Manchester Cancer

Central Manchester University Hospitals NHS
NHS Foundation Trust

Greater Manchester and Cheshire HPB Unit Guidelines for the Assessment & Management of Hepatobiliary and Pancreatic Disease

Chapter 16

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16. HPB trauma

16.1. *Massive Haemorrhage Protocol*

Example ACTION CARD: MANAGEMENT OF THE ADULT BLEEDING PATIENT ON MEDICAL / SURGICAL WARDS

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Appendix A

Patient Bleeding

Assess and Initiate Resuscitation

Airway - administer high flow oxygen via facemask
Breathing - attach basic monitoring (O_2 Sats + NIBP)
Circulation Insert large bore IV cannulae x 2 and take blood samples for FBC, U&E, PT, APTT, PT, Fibrinogen, Crossmatch
Disability: assess cause of blood loss.
Exposure: maintain normothermia
STOP THE BLEEDING – direct pressure, tourniquet or other simple techniques as appropriate to reduce bleeding
If variceal bleed suspected, ensure antibiotics (Augmentin 1.2 gm or I.V Ciprofloxacin 400 mg (in Penicillin allergy) and I.V Terlipressin 2 mg given.
Near patient tests: ABG, lactate, Ca^{2+}, TEG if available

Both

Call for Help

Fast Bleep (call 2222) & request the following to attend:

- Registrar on call for medicine / surgery
- FY2 on call for medicine / surgery

Ongoing severe bleeding (e.g. 150ml/min) or **clinically shocked**
If immediate transfusion is required, emergency O negative blood can be accessed and used prior to 4444 activation

Additional support if required:
Anaesthetic On Call Support Fast Bleep (call 2222) Anaesthetic 2nd on call and Emergency Anaesthesia Practitioner if required to:

- Aid resuscitation/transfusion management or
- Possible transfer to theatre

Senior Nurse Bleep Holder for MRI / Eye Hospital (2677)
Fast Bleep (call 2222) to request attendance if support required

Activate Massive Haemorrhage Pathway

- **Complete Form A**
- For Blood and Blood Components **call 4444** and state '**Adult Massive Haemorrhage, location '** to notify:
  - Emergency Porter to attend Ward/Transfusion Laboratory
  - Transfusion Laboratory – stay on line to give details of patient and requirements

Order Massive Haemorrhage pack 1 (see overleaf)
O Neg availability: location of supply: 6 units Adult Emergency Dept, 2 units General Theatres (first floor MRI), 2 units CDU, 2 or more units Transfusion Laboratory

Assign Team Roles
Team Leader assigned by senior clinician present (preferably consultant)
Team Leader allocates the following team roles:

- Resuscitation Lead (A,B,C,D,E)
- Communication Lead
- Scribe
- Transport of blood samples and components

Communication Lead's Roles

As guided by team leader:

- **Inform appropriate consultant on call ASAP via switch**
- Liaise with Transfusion Laboratory +Emergency Porter (following activation via 4444)
- **Contact Haematology Reg on call for advice as required**
- Call support from other specialties as required (depending on cause of haemorrhage)
- If transfer to Emergency Theatre required call:
  - Senior Nurse in Theatre 6 (bleep 7209)
  - Senior Registrar Anaesthetist On Call (Bleep 4551)
  - Perfusionist (Cell Salvage) if appropriate 65778 in core hours and via switch out of hours

Scribe's Roles

- Label blood samples
- Print request forms
- Check blood components
- Record events and complete form A

Ongoing assessment and resuscitation

- Repeat Bloods
- Order Massive Haemorrhage Pack 2
- Consider Tranexamic acid (especially trauma)
- Prothrombin Complex Concentrate / Vitamin K if on warfarin

Definitive Management Plan

- Transfer to theatre should not be delayed if clinically indicated to stop haemorrhage
- The consultant responsible for the patient (or consultant on call) **must** be involved

