

# Adenocarcinoma in Barrett's esophagus cytologically diagnosed through fluid biopsy using the endogastric capsule: A case report

Pietro Muretto

## ABSTRACT

Intramucosal adenocarcinoma in Barrett's esophagus is described in a 63-year-old man who from 30 years experienced symptoms such as nocturnal acid reflux with heartburn, sourness, and burning sensation in the back of the throat. One year ago he came to medical consultation and accepted to be submitted to cytologic analyses of fluid samples drawn through the endogastric capsule. Microscopy showed many stratified esophagus cells with several nests of neoplastic nucleolated cells. He was submitted to endoscopy with some biopsies in Barrett's disease tract (3.5 cm on length). Histology showed frequent intestinalized columnar epithelium together with intramucosal adenocarcinoma. The patient was submitted to surgery with removal of 5 cm of esophagus together with the gastric cardiac area. The definitive histological analyses confirmed the diagnosis of intramucosal adenocarcinoma of 5 mm in diameter in Barrett's esophagus.

**Keywords:** Adenocarcinoma in Barrett's esophagus, Cytologic diagnosis by fluid biopsy, Endogastric capsule

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## INTRODUCTION

The exact cause of Barrett's esophagus (BE) is not yet known. The disorder seems to be a complication of chronic gastroesophageal reflux disease (GERD), with regurgitation of acid from the stomach into the lower esophagus. That condition represents a risk factor for the development of esophageal adenocarcinoma, because metaplastic changes of the lining cells of the esophagus, such that normal squamous epithelium is replaced by intestinalized columnar epithelium in which dysplastic modifications may occur. Although the neoplastic risk is small (from literature 10% about of patients), it is important to have regular checkups by endoscopy to observe the evolution of Barrett's esophagus and determine the degree of dysplasia or neoplastic degeneration by biopsy [1–8].

Because many people do not accept frequent esophagus-gastrosopies but the present report could bring some help for more frequent controls using the endogastric capsule. That tool previously has been used for cytologic observations in gastric fluid samples and early gastric cancer diagnosis through DNA molecular analyses (determination of E-cadherin gene promoter hypermethylation—CDH1), evaluation of tumor markers [carcinoembryonic antigen (CEA) and carbohydrate antigen (Ca) 19.9] and documentation of *Helicobacter pylori* in gastric juice [9, 10].

## CASE REPORT

A 63-year-old man was suffering from GERD for more than 30 years with periods of improvement and relapses. He experienced symptoms such as nocturnal acid reflux with heartburn, sourness, and burning sensation in the

back of the throat, sometimes in association to chronic laryngitis and cough. Generally he was treated with anti-acidity drugs and alimentary diets.

One year ago he came to my attention for medical consultation and accepted to be submitted to cytologic analyses of fluid samples withdrawn through the endogastric capsule, focused to esophagus-gastric tract and cardiac area.

Microscopic examination of several smears showed many stratified esophagus cells and scattered nests of neoplastic nucleolated cells (Figure 1A–C). Later on the patient was submitted to esophagogastrosomy with some biopsies in Barrett's disease tract (3.5 cm on length).

Microscopy showed frequent features of intestinalized columnar epithelium together with intramucosal adenocarcinoma (Figures 2 and 3) corresponding to a referred depressed lesion of 5 mm in diameter.

The patient was submitted to surgery with removal of 5 cm of esophagus together with the gastric cardiac area.

The definitive histological analyses confirmed the diagnosis of intramucosal adenocarcinoma in Barrett's esophagus. The outcome was relative a normal course and in the short follow-up the patient still complains of persistent episodes of gastroesophageal reflux. Recently, one year from surgery, he has been submitted to endoscopic follow-up with biopsy which by microscopy has shown a small residual area of intestinalized metaplasia.

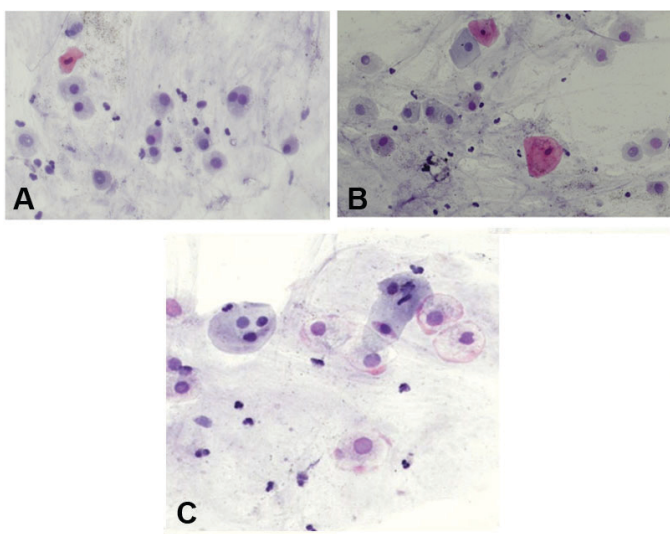


Figure 1: (A and B) Cytology slides showing several adenocarcinomatous cells with evident nucleoli and some scattered superficial esophagus cells. (Hematoxylin-eosin stain, 250×). (C) Some mucinous cells limited by a very thin eosinophilic cytoplasmic membrane appear related to intestinalized cells. (Hematoxylin-eosin stain, 250×).

