

**INFLUENCE OF TREATMENT MODE ON HOST IMMUNITY AFTER  
CURE FROM TRANSPLANTABLE TUMOURS: THE ADVANTAGE  
RADIOTHERAPY OVER SURGERY AND CHEMOTHERAPY**

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To assess resistance towards metastasis the levels of immunity conferred by different curative treatments were compared. The experimental systems consisted of 2 transplantable murine tumours: a spontaneous sarcoma (Sarcoma J) used in an allogeneic situation and a syngeneic methylcholantrene induced epidermoid carcinoma. Surgical excision (S), tumour ligation (L), irradiation at 35, 50, 75 Gy tumour dose (X) and chemotherapy with 25-50 mg/kg cyclophosphamide q 8 d x 4 (C) were used as treatment modalities. Specific antitumour immunity of cured animals was evaluated in vivo by a challenge graft containing about  $10^6$  neoplastic cells. 16% (6/37) of mice cured of Sarcoma J by surgery and 20% (4/20) of those cured by chemotherapy rejected the challenge graft. A 50 Gy tumour dose immunized 44% of survivors (19/43). Immunity against MCA epidermoid carcinoma was present among 61% (16/26) and 51% (20/39) of animals cured by ligation or chemotherapy respectively. After a curative dose of 35 Gy, 96% rejected the challenge graft (48/50). Tumour irradiation 48 hours prior to ligation increased immunity to 87% (20/23). Several authors in the last ten years have emphasized the detrimental immunodepressive consequences of radiotherapy, especially in breast cancer treatment. The present results indicate that tumour irradiation may also exert a beneficial influence on host resistance towards metastasis. Radiation therapy confers higher levels of immunity than surgery or chemotherapy. This effect is presently under investigation and possible mechanisms will be reviewed.