Guidelines for the Management of M *e 17 of 27*
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Stand Down
Inform lab
Return unused components
Complete documentation including audit

MANAGEMENT OF THE ADULT BLEEDING PATIENT ON MEDICAL / SURGICAL WARDS

Supporting information

Transfusion laboratory
☎64400 or 12234 09:00 – 20:00
Bleep 2525 or 3843 Out of hours
Haematology SpR / Haemostasis consultant ☎ via switchboard

ABG – Arterial Blood Gas
APTT – Activated partial thromboplastin time
ATD –Adult Therapeutic Dose
FFP – Fresh Frozen plasma
PT –Prothrombin Time
TEG –Thromboelastography

Massive Haemorrhage Pack 1

Red cells*	4 units
FFP	4 units

(*Emergency O blood, group specific blood, crossmatched blood depending on availability)

Massive Haemorrhage Pack 2

Red cells	4 units
FFP	4 units
Platelets	1 dose (ATD)

and subsequently request Cryoprecipitate 2 packs if fibrinogen <1.5g/L (or < 2g/L) in obstetric haemorrhage) or according to TEG

Haemostatic Drugs
Tranexamic acid: in trauma commence within 1 hour of presentation: 1g intravenous bolus followed by 1g intravenously over 8 hrs
Vitamin K and Prothrombin Complex Concentrate for warfarinised patients and **other haemostatic agents**: Discuss with Haematology SpR / Haemostasis consultant
Terlipressin and Antibiotics in suspected variceal bleeding: I.V Augmentin 1.2 gm or I.V Ciprofloxacin 400 mg (in Penicillin allergy) and I.V Terlipressin 2 mg given.

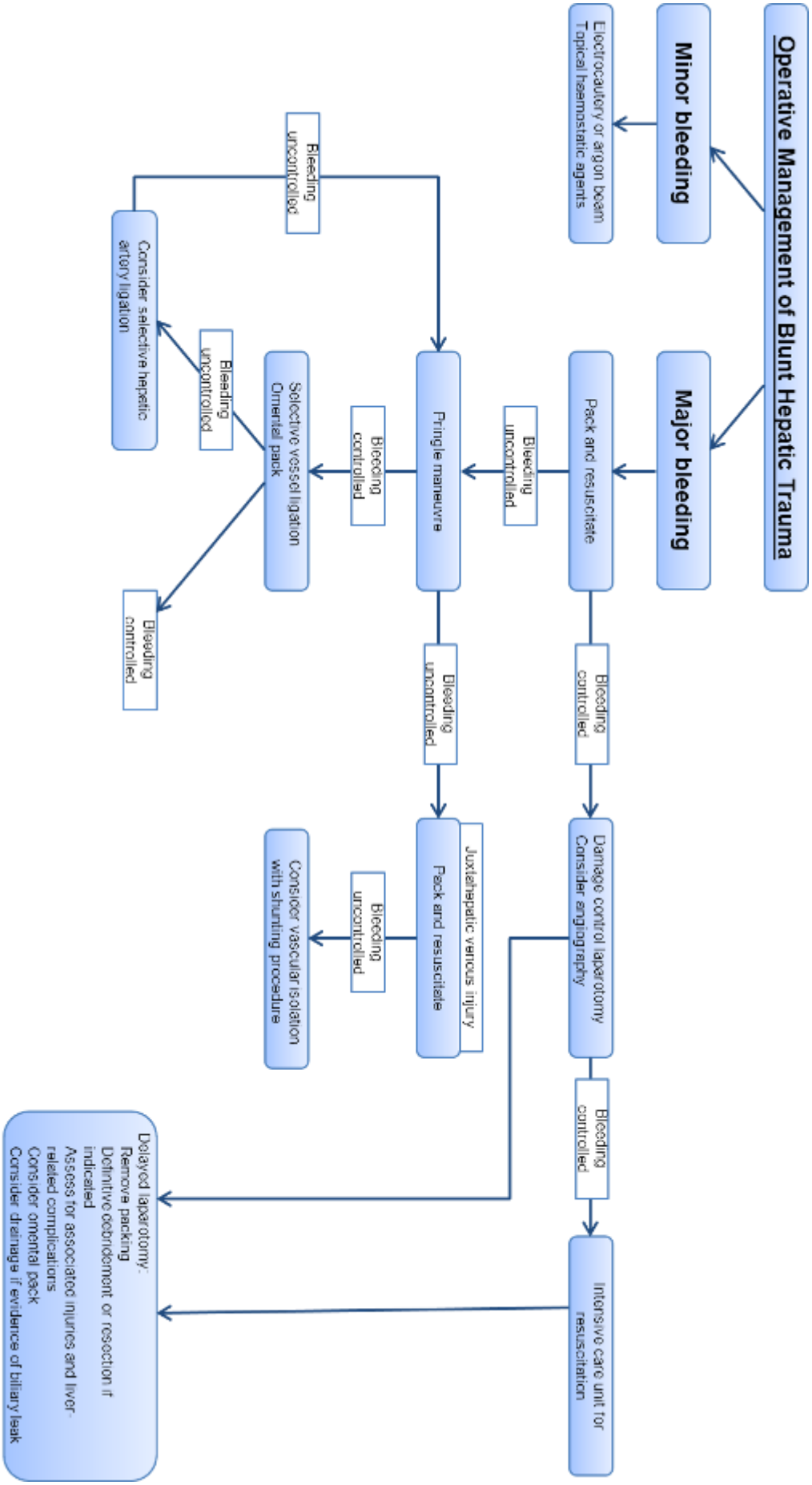
Aims for therapy
Aim for:

