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Relationship between gastric pouch and GERD after laparoscopic sleeve gastrectomy

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Aims and objectives

Laparoscopic Sleeve Gastrectomy (LSG) is considered safe and effective even as conversion procedure after primary bariatric operations. The correlation between gastric pouch volumes and gastro-esophageal reflux disease's (GERD) symptoms (heartburn, reflux, regurgitation) remains unclear (1, 2).

With this study we want to assess a correlation between the gastric remnant size and GERD.

Methods and materials

To assess a correlation between the gastric remnant size and GERD, we reviewed 49 consecutive barium-swallow UGS performed at our Institute from August 2012 through May 2014 in LSG patients with symptoms and/or unsatisfactory weight loss.

The mean interval from surgery to UGS was 1.96 ± 2.48 years.

Patients were asked to fasten for at least 4 hours before barium swallow.

Patients' data (height, weight before surgery, lowest weight reached, present weight, place and date of surgery) were retrieved/collected, symptoms if present registered.

All exams were performed with Siemens AXIOM Iconos R200 (Siemens, Erlangen, Germany), administering an oral suspension obtained with barium diluted in 100 ml of water (Prontobario H.D., 98.45g of barium sulfate) (Bracco, Milan, Italy).

Images have been registered at a frequency of 2 frames per second, with patient in orthostatic position. A first plain antero-posterior radiogram of the upper abdomen was obtained (Fig.1). Then, the patient in the upfront position was instructed to swallow a small amount of contrast medium, registering the passage of barium from the middle-distal third of the oesophagus through the stomach (Fig.2). A second series of images was obtained from the lateral view with the same characteristics (Fig.3). When needed, further projections were added to better evaluate pouches in association with provocative maneuvers to stimulate gastro-oesophageal reflux, even in supine position. The passage of barium through the pylorus into the duodenum was also recorded. (3, 4)

Each study was assessed by two expert gastro-intestinal tract Radiologists. When a pouch was identified, it was measured along its three major axes (antero-posterior AP, cranio-caudal CC, and latero-lateral LL diameters) and the volume was calculated with the ellipsoid formula ($AP \times CC \times LL \times 0.5$). Patients were divided into two groups: group 1, without a detectable pouch ($n=36$) and group 2 with a detectable gastric pouch ($n=13$).

To evaluate the presence of GERD was used a questionnaire of 10 questions for the diagnosis of GERD and the subsequent 6 to assess the presence of atypical symptoms (5).

Correlation between pouch volume and GERD was calculated with Fisher test to relate GERD symptoms to fundic pouch. $P < 0.05$ was considered statistically significant.

Images for this section:

