" IMMUNOHISTOCHEMICAL EXPRESSION OF VASCULAR ENDOTHELIAL GROWTH FACTOR AND ITS CORRELATION WITH VON WILLEBRAND FACTOR AND MICROVESSEL DENSITY IN ORAL SQUAMOUS CELL CARCINOMA "

Dissertation submitted

to

THE RAJIV GANDHI UNIVERSITY OF HEALTH SCIENCES

in partial fulfilment of the requirements for the degree of

MASTER OF DENTAL SURGERY

in the speciality of

ORAL PATHOLOGY AND MICROBIOLOGY

March 2000

Dr. Karen Benny

DEPARTMENT OF ORAL PATHOLOGY

S. D. M. COLLEGE OF DENTAL SCIENCES AND HOSPITAL

DHARWAD, KARNATAKA

Angiogenesis is a fundamental process by which new blood vessels are formed. It is essential in reproduction, development, and wound repair.

Experimental evidence suggests that the growth of a tumour depends on the growth of the supporting vasculature. Tumour cells are seen to proliferate till the tumour attains a maximum diameter of 1-2 mm, after which, further growth requires an increase in the microvessels that supply a tumour **(Gimbrone M A et al, 1976)**. Numerous studies have associated angiogenesis with an increased rate of tumour progression and metastasis. The stimuli for the development of new blood vessels appears to arise from the tumour cells by secretion of soluble factors that are angiogenic.

Various researchers have used conventional and immunohistochemical methods to quantify the vascularity of a tumour based on expression of angiogenic factors, and have thus assessed their prognostic potential.

von Willebrand Factor (vWF; previously called Factor VIII), has been commonly used to stain tumour vascular endothelial cells, and, thereby, assess microvessel density (MVD) in malignant neoplasms of lung **(Yamazaki K et al, 1994)**, oesophagus **(Tanigawa N et al, 1997)**, and in oral carcinoma **(Williams J K et al, 1994)**. Recent studies indicate the role of Vascular Endothelial Growth Factor (VEGF) as a major regulator of physiological and tumour-associated angiogenesis. VEGF, also referred to as Vascular Permeability Factor (VPF), is a diffusible