Hb	80-100g/L
Platelets	>75 x 10^9/L
PT ratio	< 1.5
APTT ratio	<1.5
Fibrinogen	>1.5g/L
Ionised Ca^{2+}	>1 mmol/L
Lactate	<2mmol/L
Temp	> 36°C
pH	> 7.35 (on ABG)

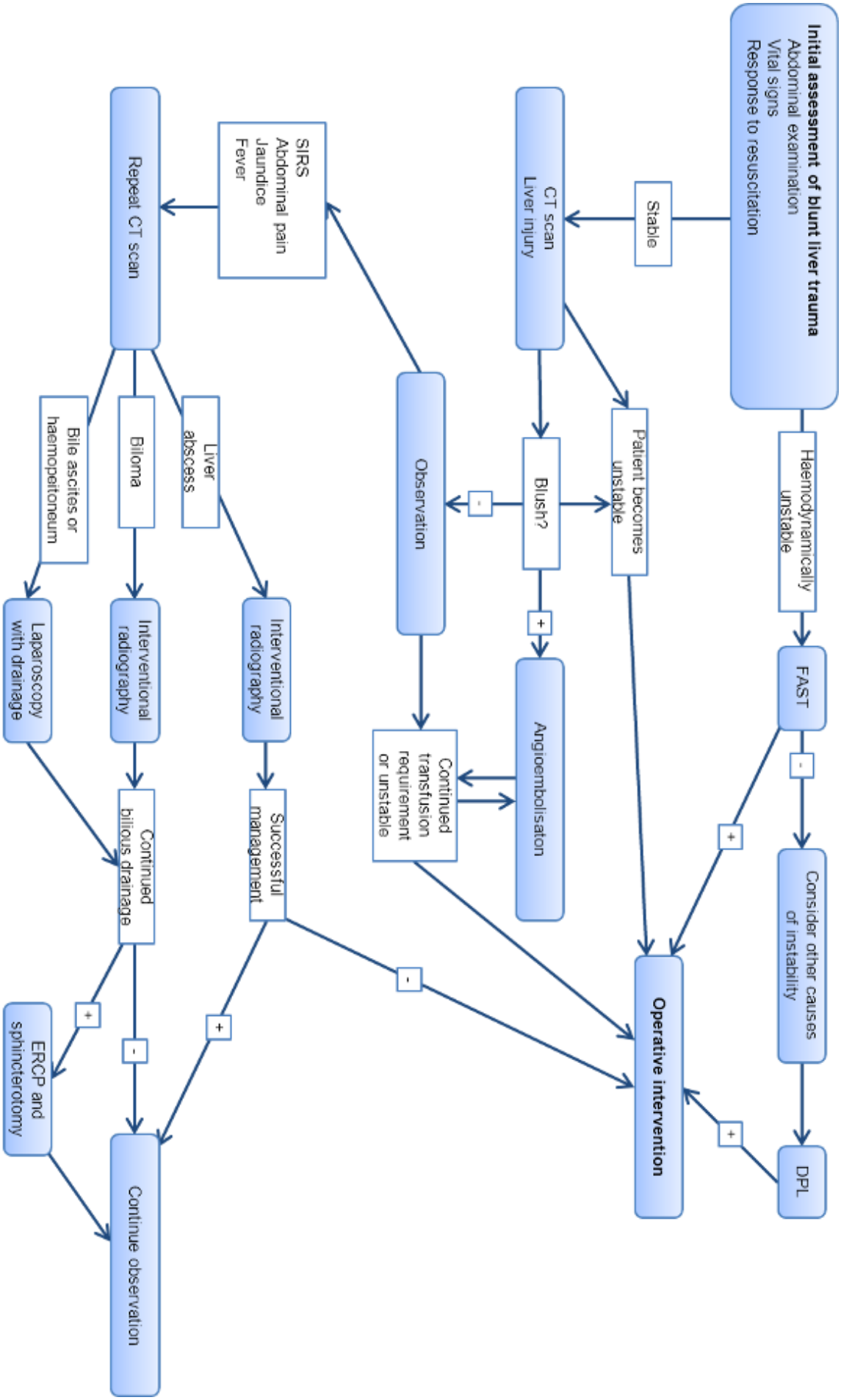
Monitor for hyperkalaemia

Specific practice points for haemorrhage management in this clinical area

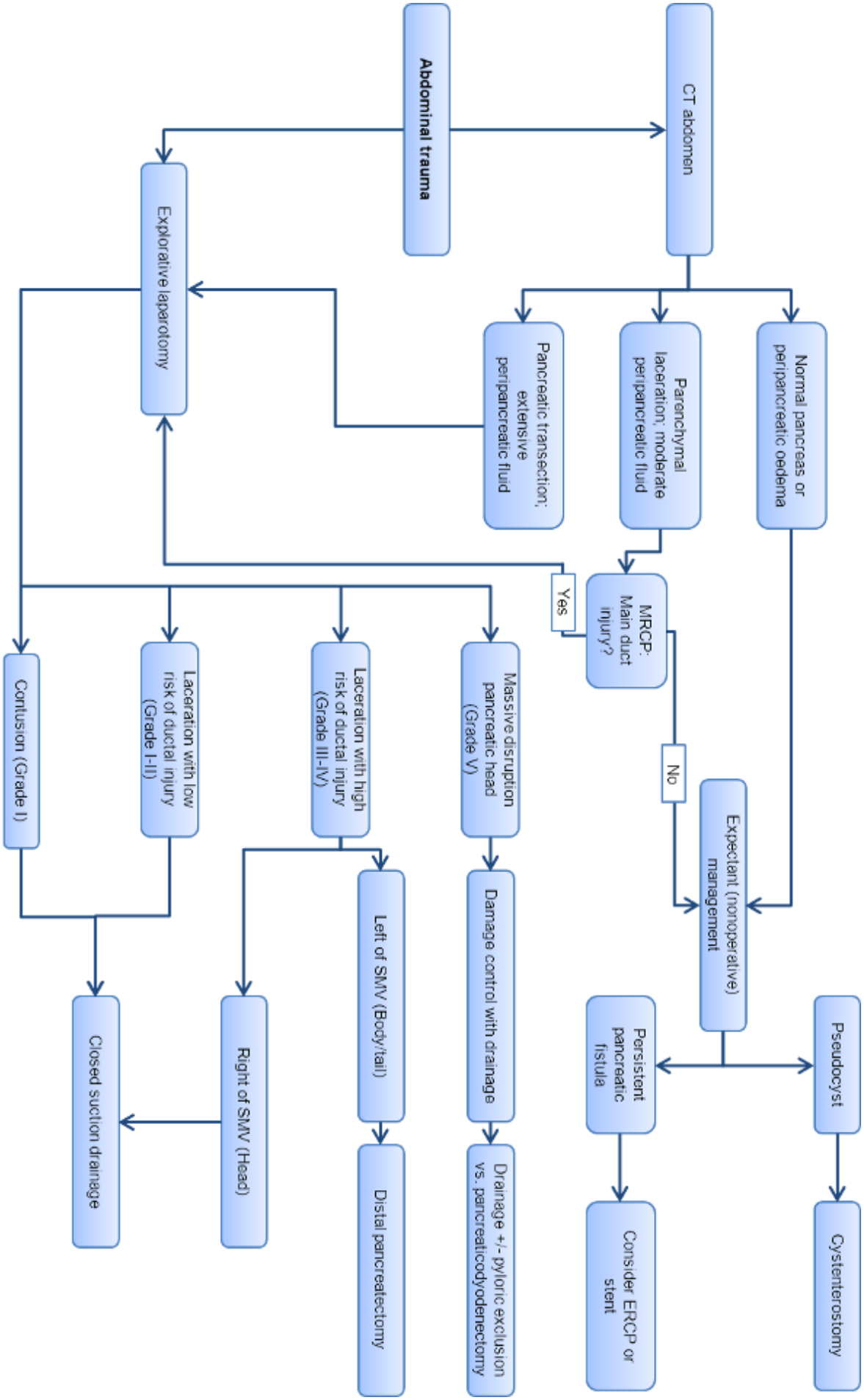
16.2. *Operative management of blunt hepatic trauma*



16.3. *Non-operative management of adult blunt hepatic trauma*



16.4. *Management of pancreatic injuries*



16.5. *AAST Liver Injury Scale*

Grade*	Type of Injury	Description of injury
I	Hematoma	Subcapsular, <10% surface area
