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Letter

Prognostic Significance of p53 Protein Accumulation in Early Stage T1 Oral Cavity Cancer

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THE TNM classification is widely utilised in clinical practice as a prognostic indicator for oral cavity cancer. Generally, T1 cancers are associated with excellent prognosis. However, in approximately 10% of patients these early cancers behave in an aggressive manner with poor prognosis. Clinical and histological criteria, such as tumour thickness, pattern of invasion and histological differentiation, are of limited value as prognostic indicators. Consequently, experimental focus has turned to the aberrant expression of oncogenes and tumour suppressor genes as potential prognostic factors [1]. Of particular interest has been the potential role played by the p53 tumour suppressor gene in the genesis and progression of several tumour types [2]. Analysis of p53 protein with monoclonal antibodies is useful for estimating expression and distribution of mutated p53 protein at the cellular level. In a retrospective study we have assessed the presence or absence of p53 protein in 82 patients who presented with T1 squamous cell carcinomas of the oral cavity by immunohistochemistry using the PAb1801 monoclonal antibody (Oncogene Science, Inc., Uniondale, New York, U.S.A.). This antibody recognises both wild-type and mutant p53 forms. Nuclear p53 staining of tumour cells was assessed prior to obtaining survival information, and all tumours with p53-reactive cells were scored as positive. This result was correlated with clinical course and survival of these patients. Twenty-two tumours were deemed aggressive based on their propensity for regional or distant metastasis, or local aggressive recurrence at the primary site. Of these, 17 (77%) were positive for p53 protein. Of 60 non-aggressive tumours, 18 (30%) demonstrated p53 protein. Survival was expressed as the number of months from the date of primary surgery to the date of death if due to the malignancy. The Kaplan–Meier survival curve (Fig. 1) shows that T1 lesions negative for p53 staining behaved less aggressively and were associated with a better prognosis than those positive for p53 ($P > 0.005$). As reported recently, there was no significant association between immunohistological detection of p53 protein and survival among patients in the late stage of the hypopharyngeal carcinoma [3]. Thus, p53 accumulation appears to be particularly important in the early stages of tumour progression. This study is the first to report that p53 accumulation in early oral cavity cancers may identify a subgroup of patients with a propensity for a less aggressive course. Similar results showing an association between p53 accumulation and poor prognosis in human lung and gastric cancers, respectively, have been reported [4, 5]. The implications of these studies may lead to improved prognostic indicators to determine better treatment modalities.

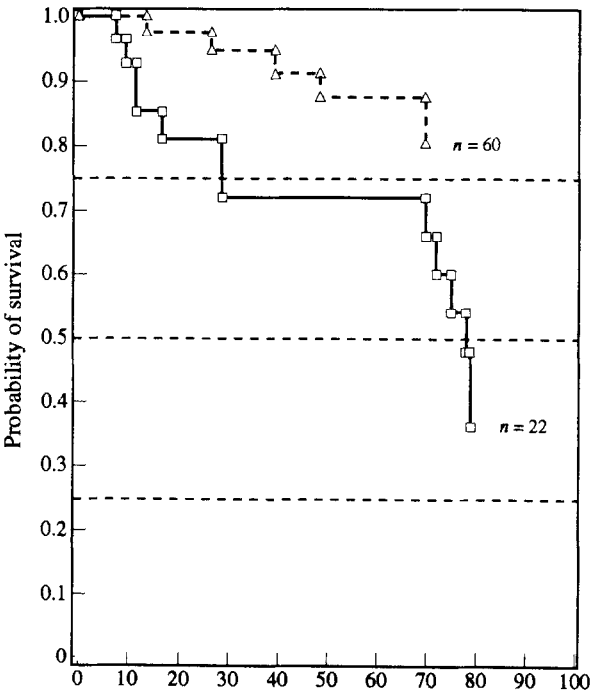

Fig. 1. Kaplan–Meier survival curve for T1 oral cavity tumours based on the presence or absence of p53 protein. Δ p53−, □ p53+ ($P > 0.005$).

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1. Slamon DJ, deKernion JB, Verma IM, Cline MJ. Expression of cellular oncogenes in human malignancies. *Science* 1984, **224**, 256–262.
2. Zambetti GP, Levine AJ. A comparison of the biological activities of wild-type and mutant p53. *FASEB J* 1993, 7, 855–865.
3. Frank JL, Bur ME, Garb JL, Kay S, Ware JL, Sismanis A, Neifeld JP. p53 tumor suppressor oncogene expression in squamous cell carcinoma of the hypopharynx. *Cancer* 1994, **73**, 181–186.
4. Quinlan DC, Davidson AG, Summers CL, Warden HE, Doshi HM. Accumulation of p53 protein correlates with a poor prognosis in human lung cancer. *Cancer Res* 1992, **52**, 4828–4831.
5. Martin HM, Filiple MI, Morris RW, Lane DP, Silvestre F. p53 expression and prognosis in gastric carcinoma. *Int J Cancer* 1992, **50**, 859–862.