Study links gastric bypass surgery to increased risk of kidney stones

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Procedure associated with kidney stone formation earlier than previously reported
CHICAGO (June 26, 2008) – Morbidly obese patients who undergo a particular type of gastric bypass surgery called Roux-en-Y gastric bypass (RYGB) are at an increased risk of developing kidney stones – small, pebble-like deposits that can result in severe pain and require an operation to remove them – earlier than previously thought. These stones develop in patients within only a few months following the procedure rather than several months to years, according to research published in the June issue of the *Journal of the American College of Surgeons*.

"Our data suggests that RYGB is associated with an increased risk of forming kidney stones as early as three months post-operation," according to the study's lead investigator, Manoj Monga, MD, FACS, Professor of Urologic Surgery, University of Minnesota, Minneapolis. "We hope our findings and subsequent research will eventually allow clinicians to more accurately counsel patients on their individual risk of kidney stones and develop strategies for the prevention of this sometimes painful condition, such as dietary modification and medical therapy."

RYGB is the most commonly performed surgical intervention for morbid obesity. During the procedure, a small pouch is created by stapling part of the stomach together or by banding the stomach, limiting the amount of food a patient can eat. Next, a Y-shaped section of the small intestine is attached to the pouch to allow food to bypass the first part of the intestines. This process causes reduced calorie and nutrient absorption. Although RYGB is a safe and effective treatment for morbid obesity, nephrolithiasis (the formation of kidney stones) has recently raised concerns among patients undergoing RYGB.

"Although this study demonstrates that there is a higher risk for developing kidney stones, it is important to weigh the risk against the many benefits that RYGB has for the morbidly obese patient, including decreasing cardiac morbidity and improving diabetes," Dr. Monga added.

Surgeons conducted a prospective, longitudinal study of 24 morbidly obese adults (9 men and 15 women) from a university-based bariatric surgery clinic scheduled to undergo RYGB between December 2005 and April 2007. Five patients had a history of nephrolithiasis. Patients provided 24-hour urine collections for analysis seven days before and 90 days after operation. The primary endpoints were change in the amount of the compound oxalate in the urine and the relative supersaturation of calcium oxalate (that is, whether the urine contained more calcium oxalate than could normally be dissolved, potentially leading to crystallization) from baseline to three months post-RYGB. Both of these factors have been demonstrated by earlier studies to be major risk factors for the development of kidney stones.

Significant increases were noted in urinary oxalate excretion (31 ± 10 mg/d versus 41 ± 18 mg/d; p=0.026) and relative supersaturation of calcium oxalate (1.73 ± 0.81 versus 3.47 ± 2.59; p=0.030) at only three months post-RYGB. Six patients (25%) developed de novo hyperoxaluria, with oxalate excretion increasing from 26± 12 mg/d to 63 ± 12 mg/d (p =0.0046) There were no preoperative patient characteristics predictive of increased risk of kidney stone formation.

The reason for increased likelihood of the development of kidney stones following this type of gastric bypass surgery is not entirely understood. A possibility is that the anatomic rearrangement caused by the operation establishes a mildly malabsorptive state, which may be responsible for the increase in the excretion of urinary electrolytes. Kidney stones could also result from an alteration in the gut microflora (normal bacteria) caused by the procedure.

Source: Weber Shandwick Worldwide