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Study #

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GI injury: includes any injury to the intestinal tract from the stomach to the rectum and any injury to the associated mesentery.

1. Gastrointestinal Injury identified by the following methods (check all that apply):

Please document all methods that identified the injury is present. More than one may be checked. If the imaging test suggested the injury was present but was not definitive, then do not document that one. Only select those methods that definitively documented the injury.

- ☐ Gastrointestinal injury at laparotomy
- ☐ Gastrointestinal injury identified by laparoscopy
- ☐ Gastrointestinal injury definitively identified on abdominal CT scan (CT demonstrates bowel hematoma, mesenteric hematoma, etc)
- ☐ Gastrointestinal injury by upper gastrointestinal series (contrast enhanced plain films of the upper gastrointestinal tract – stomach and small intestine)
- ☐ Gastrointestinal injury identified MRI
- ☐ Gastrointestinal injury identified on the treating physicians' suspicion
 - list findings prompting a clinical diagnosis:
 - ☐ Seat belt sign
 - ☐ Persistent vomiting
 - ☐ Handlebar injury to abdomen
 - ☐ Abdominal pain/tenderness
 - ☐ Other: _____
- ☐ Gastrointestinal injury identified at autopsy
- ☐ Gastrointestinal injury identified by other means (list): _____

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Instructions to complete the remaining Questions:

Each anatomic location of injury is listed as a large subheading (Stomach, Duodenum, Small intestine non-duodenum, Colon and Mesentery). Please answer “Yes” or “No” for the presence of a GI injury to each of the five anatomic locations. They are highlighted in yellow (if printed in color).

Once an injury is identified to a specific anatomic location, please answer the sub-questions under the anatomic location. There are either two or three sub-questions under each anatomic location as follows:

1. **Type of injury:** For the hollow viscus choices (stomach, duodenum, small and large intestine) there are 4 choices (you may choose more than one):
 - a. Hematoma – collection of clotted or unclotted blood in the bowel wall
 - b. Perforation – full thickness tear of the hollow viscus
 - c. Serosal tear – tear of the serosal layer only, partial thickness tear
 - d. Devascularization – compromise of the vascular circulation to the hollow viscus
 - e. Other is not listed, but if you have an injury not listed above, write it in the margins

For the mesentery there are 4 choices (you may choose more than one):

- a. Hematoma - collection of clotted or unclotted blood in the bowel wall
- b. Perforation/laceration: Tear or rent in the mesentery
- c. Edema: Swelling/collection of non-bloody fluid in the mesentery
- d. Other

For the small intestine and colon categories, the specific injury location is also requested. Small intestine subcategories include jejunum, ileum, and not specified. Colon subcategories include ascending, transverse, descending, rectum and not specified. Also, document the type of each of these sub-categories that are present for each lower classification of the anatomic location.

2. **Method the injury was identified:** Please document all methods that identified the injury is present. More than one may be checked. If the imaging test suggested the injury was present but was not definitive, then do not document that one. Only select those methods that definitively documented the injury. If it is “other” please write in the other methods it was identified.
3. **Injury grade:** The grade of injury for the large anatomic categories (Duodenum, Small Intestine, and Colon is requested). The grades are provided for guidance with subcategories for hematoma or laceration (you make check hematoma, laceration, or both). For those patients that have more than one injury to the specific anatomic location, please score the specific injury with the most severe injury grade. If you would like to review the manuscript the injury grades are based on see Moore EE, et al: Organ injury scaling II: pancreas, duodenum, small bowel, colon and rectum. *J Trauma* 30:1427, 1990

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2. Check all injuries identified:

Stomach: ☐ Yes ☐ No (if yes, answer all Stomach questions below)

1) Type: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization

2) Method the stomach injury was identified (check all appropriate):

☐ laparotomy, ☐ laparoscopy, ☐ CT, ☐ upper GI, ☐ MRI,
☐ autopsy, ☐ other: _____

Duodenum: ☐ Yes ☐ No (if yes, answer all Duodenal questions below)

1) Type: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization

2) Method the Duodenal injury was identified (check all appropriate):

☐ laparotomy, ☐ laparoscopy, ☐ CT, ☐ upper GI, ☐ MRI,
☐ autopsy, ☐ other: _____

3) Duodenal Injury Grade: (if multiple injuries list highest grade)

- ☐ Grade I: ☐ Hematoma: involving single portion of the duodenum or
☐ Laceration: partial thickness, no laceration
- ☐ Grade II: ☐ Hematoma: involving more than one portion or
☐ Laceration: disruption <50% of circumference
- ☐ Grade III: ☐ Laceration: disruption 50-75% circumference of 2nd portion or
☐ Laceration: disruption 50-100% circumference of 1st, 3rd, 4th portion of the duodenum
- ☐ Grade IV: ☐ Laceration: disruption of >75% circumference of 2nd portion or
☐ Involving ampulla or distal common bile duct
- ☐ Grade V: ☐ Laceration: massive disruption of duodenalpancreatic complex or
☐ Vascular: devascularization of duodenum

☐ Unable to Grade injury (please try to grade the injury and avoid this answer)

Grade based on most accurate assessment at autopsy, laparotomy, or radiologic study.

