

site is the lower lip [93 to 95 per cent; only 5 per cent being located on the upper lip and 2 per cent at the angles in men; but 25 per cent are found on the upper lip in women (Wile and Hand; and Delarue and Fayein)]; 3. The most frequent histological type is the squamous-cell carcinoma with or without cornifications. The basal-cell carcinoma is rare and usually found on the upper lip, involving the skin; in contrast to the carcinoma of the lower lip, which originates from the mucous membrane. These relationships undergo certain alterations whenever some exogenous cancerigenic agents of occupational or non-occupational (habit) origin exert a special influence upon the development of cancers of the lip.

I. CHEMICAL AGENTS

Cancer of the lip, based on an occupational exposure to carcinogenic agents (tar, pitch, and crude oils), is observed in members of various occupations (gas plant workers, stokers, tar workers, roofers, fishermen, and spinners) (Barthe; Irvine; Teutschlaender; Haagensen; Legge; Manouvriez; Kennaway; Heller; and Shambaugh). In his classical description of pitch cancer among pitch and tar workers, Manouvriez mentioned the occurrence of a cancer of the lower lip in a charger among a total of nine cases of pitch cancer recorded. In an extensive survey of occupational cancer in England and Wales for the years 1920-1923, Kennaway listed, among 100 cases of pitch cancer, thirteen located on the lips. Among 19 cases of tar cancer, which had been observed in New York hospitals from 1920 to 1927, there was one case of lip cancer in a stoker employed in a gas works (Heller). The same author found a second case in a mixer employed in a factory in Cleveland, Ohio, where carbon black was produced from calcined carbon flower mixed with light tar oil and tar. Three additional cases of lip cancer, caused by occupational exposure to tar, were seen by Heller in the same plant among workers exposed to coke-oven pitch. They were considered by him as non-occupational in nature, as coke-oven pitch was less irritative than gas tar. These four cases of lip cancer represented 20 per cent of the total number of skin cancers observed in this plant (21 cases).

There were six cancers of the skin in a French gas and pitch plant, employing between 1,100 and 1,400 workers per year from 1921 to 1936. Two were located on the lips (one basal-cell cancer on the upper lip and one squamous-cell carcinoma on the lower lip), in addition to 23 cancers of the internal organs and one myeloid leukemia (Barthe). The occurrence of precancerous pitch warts on the lips of pitch workers was recorded by Teutschlaender in 17 out of 112 cases with pitch warts, and by Legge in 7 out of 53 cases. Two cases of carcinoma of the lip in roofers (one of them located on the upper lip) and two cases on the lower lip in gas workers, among a total of 20 occupational cancers of the skin caused by contact with tar, were mentioned by Haagensen, who emphasized the etiological importance of tar for the production of the epithelial malignancy of this organ.