	Laceration	Capsular tear, <1cm parenchymal depth
II	Hematoma	Subcapsular, 10% to 50% surface area intraparenchymal <10 cm in diameter
	Laceration	Capsular tear 1-3 parenchymal depth, <10 cm in length
III	Hematoma	Subcapsular, >50% surface area of ruptured subcapsular or parenchymal hematoma; intraparenchymal hematoma > 10 cm or expanding
	Laceration	>3 cm parenchymal depth
IV	Laceration	Parenchymal disruption involving 25% to 75% hepatic lobe or 1-3 Couinaud's segments
V	Laceration	Parenchymal disruption involving >75% of hepatic lobe or >3 Couinaud's segments within a single lobe
	Vascular	Juxtahepatic venous injuries; ie, retrohepatic vena cava/central major hepatic veins
VI	Vascular	Hepatic avulsion

16.6. *AAST Pancreas Organ Injury Scale*

Grade*	Type of Injury	Description of injury
I	Hematoma	Major contusion without duct injury or tissue loss
	Laceration	Major laceration without duct injury or tissue loss
II	Hematoma	Involvijng more than one portion
	Laceration	Disruption <50% of circumference
III	Laceration	Distal transection or parenchymal injury with duct injury
IV	Laceration	Proximal (to right of superior mesenteric vein) transection or parenchymal injury
V	Laceration	Massive disruption of pancreatic head