

# Imprint cytology from endoscopic biopsy to detect gastric carcinoma

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### Abstract

*Radiological examination, endoscopy, cytology, biopsy and detection of p21 oncogens and others have resulted in the identification of early cases of gastric carcinoma. Among these, endoscopic biopsy is an important tool to detect gastric carcinoma. But some times, it can not give information due to inadequate and improper sampling. On the other hand, modern diagnostic tools of detecting gastric carcinoma as like detection of p21 oncogens and others are not available in our country. So, In conjunction with imprint cytology, it is possible to reach an accurate diagnosis.*

*Bang Med J Khulna 2013; 46 : 34-36*

### Introduction

The pathogenesis of gastric carcinoma is closely related to environmental factors. Its incidence has markedly decreased in recent years in some countries, such as the united states and England. But it remains inordinately high in others, such as Japan, Chile and Italy.<sup>1</sup>

Radiologic examination of the stomach will demonstrate the lesion in most cases, but in about 10% it will be impossible to determine whether it is benign or malignant.<sup>2</sup>

In countries with a high incidence of gastric carcinoma, particularly Japan, the increased use of mass screening, endoscopy, cytology and biopsy has resulted in the identification of a large percentage (up to a third) of early cases, with a corresponding increase in survival rates.

With the introduction of the flexible fiberoptic gastroscope, the results of direct-vision gastric biopsy and brush cytology have improved dramatically.<sup>3</sup> Histopathology of endoscopic gastric tissue may not give any confirmative result in some cases as only part of the lesion is biopsied and examined. Therefore it appears that if cytological examination of the biopsy material is also performed, the possibility of detecting gastric carcinoma if present may be further increased.

Modern diagnostic tool of detecting gastric carcinoma as like detection of p21 oncogens, tumour specific markers such as CD 117 and CD 34 and others are not available in our country.<sup>2</sup>

Recently it is observed all over the world that cytology plays a very important role in the initial diagnosis of tissue pathology and in many parts of

the world, surgical pathological examination are being replaced by fine needle aspiration cytology. However, fine needle aspiration cytology of gastric tissue will be very difficult, as in many cases, there is no lump. Therefore, it may be assumed that if smears are prepared of endoscopic biopsy material of gastric tissue for cytological examination, it may help in the diagnosis of gastric carcinoma.

Imprint and smears of the endoscopic gastric biopsy is a very safe procedure and is highly effective in the diagnosis of suspected cases of gastric carcinoma. Therefore if the combination of the gastric biopsy, imprint or smears from endoscopic biopsy and visual endoscopic findings are employed, confirmatory diagnosis in most of the cases can be achieved. Then it could be of immense help to both the physician and the patients.

### Case study

A 30 years old lady presented with dyspepsia, weight loss, generalised weakness and epigastric pain for 8 months. On examination, the patient was moderately anaemic but no palpable lymph nodes were present. Her routine blood reports and other investigations were normal. Her endoscopic reports at that time was suspicious for malignancy but endoscopic biopsy report was chronic gastritis. She then took anti ulcer drugs with advised further endoscopic biopsy but patient did not follow the advice.

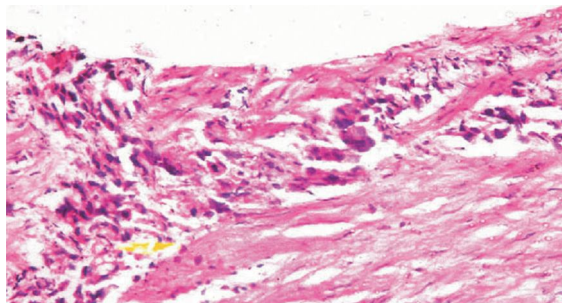
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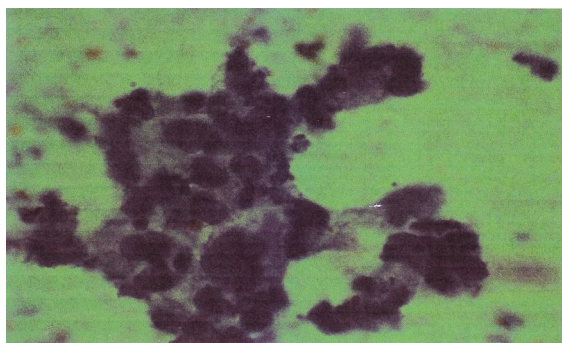
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Recently, the patient attended the doctor again with same complains and performed endoscopic biopsy with imprint cytology and histopathology. Endoscopic report was carcinoma and imprint cytology from endoscopic biopsy was poorly differentiated carcinoma but histopathology report



