



Evaluation and Management of a Patient with a Neonatal Intestinal Condition (Atresia, Meconium Ileus)

Description of the Activity	Neonatal intestinal conditions (eg, atresia, meconial disease) are a set of conditions occasionally encountered by pediatric surgeons in a semi-elective setting among the in-house, newborn patient population. Surgeons must be able to identify and treat the spectrum of neonatal conditions presenting as intestinal obstruction and determine the appropriate plan of care for pre- and postnatal presentations.
Functions	<ul style="list-style-type: none">❖ Nonoperative/Preoperative<ul style="list-style-type: none">➤ Synthesize essential information from the patient's records, history, physical examination, and initial diagnostic evaluations to develop a differential diagnosis.➤ Complete a cost-effective, evidence-based diagnostic evaluation of the fetus.➤ Communicate the diagnosis and potential care options to the family and consultants, including the nuances of the varied potential diagnoses, their possible/related comorbidities, and expected health outcomes. Ensure family understanding.➤ Complete a cost-effective, evidence-based diagnostic evaluation. Identify causes for lack of diagnostic specificity in patient evaluation and prioritize further diagnostic evaluation or surgical intervention based on the conditions' risk of morbidity/mortality.➤ Communicate the diagnosis (or differential diagnosis) and potential treatment options to the family and consultants.➤ Obtain informed consent, describing the indications, risks, benefits, alternatives, and potential complications of the planned operation, including nuances relevant to the patient's individual condition and comorbidities (eg, genetic anomaly, cardiac anomaly), and ensure family understanding.➤ Identify adjunct procedures that may be employed in the operative management of the condition, and ensure family understanding of the potential need for adjunct procedures and the need for unforeseen interventions, including:<ul style="list-style-type: none">▪ Identification of multiple intestinal conditions (eg, atresia, malrotation)▪ Intestinal lengthening procedures▪ Tapering enteroplasty▪ Temporary decompressive ostomy (eg, Bishop-Koop, Santulli)▪ Tunneled central line placement❖ Intraoperative<ul style="list-style-type: none">➤ Perform the procedures required to manage a neonatal intestinal obstruction.➤ Systematically identify the location of the intestinal obstruction among the varied segments of intestine.➤ Assess the intestine for concurrent obstructive processes and possible treatment, such as operative irrigation.➤ Assess the intestinal tract for anatomic anomalies in need of definitive surgical intervention, such as malrotation.➤ Recognize indications for a concurrent need for intestinal lengthening procedures versus tapering enteroplasty to optimize intestinal function.➤ Recognize indications for concurrent placement of tunneled central venous access or a gastrostomy device.



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	<ul style="list-style-type: none">➤ Recognize and develop a management plan to address unexpected intraoperative findings, such as an anterior portal vein, extreme intestinal loss, multiple atresia segments (type 4 atresia), and meconium cystic peritonitis. <p>❖ Postoperative</p> <ul style="list-style-type: none">➤ Provide postoperative management for a patient with neonatal intestinal conditions, including:<ul style="list-style-type: none">▪ Routine postoperative, immediate, and follow-up care▪ Management of supplemental parenteral nutrition▪ Communication with the family to ensure understanding of care and instructions▪ Recognition of early and late complications related to neonatal intestinal conditions, such as:<ul style="list-style-type: none">● Anastomotic stricture● Bowel obstruction● Intestinal dysmotility● Malabsorption
Scope	<p>❖ In scope</p> <ul style="list-style-type: none">• Diagnoses<ul style="list-style-type: none">▪ Colon atresia▪ Duodenal atresia▪ Meconium ileus▪ Meconium plug▪ Neonatal bowel obstruction▪ Small bowel atresia▪ Small left colon• Procedures<ul style="list-style-type: none">▪ Duodenoduodenostomy▪ Neonatal laparotomy▪ Operative irrigation▪ Tapering enteroplasty▪ Various stoma configurations (eg, Bishop-Koop, Santulli)• Special populations<ul style="list-style-type: none">▪ Cystic fibrosis▪ Trisomy 21



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❖ Out of scope

- Diagnoses/procedures
 - Acute necrotizing enterocolitis (covered in a separate EPA)
 - Anorectal malformation (covered in a separate EPA)
 - Duplication cyst
 - Hirschsprung disease (covered in a separate EPA)
 - Malrotation and volvulus (covered in a separate EPA)
 - Omphalomesenteric duct
 - Appendicitis
 - Premature intestinal dysfunction



