In-Office Fluoroscopy as an Adjunctive Tool in the Work-up of the Post-operative Bariatric Surgery Patient

Crystal S Zhang, Pial Hope, Samik Patel, Cristina Guerra, Richard Englehardt, Michael Seger, Terive Duperier

INTRODUCTION

- Post-operative complications after bariatric surgery are relatively low, and permanent alterations to anatomy can lead to unique problems, so work-up can pose a diagnostic dilemma.
- We propose that in-office fluoroscopy should be part of a surgeon's algorithm for the workup of the post-op bariatric patient.

METHODS

- We compiled a list of patients who had bariatric surgery and developed post-operative complications, which we diagnosed and characterized using in-office fluoroscopy.
- In this case series, we have utilized fluoroscopy to identify and resolve issues regarding:
  - Gastric bands (Figures 1 and 2)
  - Anatomic and physiologic problems with gastric sleeves, such as incisural narrowing (Figure 3), acute angulations (Figure 4), and gastroparesis (Figure 5)
  - Bypasses such as "candy cane" syndrome (Figure 6) and strictures (Figure 7)

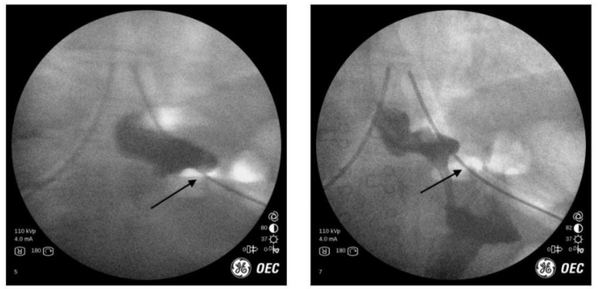
CONCLUSION

- In-office fluoroscopy is an invaluable adjunct for diagnosis and surgical planning
- Fluoroscopy is also a useful tool for patient education and behavior modification

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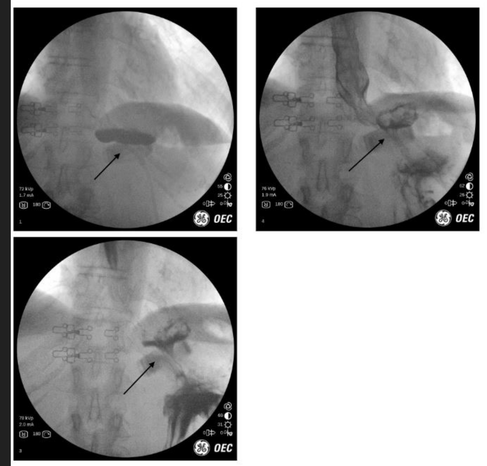
ASCENSION

Figure 1. Slipped gastric band.



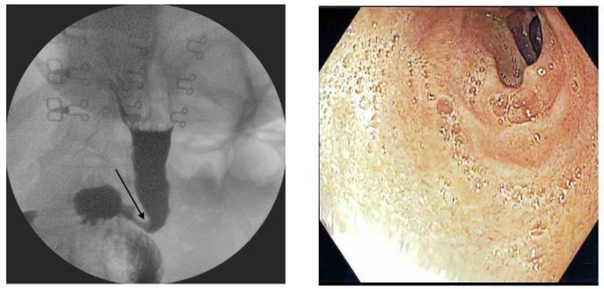
Left: slipped band causing complete obstruction. There is no progression of contrast past the region of the band (arrow pointing to lucent band).
Right: contrast flows easily past region of band after deflation of band (arrow pointing to lucent band).

Figure 2. Over-filled gastric band.



