

Utility of Early Imaging to Predict Non-Operative Failure in Adhesive Small Bowel Obstructions

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Introduction

Complete bowel obstructions identified with a gastrografen challenge (GGC) have been shown to be predictive of failure of non-operative management in adhesive SBO (aSBO) patients.

Historically, we gave patients with aSBO ~ 72 hours to resolve before considering surgery

The GGC has allowed us to predict who needs surgery in 24 hours

Objective

The purpose of this study was to determine if admission CT scan could predict the need for surgery even sooner and time could be decreased to zero -- potentially decreasing length of stay, ileus, malnutrition, and maybe even complications

Materials and Methods

Retrospective study design, review of imaging and outcomes
(May 2022-June 2023)

INCLUSION CRITERIA	EXCLUSION CRITERIA
➤ 18 years of age ➤ SBO from presumed adhesive disease	➤ SBO from etiology other than adhesive disease ➤ Did not undergo GGC ➤ Did not undergo admission CT scan ➤ Underwent urgent/emergent surgery (closed loop, concern for bowel compromise, peritonitis, perforation) ➤ Died on index admission

Primary outcome:
sensitivity/specificity of admission CT scan to predict need for surgery

Secondary outcomes:
- sensitivity/specificity of GGC to predict need for surgery
- sensitivity/specificity of admission CT scan and GGC to predict need for surgery

Results



Complete SBO on CT: no intraluminal gas or fluid in the small bowel past transition point

Complete SBO on GGC: no contrast in colon seen on abdominal XR 24 hours after administration

Complete bowel obstruction on admission CT

Sensitivity	78%
Specificity	58%
Positive predictive value	18%
Negative predictive value	95%

A total of 82 patients met inclusion criteria.

Failure to pass a GGC at 24 hours

Sensitivity	67%
Specificity	93%
Positive predictive value	55%
Negative predictive value	96%

This is based on the premise that complete SBOs do not resolve without surgical intervention, but partial ones do
The “gold standard” test would be surgical exploration

Complete obstruction on admission CT and failure to pass a GGC at 24 hours

Sensitivity	22%
Specificity	96%
Positive predictive value	40%
Negative predictive value	91%

Discussion

Complete aSBO on CT, GGC, or both failed to identify a significant portion of patients who required an operation.

Moreover, many patients who had both a complete obstruction on CT and the GGC resolved without an operation.

Our data suggests that at 24 hours, imaging reliably identifies patients who will resolve without operative intervention, but neither test sufficiently screens for, nor predicts who will require an operation and should not be used to plan an early operative intervention.

The study was limited by small sample size.