

Supplemental Material
Rates and risk factors for anastomotic leak following blunt- trauma-associated bucket handle intestinal injuries: a multicenter-center study.

Table S1. Data key

case _number	
Age (years)*	Age of patient admitted; round up or down to nearest whole number
Sex* Male=0 Female= 1	Free text entry for number
Height (m)*	Numerical Value (Use 3 significant figures);
Weight (kg)*	Numerical Value (Use 3 significant figures); Use the initial recorded value if there are multiple values
Body Mass Index (BMI)*	Numerical Value (Use 3 significant figures); Use the initial recorded value if there are multiple values If not available enter NA (Not available)
ASA score (1,2,3,4 etc)	As given in note at time of index surgery
Smoking* Non-smoker=0 Past=1 Current=2	As described in anesthesia note or in patient's social history. otherwise enter NA (Not available)
Alcohol consumption Non=0 Social drinker=1 Heavy consumer=2	As described in anesthesia note or in patient's social history. otherwise enter NA (Not available)
Blood Alcohol level*	Numerical Value if available. Otherwise enter NA (Not available)
Diabetes mellitus* No=0 Yes=1	Diabetes mellitus that requires exogenous parenteral insulin or an oral hypoglycemic agent.
Hypertension* No=0 Yes=1	History of persistent elevated blood pressure requiring medical therapy.
Other comorbidities (State if any) *	Free text entry
Injury severity score (ISS)*	Numerical Value
Trauma and injury severity score (TRISS)*	Numerical Value
Abbreviated Injury Scale (AIS) Abdomen*	Numerical Value
Mechanism of Injury* MVC (Auto)=1	State if other as a free text entry

MVC/MPC(Pedestrian)=2 Fall=3 Assault=4 Motorcycle Crash (MCC)=5 Crush injury=6 Machinery=7 Other=8 (explain)	
Abdominal pain No=0 Yes=1	Obtain from ER note otherwise enter NA (Not available)
Tenderness No=0 Yes=1	Obtain from ER note otherwise enter NA (Not available)
Abdominal bruises/ abrasion No=0 Yes=1	Obtain from ER note otherwise enter NA (Not available)
Ecchymosis No=0 Yes=1	Obtain from ER note otherwise enter NA (Not available)
Traumatic abdominal wall hernia No=0 Yes=1	Obtain from ER note otherwise enter NA (Not available)
Shock No=0 Yes=1	If the patient developed shock during hospital stay at any point before the index surgery
Melena No=0 Yes=1	If the patient developed melena during hospital stay at any point before the index surgery
Systolic Blood Pressure*	First recorded systolic blood pressure
Heart Rate*	First recorded pulse in the within 30 minutes or less of Hospital arrival (expressed as a number per minute).
Time of admission*	Use military time
Time of exploratory surgery	Use military time. Time of index surgery if bucket-handle injury discovered during exploratory laparotomy; If there is no bucket handle injury enter NA (Not available)
Hospital of day of index surgery	The surgery at which the repair has been done. (Day of admission = hospital day #1)
Total number of abdominal operations during this admission	Numeric value
Bucket handle repair or anastomosis performed at which abdominal operation? Index operation = 1	Free text entry for number

Second operation = 2 Third Operation = 3 etc.	
Positive image finding for bucket-handle /mesenteric/intestinal injury in abdominal CT done prior to operation Yes = 1 No = 2	Free text entry for number
Presence of bucket handle injury No=0 Yes=1	Defined as injuries of portion of intestine has been separated from its mesentery. Terms in operative notes include “bucket handle injury”, “mesenteric avulsion”, “intestinal/mesenteric devascularization”, “telescoping avulsion injury” and “having a mesenteric defect”.
Site of injury bucket handle Injury Small Intestine – Jejunum = 1 Small Intestine – Ileum = 2 Small intestine unspecified = 3 Colon – Sigmoid = 4 Colon – other = 5 (specify)	Site of injury for bucket handle injury. When multiple state all the injuries as separate line of entry. Enter NA (Not available) if there are no bucket handle injuries (i.e., those who belong to control group)
Site of injury for other intestinal injury Small Intestine – Jejunum = 1 Small Intestine – Ileum = 2 Small intestine unspecified = 3 Colon – Sigmoid = 4 Colon – other = 5 (specify)	Sites of intestinal injuries other than bucket handle injury. When multiple state all the injuries as separate line of entry.
Management Bowel resection and primary anastomosis =1, Primary repair without anastomosis (suturing of defect) =2, Bowel resection and creation of an end colostomy =3, Primary anastomosis and diversion ileostomy= 4, Other= 5 explain	State if other as a free entry, if there are multiple bucket handle injuries/small bowel or large bowel injuries please include each management in front of each respective site
Bowel resection No=0 Yes=1	Free text entry for number
Bowel anastomosis No=0 Yes=1	Free text entry for number
Creation of ostomy No=0 Yes=1	Free text entry for number
Ostomy type End colostomy=1	Free text entry