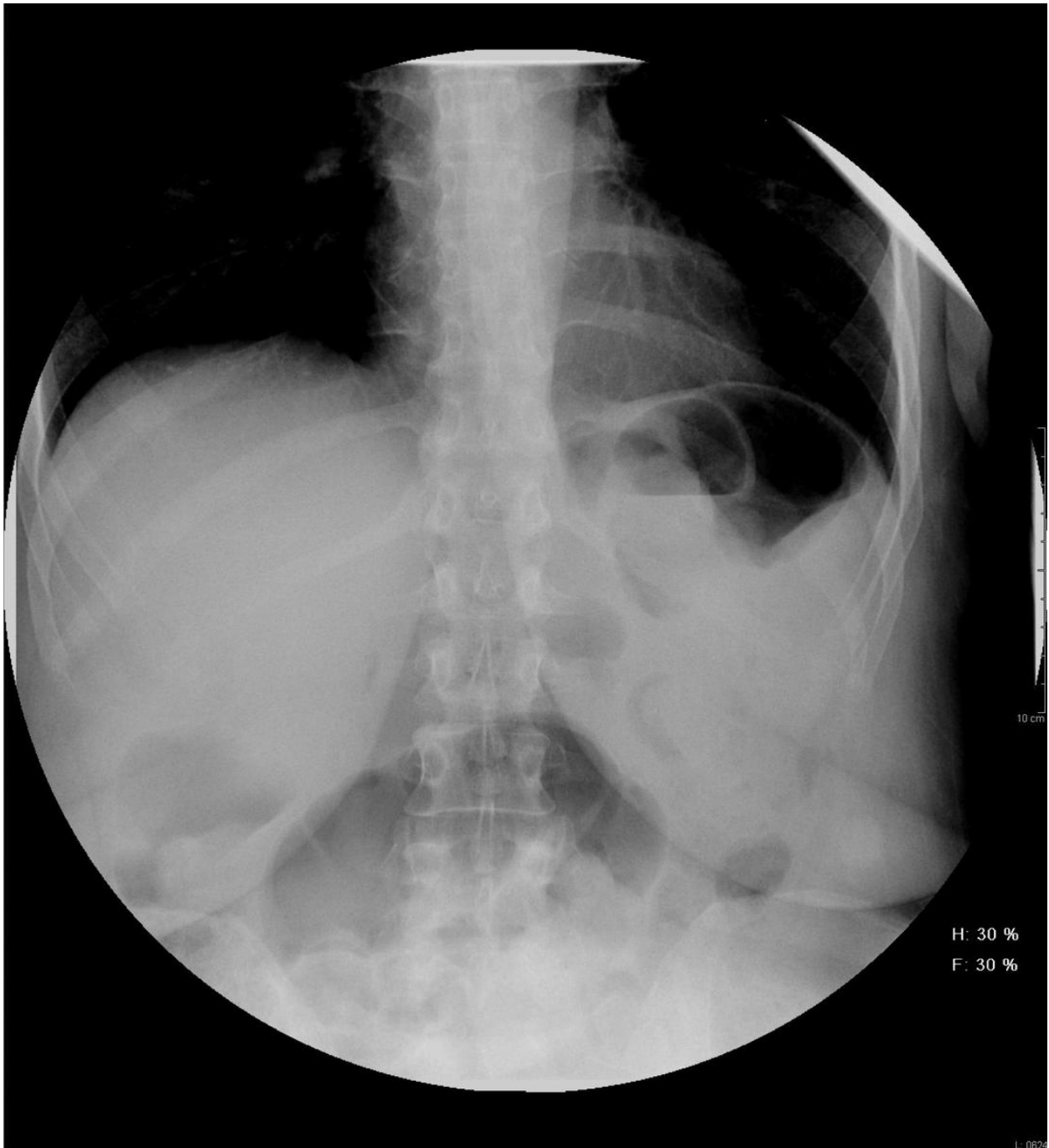


Fig. 1: W, 41 yrs. Plain x-ray of the epigastric region, which shows the presence of an air-fluid level in the left hypochondrium