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<p>1</p> <p><u>Framework:</u></p> <p>The learner demonstrates understanding of information and has basic skills</p> <p>What a new pediatric surgery fellow should know</p> <p><u>Entrustment:</u></p> <p>The attending will show and tell or the learner acts as first assistant.</p>	<ul style="list-style-type: none">• With active assistance, performs a focused H&P, reviews diagnostic reports, and comes up with a differential for an uncomplicated patient that includes both medical and surgical problems; creates a diagnostic treatment plan that includes nonoperative strategies• Introduces self and the medical team, acknowledges all parties present, and engages them in a health care discussion; identifies communication issues or the need for a trained interpreter with non-English-speaking patients• Receives consult requests and interacts with consultants in a polite manner; recognizes if there is need to improve communication style with the patient's family and the care team	<ul style="list-style-type: none">• With active guidance, moves through critical portions of the procedure or serves as first assistant in critical portions of the procedure• Requires active guidance in handling delicate neonatal tissue• Describes the basic anatomic considerations for the atresia process and the impact on incision placement and planned operative exposure	<ul style="list-style-type: none">• With active guidance, describes the strategy and macronutrient composition of parenteral nutrition needed for caloric support• With direct assistance, manages the postop course, postop complications, and associated comorbid conditions (intestinal dysmotility, malabsorption) of a neonatal patient with an intestinal condition• With active guidance, communicates intraoperative findings and interventions to the health care team and consulting services, while clearly defining important considerations of postoperative surgical care from a surgical standpoint.
<p>2</p> <p><u>Framework:</u></p> <p>The learner demonstrates understanding of the steps of the operation but requires direction through principles and does not</p>	<ul style="list-style-type: none">• With passive assistance, integrates the H&P of an uncomplicated patient with personal interpretation of radiologic studies to determine a focused differential and a diagnostic treatment plan• Communicates the differential diagnosis and operative plan to the family, confirming the patient's and family's understanding of clinical disease	<ul style="list-style-type: none">• With direct supervision, performs all steps of an abdominal exploration, identifies all areas of obstruction/atresia for a common presentation of atresia• Demonstrates adequate identification of tissue planes and dissects relevant common anatomy with direct supervision; adequately but	<ul style="list-style-type: none">• With direct supervision, recognizes the need for parenteral nutrition in postop management and associated vascular access• With indirect assistance, manages the postop course, postop complications, and associated comorbid conditions (intestinal dysmotility, malabsorption)



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<p>know the nuances of a basic case</p> <p><u>Entrustment:</u></p> <p>The learner can use the tools but may not know exactly what, where, or how to do it.</p> <p>The attending gives active help throughout the case to maintain forward progression or may need to take over the case at a certain point</p>	<ul style="list-style-type: none">Clearly communicates perioperative goals of care with the health care team and consulting services	<p>inconsistently handles neonatal tissues delicately</p> <ul style="list-style-type: none">Demonstrates understanding of anatomic variations of intestinal atresia or types of presentations for meconium ileus, including additional atresias or downstream obstruction; with direct supervision, directs operative care to address common presentations of atresia/meconium ileus	<p>of a neonatal patient with intestinal condition</p> <ul style="list-style-type: none">Clearly communicates intraop findings and interventions to the health care team and consulting services while clearly defining important considerations of postoperative surgical care
<p><u>3</u></p> <p><u>Framework:</u></p> <p>The learner has a good understanding of surgical options and techniques but does not recognize abnormalities and does not understand the nuances of a complicated case</p> <p><u>Entrustment:</u></p>	<ul style="list-style-type: none">With passive assistance, integrates the H&P of a complicated patient with personal interpretation of radiologic studies to determine a focused differential and a diagnostic treatment plan that includes nonoperative strategiesEngages the patient and family in shared decision-making in a circumstance of a common condition or comorbidityPromotes an open dialogue and a common understanding of perioperative goals in	<ul style="list-style-type: none">With indirect supervision, performs all steps of an abdominal exploration, identifies all areas of obstruction/atresia, and refines the operative approach based on intraop findings or associated conditions for a common presentationVisualizes tissue planes and dissects relevant abnormal anatomy with indirect supervision and consistently handles neonatal tissues delicatelyWith indirect supervision, addresses a case of significant intestinal loss with	<ul style="list-style-type: none">With passive assistance, manages/supervises parenteral nutrition for medical support of a patientIndependently manages the postop course and postop complications of an uncomplicated neonatal patient with an intestinal conditions including associated comorbid conditions (intestinal dysmotility, malabsorption) but requires passive assistance for a complicated patient with a neonatal intestinal condition



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<p>The learner can perform the operation/task independently in the uncomplicated patient</p> <p><u>or</u></p> <p>The attending provides passive/indirect supervision/suggestions in the complicated patient but still allows the learner to perform the operation/task themselves</p>	<p>care among the health care team and consultative services</p>	<p>awareness of the need to preserve intestinal length, for central line placement, for an intestinal lengthening procedure, or for gastrostomy placement</p>	<ul style="list-style-type: none">Promotes an open dialogue and a common understanding of goals in postoperative care among members of the health care team and consultative services
<p>4</p> <p><u>Framework:</u></p> <p>The learner has a strong and indepth understanding of surgical options and techniques</p> <p><u>Entrustment:</u></p> <p>Can perform the operation/task independently in complicated cases</p> <p><u>or</u></p>	<ul style="list-style-type: none">Independently integrates the H&P of a complicated patient with personal interpretation of radiologic studies to determine a focused differential and a diagnostic treatment plan that includes non-operative strategiesEngages in shared decision-making with the family of a complicated patient to determine options for a personalized plan of clinical care, such as a case with aspects of futile care or a complex issue such as short gut syndrome,Elicits and incorporates input from the health care team and consultants to optimize peri-operative patient care with appropriate interprofessional	<ul style="list-style-type: none">Independently performs all steps of an abdominal exploration, identifies all areas of blockage/atresia, and refines the operative approach based on intraop findings or associated conditions for a complex presentationIndependently constructs intestinal anastomosis, considering relevant abnormal anatomy of the patient with complicated atresia, including appropriate tissue handling and use of tapering enteroplastyIndependently addresses a case of significant intestinal loss with an understanding of the need to preserve intestinal length, for central line	<ul style="list-style-type: none">Independently manages/supervises parenteral nutrition for medical support of a patientIndependently manages the postop course and postop complications of a complicated neonatal patient with an intestinal conditions including associated comorbid conditions (intestinal dysmotility, malabsorption)Elicits and incorporates input from the health care team and consultants to optimize postoperative patient care with appropriate interprofessional communication, addressing differences in opinion



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The attending may need to provide indirect supervision or suggestions in the context of extremely rare or severely complicated cases	communication, addressing differences in opinions on care	placement, for an intestinal lengthening procedure, or for gastrostomy placement	