

were it not for the group of mixed tumors, the so-called sarcomatocarcinomata, a much disputed group.

3. Each must produce its own metastases: a. When each primary focus produces its own metastases the case is definitely one of multiple primary neoplasms; to prove that the second apparently primary focus is not a "changed" metastasis from the first may not be possible in a given case by our present methods. b. Multiple primary malignant tumors may exist without demonstrable metastases.

These considerations and a markedly increased knowledge of tumors and of neoplastic multiplicity, particularly of occupational and experimental genesis, have led to a considerable liberalization of the postulates of Billroth during recent times, resulting in a more frequent recognition of multiple primary cancers.

The data concerning the incidence of primary neoplastic multiplicity differ considerably depending upon the fact, whether both malignant and benign tumors were considered by the particular investigator, who sometimes included even congenital malformations and blastomatoid hyperplasias among the "neoplastic" conditions, or whether exclusively primary multiple cancers were made the subject of a statistical analysis. Additional variations in the figures obtained are introduced by the type of material evaluated. Information based on clinically observed cases deals mainly with tumors located at accessible sites, such as the skin and those mucous membranes open to direct inspection. Statistical data obtained from post-mortem examinations contain to a much more extensive degree multiple tumors situated in internal organs, while they lack to some extent the proper proportion of multiple neoplastic reactions involving accessible sites, because of successful therapeutic removal of some of these manifestations during life. The great majority of cases of multiple neoplasms of internal organs are necropsy findings, as the differentiation between primary multiple growths and secondary metastatic multiplicity can be made with safety usually only at autopsy, which sometimes yields evidence of primary neoplastic multiplicity, where such a condition is not suspected during the lifetime of the patient, because of the small size of one of the primary growths or of the absence of histological studies.

The incidence of primary neoplastic multiplicity of benign and malignant tumors, including blastomatoid conditions, such as prostatic hyperplasias, goiters, and pigmented and angiomatoid nevi was 14.4 per cent of all tumor cases observed at autopsy from 1903 to 1924 by Puhr, who noted that this figure varied between 23.52 and 12.69 per cent for the years 1921 to 1924. Holmqvist and Nelson, using the same standards as Puhr, recorded an incidence of neoplastic multiplicity amounting to 40 per cent of all tumor cases found among 4,000 autopsies, of which 55 per cent showed the presence of some kind of neoplasm. Egli reported a frequency of multiple tumors in 27.2 per cent of necropsies exhibiting blastomatous conditions.