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Small intestine (non-duodenum):

☐ Yes ☐ No (if yes, answer all Small Intestine questions below)

1) Location and Type of non-duodenum Small Intestine Injury:

- ☐ Jejunum: ☐ hematoma, ☐ perforation, ☐ serosal tear, ☐ devascularization
- ☐ Ileum: ☐ hematoma, ☐ perforation, ☐ serosal tear, ☐ devascularization
- ☐ Location not specified: ☐ hematoma, ☐ perforation ☐ serosal tear ☐ devascularization

2) Method the Small Intestine injury was identified (check all appropriate):

☐ laparotomy, ☐ laparoscopy, ☐ CT, ☐ upper GI, ☐
MRI, ☐ autopsy, ☐ other: _____

3) Small intestine (non-duodenum) injury Grade (organ injury scale)

(if multiple small intestine injuries exist, list the injury with the highest grade)

- ☐ Grade I: ☐ Hematoma: contusion or hematoma without devascularization or
☐ Laceration: partial thickness, no laceration
- ☐ Grade II: ☐ Laceration: disruption <50% of circumference
- ☐ Grade III: ☐ Laceration: disruption \geq 50% circumference without transaction
- ☐ Grade IV: ☐ Laceration: transection of the small bowel
- ☐ Grade V: ☐ Laceration: transaction of the small bowel with segmental
tissue loss or
☐ Vascular: devascularized segment
- ☐ Unable to Grade injury (*please try to grade the injury and avoid this answer*)

Grade based on most accurate assessment at autopsy, laparotomy, or radiologic study.

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Colon (large intestine): ☐ Yes ☐ No (if yes, answer questions below)

1) Location and Type of Colon Injury:

- ☐ Ascending colon: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization
- ☐ Transverse colon: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization
- ☐ Descending colon: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization
- ☐ Sigmoid colon: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization
- ☐ Rectum: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization
- ☐ Large intestine not specified: ☐ hematoma ☐ perforation ☐ serosal tear ☐ devascularization

2) Method the Colon injury was identified (check all appropriate):

- ☐ laparotomy, ☐ laparoscopy, ☐ CT, ☐ upper GI, ☐ MRI,
☐ autopsy, ☐ other: _____

3) Large intestine injury grade (organ injury scale)(if multiple injuries list highest grade)

- ☐ Grade I: ☐ Hematoma: contusion or hematoma without devascularization or
☐ Laceration: partial thickness, no laceration
- ☐ Grade II: ☐ Laceration: <50% of circumference
- ☐ Grade III: ☐ Laceration: ≥50% circumference without transaction
- ☐ Grade IV: ☐ Laceration: transection of the colon
- ☐ Grade V: ☐ Laceration: transaction of the colon with segmental tissue loss or
☐ Vascular: devascularized segment

☐ Unable to Grade injury (*please try to grade the injury and avoid this answer*)

Grade based on most accurate assessment at autopsy, laparotomy, or radiologic study.

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Mesenteric injury: ☐ Yes ☐ No (if yes, answer questions below)

1) Location of the Mesenteric Injury:

☐ Small intestine mesentery: ☐ hematoma ☐ perforation/laceration ☐ edema

☐ Large intestine mesentery: ☐ hematoma ☐ perforation/laceration ☐ edema

☐ Other: _____

2) Method the mesenteric injury was identified (check all appropriate):

☐ laparotomy, ☐ laparoscopy, ☐ CT, ☐ upper GI, ☐ MRI,
☐ autopsy, ☐ other: _____

Complications from the GI Injury:(Check all that apply)

☐ No complications identified from the GI injury

☐ Intra-abdominal abscess (collection of pus/fluid and treated as an abscess by the treating physicians)

☐ Wound (surgical incision) dehiscence

☐ Wound (surgical incision) infection (erythema around or pus from wound considered an infection by treating physicians and given antibiotics)

☐ Sepsis (as diagnosed by the treating physicians) and caused by the GI injury

☐ Post-operative peritonitis

☐ External fistula from the GI injury

☐ Anatomic disruption of the GI tract

☐ Renal failure because of the GI injury

☐ Death from the GI injury

☐ Other: _____