loop ileostomy=2 other = 3 describe	
>6U Packed Red Blood Cells (PRBC) No=0 Yes=1	State if >6 unites of Packed Red Blood Cells administered during the initial operation /during initial 24 hours
WBC count (day of the index surgery)	Free text entry of the first entry
% neutrophils (day of the index surgery)	Free text entry of the first entry
Hb (day of the index surgery)	Free text entry of the first entry
Base excess (day of the index surgery) *	Free text entry of the first entry
Lactate levels (day of the index surgery)	Free text entry of the first entry
Sepsis No=0 Yes=1	Diagnosis should be made after index surgery during the hospital stay
Post-operative blood transfusions No=0 Yes=1	Total post-operative blood products given after the index operation (PRBC, FFP, Platelets, cryoprecipitate)
Surgical site infection (SSI) No=0 Yes=1	Infection involves only skin and subcutaneous tissue of the incision occurred within the first 30 days
Organ space infection No=0 Yes=1	Infection involves any part of the body deeper than the fascial/muscle layers, that is opened or manipulated during the operative procedure occurred within the first 30 days
Anastomotic leak No=0 Yes=1	Leak at anastomosis used to treat bucket handle injury.
Leak at site of primary repair No=0 Yes = 1	Leak at primary repair site, if that was treatment of bucket handle injury
Presence of diagnostic image results indicating an anastomotic or repair site leak CT=1 USS=2 Other=3	Investigations conducted on the abdomen after to the index surgery to detect anastomotic leak
Diagnostic imaging modality finding	Free text entry for image finding of the anastomotic leak
Hospital Day of diagnosis of anastomotic or repair site leak	Hospital day on which leak was diagnosed. (Day of admission = hospital day #1)
Treatment of anastomotic/repair site leak Reanastomosis=1 Primary repair=2 Ostomy=3	Free text entry for number or free text entry

Other (describe)=4	
In Hospital Mortality* No=0 Yes=1	If the patient died while in the hospital for any reason
Total length of stay (LOS)*	Free text entry for number of consecutive days patient hospitalized at initial admission (Day of admission = hospital day #1)
Total length of Intensive Care (ICU) stays*	Free text entry of the cumulative amount of time spent in the ICU. Each partial or full day should be measured as one calendar day.
Ventilator Support*	Free text entry the cumulative amount of time spent on the ventilator. Each partial or full day should be measured as one calendar day.
Unplanned readmission in 30 days No=0 Yes=1	If the patient was re-hospitalized within a month after discharge; does not include ER or outpatient visits
Reoperation in 30 days No=0 Yes=1	If the patient had >1/index surgery
90d mortality No=0 Yes=1	Includes mortalities occurring both in and outside of the hospital
Discharged with ostomy No=0 Yes=1	Free text entry for number
Ostomy reversed No=0 Yes = 1	Free text entry for number
Time taken for colostomy/ileostomy reversal if reversed	Time in months; If the information is not available NA
In-hospital events	Free text entry for post-operative complications other than those listed above.
Discharge disposition* Home=0 Rehabilitation center=1 Skilled nursing facility/long term care = 2 Morgue=3	Free text entry for number

*Data that can be directly obtained from trauma registry; rest should be obtained from OP notes and ER notes and discharge summary

Table S2. Baseline characteristics of patients who underwent DCS

Characteristic	Anastomotic leak (n = 24) mean \pm SD/ n (%)	No leak (n = 168) mean \pm SD/ n (%)	P value
Age	44.04 \pm 16.72	38.66 \pm 16.35	0.150
Sex (males)	18 (75)	119 (70.8)	0.856
BMI	31.13 \pm 7.43	28.35 \pm 5.6	0.090
ISS	27.25 \pm 12.84	26.11 \pm 12.04	0.686
TRISS	0.84 \pm 0.21	0.83 \pm 0.28	0.877
AIS abdomen	3.42 \pm 0.83	3.43 \pm 0.82	0.948
≥ 1 comorbidity	15 (62.5)	70 (42.7)	0.109
SBP	114.54 \pm 23.22	113.68 \pm 27.09	0.869
Presented with Shock	12 (50)	81 (48.5)	1.000
HR	102.71 \pm 20.61	106.12 \pm 25.89	0.469
WBC	15.83 \pm 8.62	15.66 \pm 7.73	0.932
Hb	11.6 \pm 2.61	12.09 \pm 2.22	0.401
BE	-4.97 \pm 7.51	-4.82 \pm 5.38	0.939
Lactate	5.82 \pm 3.43	4.16 \pm 2.59	0.130

Abbreviations – BMI: Body Metric Index. ISS: Injury Severity Score. TRISS: Trauma and Injury Severity Score. AIS: Abbreviated Injury Scale (Abdomen). SBP: Systolic Blood Pressure. HR: Heart Rate. WBC: White Blood Cells. Hb: Hemoglobin. BE: Base Excess.