserves the vitality of the pulp**
- **Lack of transplant rejection**
- **Completely mature connective tissue**
- **Formed neural network**
- **Most nerves and blood vessels are formed, facilitating the revascularisation & connective tissue formation of transplanted pulp**

References

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2.Li X, Ma C, Xie X, et al. Pulp regeneration in a full-length human tooth root using a hierarchical nanofibrous

3.Athirasala A, Lins F, Tahayeri A, et al. A novel strategy to engineer pre-vascularized full-length dental pulp-like tissue constructs. Sei Rep 2017:7:3323.