COMPARISON BETWEEN BRUSH CYTOLOGY BEFORE AND AFTER BIOPSY IN THE DIAGNOSIS OF GASTRIC MALIGNANCIES

MOHAMMAD REZA FATAHI1, KOUROSHMASNADI2 & BITAGERAMIZADEH3

1, 2 Department of Gastroenterology, Shiraz University of Medical Sciences, Shiraz, Iran
3 Department of pathology, Shiraz University of Medical Sciences, Shiraz, Iran

ABSTRACT

Objectives: To compare doing brush cytology before and after biopsy in the diagnosis of gastric malignancies.

Study Design: This prospective study included 74 cases referred to endoscopy clinic for suspected gastric lesions during a year (2013-2014).

In 38 cases brushing was done before and in 36 cases it was done after biopsy. All the cytology and biopsy slides were randomly coded and reviewed by a pathologist blindly i.e. without any knowledge of the surgical pathology result or clinical data of the patient.

Results: Diagnostic accuracy of brush cytology before biopsy was significantly higher than after biopsy (86.8% vs. 52.8%, P value<0.003).

This accuracy didn't show any relation to the site of the lesion or endoscopic appearance of it.

Conclusion: We suggest endoscopic biopsy and cytology to be done together, especially in highly suspected cases to malignancy and also our study showed that it is better to do brushing before tissue biopsy.

KEYWORDS: Brush Cytology, Stomach, Before, After, Biopsy

INTRODUCTION

Gastric cancer is one of the most common malignancies of the GI tract. There are several methods for the diagnosis of these cancers (1).

Endoscopic biopsy and brushing cytology are widely used concomitantly in the diagnosis of these tumors. There are several reports regarding the value of combined cytology and biopsy in the diagnosis of gastric cancers (2, 3) but still there is few report about the comparison of doing brushing before or after biopsy (4, 5).

The goal of the present study was to compare the diagnostic accuracy of brushing obtained before and after biopsy in patients suspected to gastric cancer in upper GI endoscopy.

MATERIAL AND METHODS

In the study period (2013-2014), 74 cases were selected due to the presence of any gastric lesion suspicious to malignancy. In 38 cases brushing was done before and in 36 cases it was done after biopsy. Lesions were brushed with disposable, nylon-sheathed brush using standard forward view endoscope. 4-6 biopsies were obtained using standard forceps. 2 to 3 smears were prepared of each brushing, 2 of which were alcohol fixed and stained by Pap method and the last one was air-dried and stained by Wright method.
Biopsy and cytology slides were coded randomly and seen by a pathologist without any knowledge about the clinical or endoscopic findings.

Brushing cytology slides were interpreted as positive and negative for malignancy using cytologic criteria mentioned in previous reports (3). Suspicious and suggestive cases were regarded as positive.

All the biopsy and cytology results were compared with the final diagnosis of the patient after surgery as the gold standard.

RESULTS

In these 74 cases, 50 were male and 24 were females. Mean age was 59 ±24 years old (range=30-83).

There were 5 false negative cases in 38 patients who have undergone brushing before biopsy and 17 false negative cases in 36 patients undergone brushing after biopsy.

So the diagnostic accuracy of cytology was significantly higher in brushings which were obtained before biopsy i.e. it was 86.8% vs. 52.8% in before and after biopsy respectively.

Meanwhile there was no significant difference in diagnostic accuracy of biopsies in these two groups, i.e. the diagnostic accuracy was 97.2% and 100% for biopsies after and before brushing respectively (Pvalue<0.5). Cumulative accuracy of biopsy in addition to cytology was significantly higher than brushing alone (100% vs. 70.2%, P value<0.001). But combined brushing and biopsy was not significantly more accurate than biopsy alone (100% vs. 98.6% P value<0.6).

Biopsy showed only one false negative case which showed to be positive in brushing and the final diagnosis after surgery was malignant, but as a whole diagnostic accuracy of biopsy was higher than cytology alone i.e. 98.6% vs. 70% respectively with P value < 0.001.

There was no significant difference in diagnostic accuracy of brushing in different sites of the stomach.

DISCUSSIONS

Biopsy had been the routine method for the diagnosis of gastric cancer, but recently brushing cytology has been introduced as an adjunct for the tissue biopsy especially for the cases with significant narrowing of the lumen which makes biopsy difficult (6). But overall there is few reported study about the best order of the biopsy and cytology i.e. cytology before or after biopsy (4, 5). Some investigators preferred brushing before biopsy. They showed a diagnostic accuracy between 86.2% to 96% (7, 8, and 2), while those who advocated brushing after biopsy showed accuracy of 78.8%-85% for cytology (9, 10, 11).

In the study of Zargar et al (5) and Keighley et al (4) in the gastro esophageal cancers, brushing before biopsy had better results. We think that one of the main reasons for the result is that, taking biopsy could cause bleeding at the site of the lesion which can obscure the site, so that brushing would not be taken from the right site.

So we suggest doing brushing and biopsy combined especially in highly suspicious cases and we recommend doing biopsy after brushing to increase our diagnostic accuracy.

REFERENCES

1. Kobayashi S, Kasugai T: Brushing cytology for the diagnosis of gastric cancer involving the cardia or the lower
Comparison between Brush Cytology Before and After Biopsy in the Diagnosis of Gastric Malignancies


