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## Correspondence

# Gastric Cancer and Roux-en-Y Gastric Bypass

## To the Editor:

We read with interest the article *"Cancer in the excluded stomach 4 years after gastric bypass"* by Corsini et al[1] (Obes Surg 2006; 16: 932-4). The paper deals with the important issue of the incidence of gastric cancer in the bypassed stomach after Roux-en-Y gastric bypass (RYGBP). In this case, a neoplasm of the excluded stomach developed in a patient 3 years after the RYGBP operation. Including the aforementioned case, a total of five cases of adenocarcinoma of the bypassed stomach are described in the indexed medical literature, occurring 3 to 22 years after bariatric surgery.[2-5]

Considering the number of patients submitted to RYGBP during the last 10 years, and the expected incidence of gastric adenocarcinoma in the general population, an interesting difference between the number of reported and expected cases of stomach cancer can be observed. Between 1998 and 2002, a total of over 170,000 RYGBP were performed in the USA alone.[6] If we postulate a prudent 60% 1-year follow-up rate, and no follow-up thereafter, we totalize >100,000 person-years of follow-up (>700,000 for a supposed 100% follow-up rate until 2006). Assuming that the annual incidence of gastric adenocarcinoma in the general population in USA is between 7.6 and 15.2 per 100,000, depending on sex and ethnicity,[7] we would therefore expect a total of between 8 and 15 new gastric cancer cases observed in the population in follow-up in the same time period, the total number of cases being 55 to 109* as to the hypothesis of 100% follow-up at 2006.

This striking difference between the expected and the reported stomach cancer cases after RYGBP raises important questions. It is likely that the preoperative work-up excludes many cases that would have been apparent in the short term. Nonetheless, this cannot account for the same difference considered on the total number of cases at the longer follow-up. Thus, a serious issue of under-reporting of malignancies after bariatric surgery could be raised.

Furthermore, it should be considered that, from an epidemiological and statistical point of view, according to the concept of the person-year follow-up, a short follow-up on a large sample is equivalent to a longer follow-up on a smaller population.

It should therefore be hypothesized that a real decrease in incidence of gastric cancer after RYGBP occurs. A possible reason for that could be the lack of contact of food with the excluded stomach.

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## References

1. Corsini DA, Simoneti CA, Moreira G et al. Cancer in the excluded stomach 4 years after gastric bypass. Obes Surg 2006; 16: 932-4.
2. Raijman I, Stroher SV, Donegan WL. Gastric cancer after gastric bypass for obesity. J Clin Gastroenterol 1991; 13: 191-4.
3. Lord RV, Edwards PD, Coleman MJ. Gastric cancer in the bypassed segment after operation for morbid obesity. Aust NZ J Surg 1997; 67: 580-2.
4. Khitin L, Roses RE, Birkett DH. Cancer in the gastric remnant after gastric bypass: a case report. Curr Surg 2003; 60: 521-3
5. Escalona A, Guzman S, Ibanez L et al. Gastric cancer after Roux-en-Y gastric bypass. Obes Surg 2005; 15: 423-7.
6. Santry HP, Gillen DL, Lauderdale DS. Trends in bariatric surgical procedures. JAMA 2005; 294: 1909-17
7. Wingo PA, Ries LA, Giovino GA et al. Annual report to the nation on the status of cancer, 1973-1996, with a special section on lung cancer and tobacco smoking. J Natl Cancer Inst 1999; 91: 675-90.

*7.6 or 15.2 per 1000,000 (gastric cancer incidence in North America) X 720,000 (exact number of person year-follow-up of RYGBP cases) = 55 or 109 new cases – i.e., 7.6 x 7.2 = 54.72 and 15.2 x 7.2 = 109.44, respectively.