Introduction

Diabetes mellitus (DM) is a complex multisystem common metabolic disorder of carbohydrate and lipid metabolism affecting millions of people allover the world. The disease is caused by an impairment of insulin hormone function and secretion from islands of Langerhans in pancreas that increases glycemic levels. There are three main types; type I: insulin dependent diabetes mellitus (IDDM), type II: non insulin dependent diabetes mellitus (NIDDM) and type III: gestational diabetes (diabetes of pregnancy) **(Garber et al 1998)**.

Long standing diabetes results in angiopathy, cellular and connective tissue changes that is indicative of increased catabolism in the gingiva of diabetic patients **(Seppälä et al 1997)**.

Also progression of diabetes has profound effects on oral tissues resulting in expression of inflammatory mediators and modifications of structural components of dental pulp **(Catanzaro et al 2006)**.

An important consideration in both type I and type II is the affection of the vascular system, especially capillaries at which all metabolic exchanges of oxygen, nutrients and waste products occur. All sizes of blood vessels are damaged by accumulation of atheromatous deposits in the internal lumen. Capillaries in particular develop a thickened basement membrane which impairs leukocytic response, decreases PMNs killing ability, hence increases anaerobic and aerobic bacteria attributed to anoxia. Because of that

diabetic patients with infected teeth are less than non diabetics to experience endodontic success **(Bender and Bender 2003)**.

Dental pulp has the capacity to form reparative dentin and pulp stones in response to local and systemic stimuli. Pulp stones are frequently formed as a pathological calcification product in dental pulp tissues. Large stones might block access to canal orifices and alter the internal anatomy of the root canals **(Inagaki et al 2010)**. These stones may cause difficulties for endodontists in reaching the root canals through blocked orifices, affecting proper cleaning and shaping. In addition they might lead to missed canals that decrease the success of endodontic treatment. Alteration of the internal anatomy of root canals by internal deposits needs meticulous technique during cleaning and shaping to avoid breakage of the instruments and requires a higher skill from endodontist.

Due to these facts, it appears useful to spot light on the effect of diabetes mellitus on the pathologic changes and internal calcifications of dental pulp, in an attempt to standardize the difficulties and the proper technique required to perform a successful endodontic treatment in diabetic patients.