The Interesting Case

An unusual cause of pink urine

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Case report

A 42-year-old Caucasian female was admitted to the surgery service of University Hospital & Clinics in Columbia, Missouri, for surgical treatment of morbid obesity. She had a lifelong history of morbid obesity and had failed conservative measures for achieving weight loss. Her past medical history was significant for hypertension, non-insulin-dependent diabetes mellitus, hypercholesterolaemia, sleep apnoea, mild congestive heart failure, depression, bilateral mild carpal tunnel syndrome, open cholecystectomy, and caesarean section. There was no past medical history of gout or urolithiasis. Her medications included enalapril, theophylline, frusemide, sertraline, I-thyroxine, simvastatin, and a potassium supplement.

Physical examination revealed a well-looking morbidly obese woman with a body mass index of 70 kg/m² (Figure 1). The rest of the physical examination was essentially unremarkable. Preoperative laboratory values were as follows: haemoglobin 10.9 g/dl, white cell count 8500/mm³, platelets 266 000/mm³, sodium 141 mmol/l, potassium 4.3 mmol/l, glucose 115 mg/dl, calcium 10.8 mg/dl, phosphorus 4.2 mg/dl, uric acid 9.8 mg/dl, BUN 18 mg/dl, and serum creatinine 0.7 mg/dl. Urinalysis was normal.

The patient underwent a vertical-ringed gastric bypass with a roux-en-Y gastrojejunostomy. The divided distal stomach was decompressed with a gastrostomy. There were no intraoperative complications.

The following day, during rounds, it was observed that the urine in the Foley catheter tubing and in the urine bag was intensely pink–orange. This was collected in a clear glass container and is shown in Figure 2. On standing, a strawberry–pink sediment was seen (Figure 3). Under the microscope, amorphous uric acid crystals were identified (Figure 4).

Discussion

The entity of uric acid crystalluria following gastric bypass procedures in morbidly obese patients has been...
reported before [1]. However, it is not adequately emphasized in the nephrological literature. The major international textbooks of nephrology do not mention this entity [2–4]. We therefore thought it necessary to bring it to the attention of the nephrology community at large.

The precise mechanism(s) of this fascinating, often dramatic phenomenon, is (are) not clearly understood. To our knowledge it is not seen in the non-obese following procedures of similar magnitude [1]. In addition to the effects of volume expansion, it has been shown that ADH, via its V1 receptor, increases renal uric acid clearance [5]. This may possibly play a role due to the postoperative syndrome of inappropriate ADH [6]. In addition, the postoperative release of adrenal corticosteroids (stress-induced) with their uricosuric effect and that of nucleotides following the tissue destruction that accompanies gastric stapling may contribute to the uric acid crystalluria.

Why only the obese are at risk at such predictable frequency merits further investigation.

References