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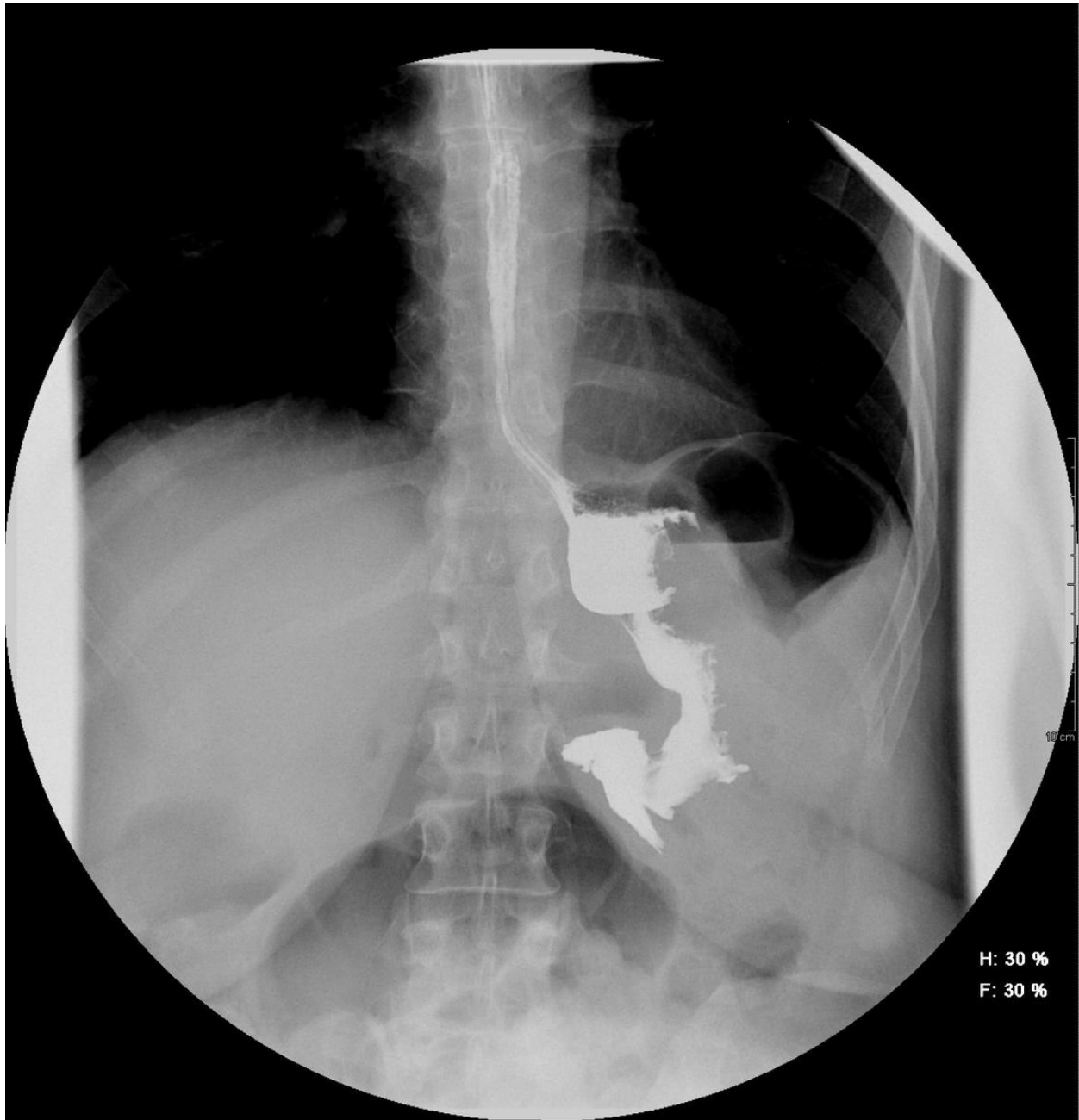


Fig. 2: Same patient as fig. 1, standing in orthostatic, frontal position; after the first sip of contrast medium, an ellipsoid-shaped plus-image appears in the first trait of the sleeved stomach, protruding toward the right side. The air-fluid level is still visible.

