

## Lighting on PET Scan-Not Always Cancer

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Rec Date: Oct 19, 2014, Acc Date: Jan 24, 2015, Pub Date: Jan 30, 2015

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### Abstract

A PET scan showing a hypermetabolic focus in the gastric antrum is suspicious of gastric cancer. Nevertheless other reasons should be kept in mind in the differential of gastric tumors as for example gastric mucosal prolapse polyps.

**Presentation of case:** A 84-year-old woman had been scoped at a referring hospital due to lower gastrointestinal bleeding. The external gastroscopy revealed an indistinct tumor in the area of the gastric antrum.

An obtained PET scan showed a hypermetabolic focus in the antrum. At our hospital we repeated gastroscopy, the antral mass had no malignant aspect but looked like thickened mucosal fold partially prolapsing in the duodenal bulb, the biopsies ruled out cancer and showed polypous foveolar hyperplasia consistent to an antral mucosal prolapse polyp. The patient could be discharged on PPI therapy.

**Keywords:** PET; Gastric cancer; Mucosal prolapse polyp

### Introduction

In 2012, gastric cancer was the sixth commonest cancer diagnosis and the fourth commonest cause of cancer-related death across all European countries 1. Diagnosis should be made from endoscopy and endoscopic biopsy, computed tomography (CT) and endoscopic ultrasound (EUS); Positron emission tomography (PET) imaging may improve staging if available. A hypermetabolic mass causing lighting on PET scan can be explained due to infections, local inflammation or cancer.

### Case Report

An 84-year old woman had been scoped at a referring hospital due to lower gastrointestinal bleeding. The bleeding was attributed to diverticular disease or hemorrhoids and self-limited. Surprisingly and asymptomatic, the external Gastroscopy revealed an indistinct tumor in the area of the gastric antrum, highly suspicious of gastric cancer and the patient was referred to our hospital for further staging.

PET scan showed correspondingly a hypermetabolic focus in the antrum but no distant metastases (Figure 1).

At our hospital, we repeated gastroscopy and performed radial endosonography for further staging. The antral mass had no malignant aspect but looked like a thickened mucosal fold partially prolapsing in the duodenal bulb (Figure 2). Endosonography revealed no signs of invasion.

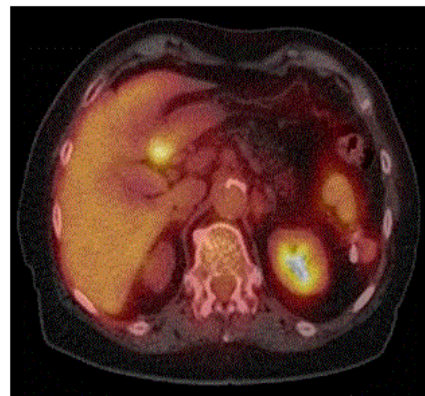


Figure 1: PET.

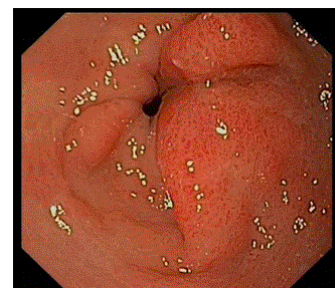


Figure 2: Gastroscopy.

The macroscopic suspected gastric mucosal prolapse polyp was confirmed on histology. The biopsies ruled out cancer and showed polypous foveolar hyperplasia with moderate chronic inflammation and marked myofibroblastic proliferation of the lamina propria, consistent to an antral mucosal prolapse polyp (Figure 3). The unburdened patient could be reassured and discharged on PPI therapy.

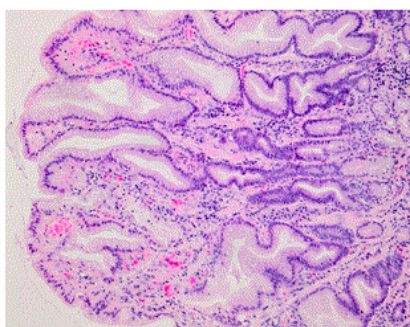


Figure 3: Histopathology.

Hyperplastic polyps represent the second most common subtype of gastric polyps and are mostly found incidentally during endoscopies [1]. They can be sessile or pedunculated and are predominantly located in the antro-pyloric region. Histology typically shows basal glandular elements, hypertrophic muscle fibers ascending perpendicularly from the muscularis mucosae and thick-walled blood vessels.

FDG-PET/CT has demonstrated clinical utility in detection, staging, and follow-up of tumors, infections as well as sterile inflammation, including intestinal tract inflammatory entities [2]. The molecular substrate for increased FDG-uptake at sites of infection or inflammation has been attributed to the overexpression of distinct facultative glucose transporter (GLUT) isoforms (mainly GLUT-1 and GLUT-3) and by an overproduction of hexokinase in inflammatory cells - stimulated macrophages, lymphocytes and neutrophils [3]. The inflammation leads to high intracellular accumulation of FDG depending upon the degree of stimulation [4]. We consider that the

gastric focal hypermetabolism described in our case could be explained based on this biological phenomenon and also by an increased cell-density in the context of foveolar hyperplasia and marked myofibroblastic proliferation (described on histopathology).

The predominantly antral location of gastric mucosal prolapse polyps, a zone of intense peristalsis, suggests that prolapse plays a role in the development of these polyps [5].

Gastric mucosal prolapse polyps are rare but should be kept in mind in the differential of gastric tumors.

The authors thank PD Dr. A. Zettl for providing the histologic figures.

## Discussion

Hyperplastic polyps represent the second most common subtype of gastric polyps, predominantly located in the antro-pyloric region and are mostly found incidentally during endoscopies. The predominantly antral location of gastric mucosal prolapse polyps, a zone of intense peristalsis, suggests that prolapse plays a role in the development of these polyps. Gastric mucosal prolapse polyps are rare but should be kept in mind in the differential of gastric tumors.

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