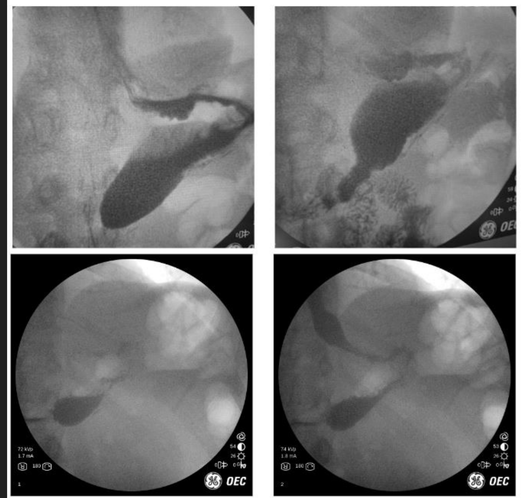
Top Left: no outflow of contrast through the band (arrow pointing to band).
Top Right: trace amount of contrast flowing through the band after a few minutes (arrow pointing to band).
Bottom Left: contrast emptying easily through the band after removing 2.5 mL (arrow pointing to band).

Figure 3. Sleeve narrowing.



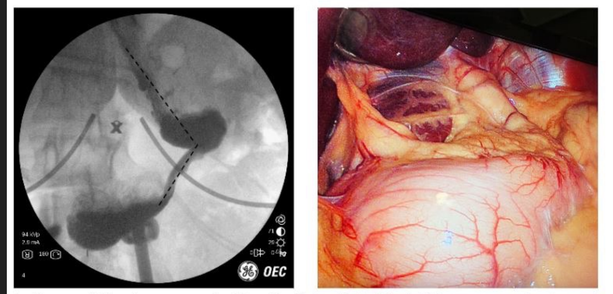
Left: severe narrowing at the incisura (arrow) causing symmetrical dilation of the proximal sleeve.
Right: endoscopic view with normal proximal sleeve lumen caliber that narrows to 1 cm at the incisura.

Figure 5. Gastroparesis after gastric sleeve.



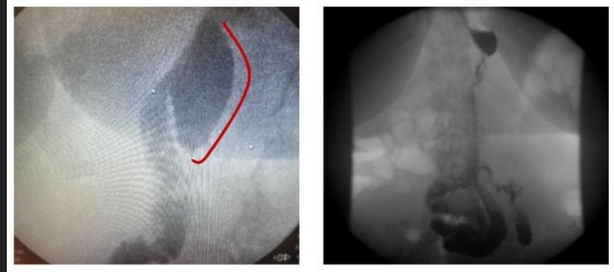
Top left and right: stomach slowly filling with contrast, which makes it into the small intestine, but only after several minutes.
Bottom left and right: after pyloromyotomy; normal transit of contrast through the sleeve into the duodenum.

Figure 4. Acute angulation of the mid-sleeve due to adhesions.



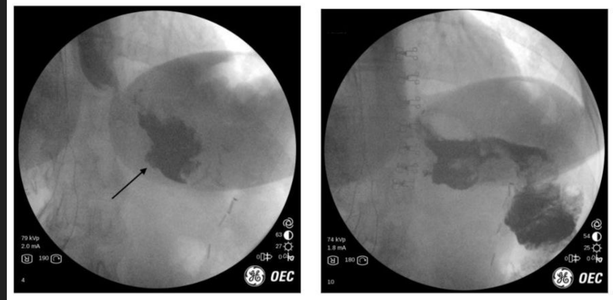
Left: we call this phenomenon the "Pac-Man" sign (dotted line). This was secondary to greater curvature adhesions causing acute angulation along the mid-sleeve, which led to a functional obstruction.
Right: deceptively, unremarkable-appearing intraoperative findings highlighting benefit of preoperative upper GI study.

Figure 6. Candy cane syndrome after Roux-en-Y gastric bypass.



Left: contrast preferentially filling blind, afferent limb (red outline) before eventually draining into alimentary limb.
Right: normal filling of the gastric pouch and flow of contrast down the alimentary limb after resection with clinical resolution of symptoms.

Figure 7. Stricture at gastrojejunostomy



Left: contrast filling the gastric pouch (arrow) but no contrast flowing distally.
Right: contrast filling the gastric pouch and flowing through the alimentary limb after revision.