Problems of Gastric Exfoliative Cytology

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Key Words

Cytology
Gastric juice
Gastric lavage
Stomach neoplasms

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Since the first report by Marini [1] in 1909 on the usefulness of gastric cytology, many authors have succeeded in obtaining very accurate results with this method [2, 3, 4, 5]. In spite of several impressive statistics, cytologic procedures have not found widespread acceptance and many gastroenterologists seem to believe that the opportunities of cytology to contribute to a positive diagnosis of cancer are few.

Many of the early failures of exfoliative cytology may be attributed either to the use of inaccurate techniques for cell collection or to inexperience in the recognition of malignant cells and their differentiation from "atypical" cells found in cases of pernicious anemia, chronic gastritis with intestinal metaplasia and healing gastric ulcers [6]. Today, in most laboratories, positive diagnoses range from 75 % to 95 % of all cases of cancer and false positive diagnoses are kept to a minimum [7, 8]. In our own service, the total accuracy in cancer cases has been 88.6% among 315 gastric neoplasms with the highest accuracy in fungating lesions (93.8%) and the lowest in malignant ulcers (76.2 %) [9].

Why then is exfoliative cytology not a more popular procedure ? There is probably more than one answer to this question. One may suspect that in some Institutions cytologic studies have been undertaken without a previous effort to really understand the problems involved and rapidly abandoned after a few trials in the hands of uninterested residents and cytotechnicians busy with gynecological

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work. Under these circumstances one may expect a much lower yield than in specialized laboratories directly organized by gastroentero-logists [10].

Moreover, cytology is a time-consuming procedure: techniques for sampling are tedious and often require the availability of an X-ray unit. Screening of the slides may take several hours. In comparison with gynecological work in which usually a single smear is taken and scanned in a few minutes, in gastric cytology several slides (often 6 or more) are examined. Reviewing a single slide may take as long as 30 min and in many instances two or three hours may be spent before a diagnosis of cancer is made or the smear classified as negative. It is difficult, therefore, even for a trained cytologist, to study more than two cases each day. Thus, the time involved in carrying out gastric cytology, in contrast to vaginal cytology, is increased by at least a multiple of 14 [7].

Although techniques based on fluorescence of cancer cells have been devised in order to increase the speed of cell analysis, they are not practical enough for gastric cytology [11].

The most important point at issue, however, concerns the practical indications for a cytologic study. In our own experience, about 50 % of all cases of cancer are diagnosed at the first X-ray examination and successive studies may increase the diagnostic accuracy up to 75 %. Cytology may thus provide a factual diagnosis in about 25 % of cases, while in the majority of patients it will merely confirm the presence of a neoplasm. Many clinicians believe that cytology should be restricted to this 25 % of patients in whom the radiological diagnosis is doubtful or negative, especially if a fee is charged for the cytological examination. However, in this limited group, which is likely to include many small tumors (ulcerating lesions, narrowing at the pylorus, etc.) cytodiagnosis may provide a lower yield than in a large, unselected series. Both clinicians and cytologists may get discouraged by the results obtained.

On the other hand, routine cytologic screening has several advantages : (1) A positive cytologic report may shorten the delay which often occurs before a therapeutic trial and subsequent radiological examinations are made. (2) A preoperative confirmation of a diagnosis of cancer may allow better planning of the operative procedure. (3) Occasionally, a diagnosis of lymphoma may be made which may have different therapeutic implications. (4) A repeatedly negative cytologic report may sometimes avoid surgical intervention. (5) The availability of abundant material is essential for training technicians and sustaining the interest of physicians and cytologists who will require extensive and specific experience in gastric cytodiagnosis.

A gastrointestinal cytology laboratory should be exclusively oriented to the digestive tract and should be part of any large Gastro-enterology Department. The number of cases of cancer, in which a basic contribution of cytology to the diagnosis is to be expected, ranges between 12.4 % [12] and 18 % [13]. While it is not clear whether it will be entirely self-supporting, such a laboratory will offer a service of undoubted value in the diagnosis of gastric cancer.

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Cabre Fiol

V.: Mones Xiol

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