Photograph-1. Histopathology of endoscopic gastric biopsy showing adenocarcinoma of stomach.

was chronic gastritis. Patient is operated in a clinic and operative findings were gastric carcinoma with metastasis to surrounding structures. Biopsy was taken at the time of operation and histopathology report was poorly differentiated adenocarcinoma.



Photograph-2. Imprint cytology of endoscopic gastric biopsy showing clusters and singly arranged malignant cell.

## Discussion

Most patients are over 50 years of age,<sup>3</sup> but cases in younger individuals and even children are on record.<sup>4</sup> Practically all gastric carcinomas arise from the generative or basal cells of the foveolae.<sup>5</sup>

In most instances on a background of chronic atrophic gastritis with intestinal metaplasia and preceded by various stages of dysplasia, CIS and superficial carcinoma.<sup>6</sup>

Gastric carcinoma is accompanied by hypochlorhydria in 85% to 90% of the cases, and it has been shown that hypochlorhydria may precede gastric cancer by several years. It has been postulated that high intragastric pH promotes the growth of bacteria that reduce dietary nitrate to nitrite and then convert dietary

amines, in the presence of this nitrate, into carcinogenic N-nitroso compounds.<sup>7</sup>

The co-existence of chronic atrophic gastritis and carcinoma is common, but the etiopathogenic link between the two and the relative risk for malignancy in the former condition remain controversial.<sup>8</sup>

The same could be said for pernicious anaemia; the rate of carcinoma development, although statistically increased, is not high enough to justify surveillance in asymptomatic patients.<sup>9</sup> Lately, *Helicobacter Pylori* has been implicated as a possible etiologic factor in gastric carcinoma through its role in the development of chronic gastritis.<sup>10</sup>

Symptoms from gastric carcinoma usually indicate advanced disease. If the tumor is located in the cardiac or pyloric areas, it may produce obstruction relatively early, other wise the symptoms are vague and non specific, consisting of dyspepsia, weight loss, and anaemia. Some times, the first sign of gastric carcinoma is the detection of a nodal metastasis in the left supraclavicular region is some times referred to as trousseau's sign or virchow's node.<sup>2</sup>

The non neoplastic mucosa adjacent to the carcinoma is often thickened, a feature that may result in false negative endoscopic biopsy that has been attributed to production of epidermal growth factor by the tumor.<sup>2</sup>

The sensitivity of EUS-guided FNA cytology for submucosal tumors in some initial studies was 60-64%. The diagnostic role of aspiration cytology can be enhanced by performing cytology can be enhanced by performing immunohistochemical stains on aspirates for tumor-specific markers such as CD 117 and CD 34, Which are crucial for arriving at a conclusive diagnosis of submucosal stromal neoplasms known to have at least a malignant potential such as GIST, with diagnostic accuracies as high as 91% and 100% having been reported for EUS-guided FNA.<sup>11</sup>

Among the two major categories, which have been designated intestinal (53%) and diffuse (33%) by lauren, false negative result with diffuse compared with intestinal type carcinoma.<sup>2</sup> In 63 patient with carcinoma of the stomach studied by kasugal et al, 503. The accuracy was 78% for direct vision cytology, 85% for biopsy, and 94% for both used in combination.<sup>2</sup>

Another study, in 272 cases, where esophageal lesions were 83 cases and gastric lesions were 189 cases by showed that imprint cytology confirms malignancy in 65.60% cases and histopathology confirms 64.55% cases and this is the first time

study in Khulna medical college with limitations of logistic and economical supports.<sup>12</sup>

The suggestion has been made that adequate sampling from malignant ulcer and multiple (about ten) biopsies are recommended from standard size ulcer with immediate imprint cytology from biopsy material. Staining for ras oncogene p21 may prove the utility in the cytopathological diagnosis of gastric carcinoma.

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