

scars produced by freezing or burning may form a source of subsequent cancerous developments. The existing evidence indicates that scars resulting from second and third degree burns are especially predisposed in this respect and that the malignancy originates either from a chronic persistent ulcer within the scar, or from a recurrent ulceration, or in a deteriorating scar. Thermic burns which give rise to malignant lesions are caused by open flames, boiling water (scalds), molten metal, hot oil, hot cinders of coal, burning cigarettes, hot pipe stems, or powder explosions, that is by a number of non-specific thermic agents having no chemical or close physical relation to the known exogenous carcinogenic agents, but producing possibly those of tarry nature during their destructive action upon the organic matter composing the tissue. These uncomplicated burn cancers must be distinguished from those in which the burn is produced by a hot specific chemical agent, possessing carcinogenic properties, such as tar, mineral oil, as in such instances the possibility exists that some of the chemical material may be retained in the tissues and may exert a direct carcinogenic effect (Bang; Huguenin; Treves and Pack; Roffo and Gandolfo; and others).

*Incidence.* The first case of burn scar cancer of the skin was reported by Heurteux in 1860. Additional cases were reported by Broca (1862); Clement (1868); Marcuse (1877); Galard (1892); Jaboulay (1907) and others.

Roffo and Gandolfo observed 22 cases of burn scar cancer; Uchiki as well as Tow and Itoh added five cases each; Johnson as well as Hamont, Bodart and Chalnot recorded four cases each; three cases were seen by Pickerill as well as Haagensen; two cases were reported by Heidingsfeld as well as Eckermann, and one case by Cornil and Lamy; Verdet; Nuytten and Driesens; Shore; Stauffer; Bang; Arndt; Charbonnel; and MacLeod.

The following data are available concerning the incidence of burn scar cancers among scar cancers in general. Iwamoto found 9 burn scar cancers among 13 cases of scar cancer. Mason recorded 19 burn scar cancers among 98 scar cancers, Baasner noted 33 burn scar malignancies among 190 scar cancers, and Burns recorded 70 burn scar carcinomas among 90 scar cancers. There are thus a total of 391 scar cancers of which 131 originated from burn scars (33 per cent).

The general incidence of burn scar cancers among skin cancers was, according to Meller, 4 among 433 skin cancers; according to Treves and Pack, 30 among 2,465 skin cancers; while the ratio of burn cancers on extremities to cancer in general on these parts of the body was, according to von Brunn, 32 burn scar cancers to 227 cancers in general affecting extremities. Broders stated that 24.59 per cent of all cancers on extremities originate from burn scars, Arndt set this figure at 9 per cent, and DeBell and Stevenson at 10 per cent.

Finally, it may be mentioned that burn scar cancers occur also in animals, as