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Prevalence and treatment of gall stones after gastric bypass surgery for morbid obesity

Obesity and rapid weight loss predispose to the formation of gall stones.¹ We have documented the prevalence of gall stones before and after gastric bypass surgery for morbid obesity.

Subjects, methods, and results

Seventy three obese patients underwent gastric bypass operations between March 1980 and January 1982. Their median age was 34 years (range 18-51), median weight 118 kg (range 93-165), and 71 were women. Patients were fasted for 12 hours before operation. At operation a proximal gastric pouch of between 50 and 100 ml in volume was constructed, which was drained through a narrow stoma (10-12 mm) into a 40 cm Roux-en-Y segment of jejunum. Fourteen of the patients had already had their gall bladders removed, and 19 underwent cholecystectomy for gall stones at the time of the gastric bypass. The remaining 40 patients were found to have normal gall bladders both on oral cholecystography and on palpation at operation.

Gall bladder bile samples were taken from 13 of the 19 patients who had gall stones at the time of operation. The median cholesterol saturation index² was 1.26 (range 1.00-1.64), and eight of the 13 patients had cholesterol crystals present on microscopy of the fresh bile samples.

Of the 40 patients with a normal gall bladder, 27 had transhepatic aspiration of gall bladder bile at the time of surgery. The median cholesterol saturation index was 1.18 (range 0.75-1.48) but cholesterol crystals were found in only one of the fresh bile samples. Thirty of the 40 patients were subjected to repeat oral cholecystography during follow up (median time 12 months; range 4-27). Ten of the 30 had developed gall stones (only one of these patients had taken oral contraceptives). In nine patients the stones were found within 14 months of operation. Only four patients had biliary type pain. All the stones were less than 0.5 cm diameter and radiolucent, and most floated on the contrast medium. Stone formers had the greater weight loss during the first nine months after surgery, but weight loss at 12 months was comparable between the two groups.

Two of the 10 patients with stones were observed but not treated, and their stones disappeared within nine months of discovery, as judged radiographically and by ultrasound. Eight patients were treated with oral chenodeoxycholic acid 750 mg/day. Complete dissolution occurred in five of these, one after 11 months of treatment and the other four within seven months. The only complication of treatment was diarrhoea in one patient, which led to withdrawal of the drug after nine months. The other two patients were still undergoing treatment (four and six months).

Comment

The high incidence of gall stones in morbidly obese patients was confirmed in this study. Of the 73 patients, 33 had developed gall stones before surgery, and a further 10 (of the 30 who underwent cholecystography) developed gall stones after a gastric bypass operation. The only major difference identified between the post-operative stone formers and the non-stone formers was a greater early weight loss in the stone formers (table).

The reduction of oral intake and its diversion from the upper

Details of 30 patients who underwent oral cholecystography after gastric bypass operation

	Gall stones detected	No gall stones detected
No of subjects	10	20
Median age (range)	28 (20-46)	34 (18-51)
Sex (men/women)	0/10	2/18
Median weight (kg) at time of operation (range)	131 (90-146)	118 (93-136)
Median weight loss (kg) 6 months after operation (range)	39 (25-57)*	31 (9-39)*
Median cholesterol saturation index of gall bladder bile sampled at operation (range)	1.14 (0.75-1.89)	1.18 (0.69-1.87)

*p < 0.01 (Mann-Whitney U test, two tailed).

small bowel may reduce cholecystokinin release, resulting in stasis of gall bladder bile. This might facilitate the tendency for the supersaturated bile secreted during weight loss¹ to nucleate and form cholesterol crystals (the proposed basis of gall stone formation).

Regardless of the mechanism of formation, the multiple small gall stones may disappear spontaneously or be amenable to dissolution by chenodeoxycholic acid. Because the cholesterol saturation index may return to normal once weight loss has stabilised, current policy is to observe stone formers for six months for spontaneous stone dissolution. Chenodeoxycholic acid is used only if stones persist after this period. This treatment might also be used as a prophylaxis against gall stone formation in these patients: Mok and colleagues³ showed that chenodeoxycholic acid reduces the cholesterol saturation index of bile when administered to obese patients during weight loss.

In conclusion we found that one third of patients investigated after gastric bypass surgery developed small radiolucent gall stones. Clinicians managing such patients should be aware that these stones may be transitory and are often amenable to dissolution treatment.

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Acute urinary retention associated with sublingual buprenorphine

Parenteral opiate analgesics have been shown to affect vesicourethral function, and intrathecal and epidural opiates reportedly precipitate acute urinary retention.¹⁻³ There have been no reports of acute retention with buprenorphine given sublingually or via the epidural route. I report a case showing that buprenorphine (Temgesic) may precipitate acute retention of urine.

Case report

A 66 year old man with right sided T1 postherpetic neuralgia was prescribed sublingual buprenorphine by his general practitioner. After taking six 200 µg tablets over 18 hours he developed acute urinary retention and was admitted as an emergency. He felt rather lightheaded but had noticed no other side effects. On arrival at hospital he voided a small amount of urine, catheterisation was postponed, and normal micturition was subsequently re-established without further intervention. He denied any previous urinary symptoms, especially those recognised as being associated with outflow obstruction—namely, hesitancy and a poor stream.⁴ He had previously had a normal diurnal frequency and no nocturia.

Immediately after discharge from hospital the patient took a further two