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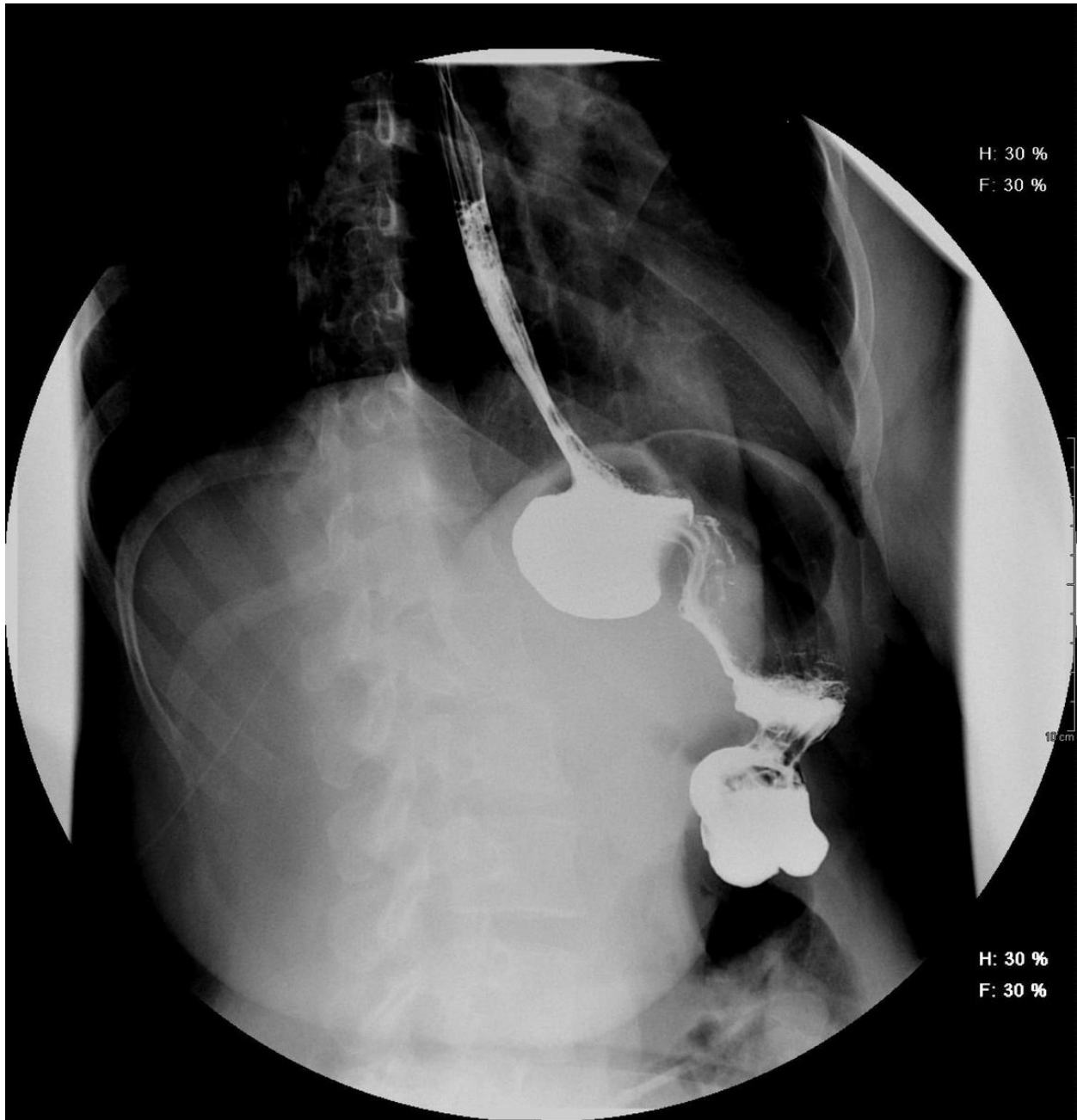


Fig. 3: Same patient as figs.1 and 2, standing in orthostatic, left-lateral position; the plus image is fully visible in its complete extension. The continuity with the air-fluid level is now evident.

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Results

Twenty-six patients had a history of previous abdominal surgery: 13/49 laparoscopic adjustable gastric band (LAGB) before LSG, 9/49 cholecistectomy, 2/49 abdominoplasty, 4/49 other major abdominal surgery.

Twenty-seven patients experienced one or more of these symptoms: dysphagia (2/49), dyspepsia (8/49), reflux and heartburn (18/49), vague stomachache (4/49), nausea and/or vomit (6/49). The remaining 22 patients were asymptomatic, except from unsatisfactory weight loss or weight regain.

A gastric pouch was found in 13 out of 49 patients (Group 2), while the 36 remaining patients had not such an evidence (Group 1). The mean volume of the pouch was $17,13 \pm 21.56 \text{ mm}^3$.

The relationship between GERD symptoms (heartburn, reflux, regurgitation) and the evidence of pouch was not significant in our series, as 7 out of the 13 patients with pouch and 17 out of the 36 patients without pouch had symptoms of GERD, with an incidence of 53,84% and 47.22%, respectively.

Conclusion

GERD symptoms had the same distribution in symptomatic or unsatisfactory weight loss population with or without fundic pouch. The lack of significant correlation between pouch evidence and GERD symptoms needs further investigation, encompassing thorough prior-to-LSG specific validated questionnaire and clinical assessment, keeping in mind that the obesity is an independent factor for GERD.

Personal information

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