## DISCUSSION

The author would specify that this report concerns the description, with related cytology and histology images, of a single case of adenocarcinoma in Barrett's

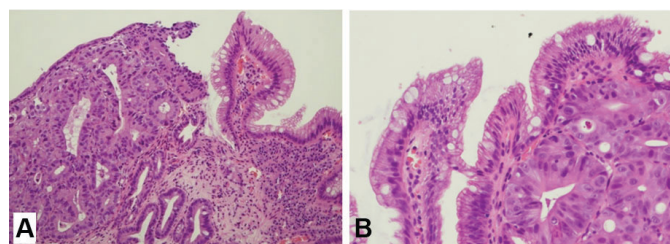


Figure 2: (A) Intramucosal adenocarcinoma with a close area of intestinalized columnar epithelium. (Hematoxylin-eosin stain, 250×). (B) Details of a well-differentiated adenocarcinoma in Barrett's disease showing evident nucleoli and large cytoplasm. (Hematoxylin-eosin stain, 400×).

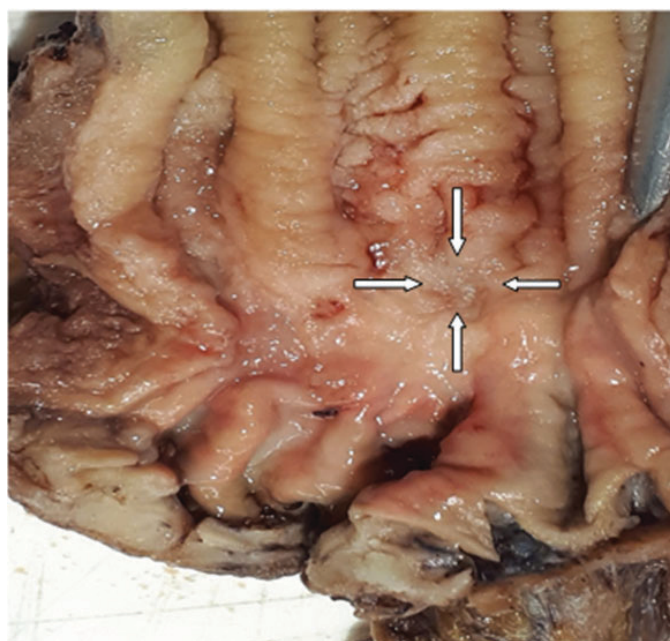


Figure 3: Surgical specimen with esophagus (up) and cardiac tracts showing a small depressed adenocarcinomatous lesion.

disease diagnosed through the endogastric capsule. It is far from personal intent to open a discussion or critical comparison toward excellent authors who had published previous important papers [11, 12] about the attempt methods for early diagnosis of esophagus adenocarcinoma as "Screening for Barrett's Esophagus and Esophageal Adenocarcinoma: Rationale, Recent Progress, Challenges, and Future Directions" by Sami and colleagues and "Optimizing the diagnosis and therapy of Barrett's esophagus" by Munoz-Largacha and colleagues.

## CONCLUSION

That brief report might just report a clinic-pathological case with the cyto and histology images previously not frequently shown together, or better in sequence, from literature.

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**Author Contributions**

Pietro Muretto – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

**Guarantor of Submission**

The corresponding author is the guarantor of submission.

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**Consent Statement**

Written informed consent was obtained from the patient for publication of this article.

**Conflict of Interest**

Author declares no conflict of interest.

**Data Availability**

All relevant data are within the paper and its Supporting Information files.

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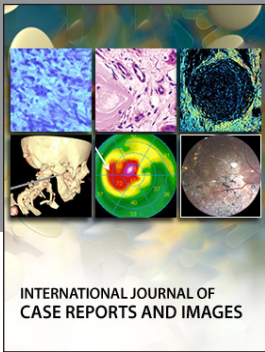
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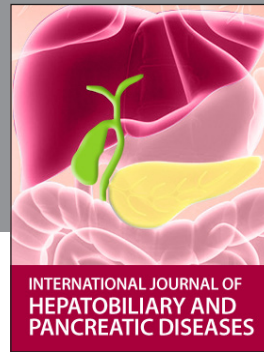
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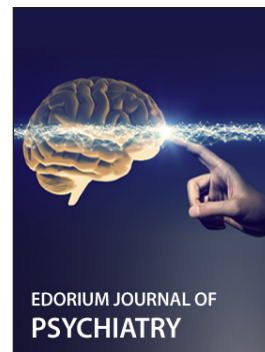
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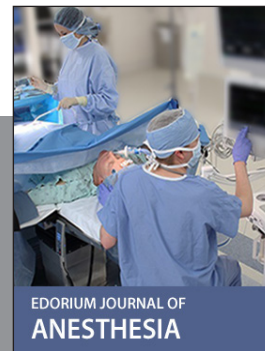
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