Ultrasound Guided Serratus Anterior Plane Block Standard Operating Procedure UHL Emergency Department (LocSSIP)

Change Description	**Reason for Change**
☐ Change in format	☐X Trust requirement

APPROVERS	**POSITION**	**NAME**
Person Responsible for Procedure:	Consultant	Dr David Ridley
SOP Owner:		
Sub-group Lead:		

Appendices in this document:

List all appendices that feature at the end of this document e.g. Safe Surgery Checklist, Team Brief/De-brief. The list will be made into hyperlinks by the Surgical Safety team or the Policies and Guidelines Admin team, to enable speedy access to each section.

- Emergency Department Serratus Anterior plane Block Record
- Patient information - Serratus Anterior Plane Block

Introduction and Background:

1.1. Serratus Anterior Plane Block is a regional local anaesthesia technique for providing analgesia for anterolateral rib fractures. It can provide effective pain relief for up to 14 hours in acute rib fractures. It is a relatively simple procedure to perform and should be used as part of multi-modal approach to analgesia.

1.2. Rib fractures are a common injury during trauma and this technique can assist in providing good analgesia for anterolateral rib fractures. This can improve patient comfort and experience particularly when waiting for hospital bed at base ward or CDU.

1.3. Advantages include, technically easy to perform, can be performed supine, suitable if associated spinal or head injury, can be used if coagulopathy, aids reducing opiate requirements.

1.4. Procedure adheres to national standards for invasive procedures.

1.5. Indications:

- Two or more acute anterior, anterolateral or lateral rib fractures
- Opioid analgesia and or oxygen requirement

1.6. Contraindications

Absolute:

- Local anaesthetic allergy
- Risk of Local anaesthetic toxicity (eg. If already had other regional / LA block performed)
- Local infection at site
- Patient refusal

Relative

- Inadequate assessment of sonoanatomy (eg. Obese patient)

List management and scheduling:

2.1 Serratus Anterior Plane Block (SAPB) pathway, training and governance will be led by the relevant ED consultants.

2.2 All clinicians must have completed the LRI ED Serratus Anterior Plane Block training.

2.3 Clinicians performing the procedure should have direct supervision by a suitable consultant until they are signed off for independent practice.

2.4 As this is carried out in an emergency department no formal listing is required, the procedure will be performed by a suitably trained clinician subject to availability at the time.

Patient preparation:

3.1. Patient assessment:

- Confirm the diagnosis of rib fractures through clinical examination and imaging.
- Assess contraindications such as local infection, coagulopathy, or allergy to local anaesthetics
- Imaging will typically include some or all of: X-ray, Cross sectional CT and ultrasound.

3.2. Informed Consent

- Obtain informed consent from the patient or their legal representative, explaining the procedure,

potential risks, benefits, and alternatives

3.3. Advantages include, technically easy to perform, can be performed supine, suitable if associated spinal or head injury, can be used if coagulopathy, aids reducing opiate requirements.

3.4. Contraindications : Patient Refusal, infection at site needle entry, local anaesthetic toxicity.

3.5. Potential Complications: Pneumothorax, Vascular puncture, Nerve damage, Infection, Failure / inadequate procedure, local anaesthetic toxicity, infection.

Workforce – staffing requirements:

4.1. One qualified clinician is required to perform this procedure, an assistant is typically required to assist with the injection of the anaesthetic if both hands of the clinician are occupied holding both the needle and the ultrasound. The assistant does not need to be a clinician but needs to be competent to use the syringe. In this circumstance the assistant is merely acting as a physical operator under direction of the clinician, the clinician is considered to be giving the drug.

4.2. In the event of a complication normal procedure will be followed of calling for help and the appropriate clinician taking charge of the situation

Training:

4.3 Serratus Anterior Plane Block (SAPB) pathway, training and governance will be led by the relevant ED consultant.

4.4 All clinicians will be trained by completing the LRI ED Serratus Anterior Plane Block teaching package. This will include direct a mixture of theory and direct teaching and supervision.

4.5 Clinicians performing the procedure should have direct supervision by a suitable consultant until they are signed off for independent practice.

Ward checklist, and ward to procedure room handover:

5.1 No formal handover is required prior to this procedure as it as all elements are ED based. The procedure will be recorded in the notes and will be included in the standard handover procedures.

Procedural Verification of Site Marking:

6.1 Formal marking is note required, the site of procedure will be confirmed including with the patient,

reviewing images of Xray / CT, consent process and timeout.
Team Safety Briefing:
7.1 Briefing of the procedure will take place at bedside during the time out.
Sign In:
8.1 Patients will already be in the emergency department so do not need formerly signing in
Time Out:
9.1 Timeout will occur just prior to the procedure and will include the patient who ill be encourage to be part of this. 9.2 Steps will including confirming patient details, site of block, reason for performing, max dose to be given of anaesthetic, equipment present and ultrasound use.
Performing the procedure:

Equipment Required

10.1 SAPB equipment will be held as part of a dedicated pack held in the Emergency Room (ER) and will include the following:

- 2% Chlorhexidine skin cleaner wand 5ml
- X4 20ml Local anaesthetic low pressure laur lock syringes (yellow)
- X2 Drawing up needle
- Insulated ultrasound 50mm needle
- X1 gauze 20mm x 20mm pack
- X1 band aid type plaster
- 5ml syringe for skin local anaesthetic
- Sterile probe cover
- Sterile drape
- 25G orange needle for skin infiltration

Assessment and Procedure

10.2. Preparation - Ensure the availability of necessary equipment, including:

- Ultrasound machine
- Sterile gloves
- Local anaesthetic - 1% lidocaine for skin & 0.25% (2.5mg/ml L/Bupivicaine)
- SABP pack with full kit as previous listed
- IV access gained
- Monitoring including NIBP, Spo2, ECG

10.3. Positioning

- Place in comfortable position - either supine or seated
- Place Ultrasound machine in optimal position for image and user comfort

10.4. Ultrasound guidance

- Identify the rib space (5th IC) using ultrasound imaging.
- Locate the Serratus Anterior muscle and the rib to guide needle insertion accurately

10.5. Procedure Steps

- Wash hands and wear sterile gloves
- Clean the skin overlying the injection site with an antiseptic solution
- Administer local anaesthesia to the skin and subcutaneous tissue
- Insert the needle under ultrasound guidance, directing it toward the Serratus Anterior muscle
- Confirm needle placement within the muscle by visualizing the spread of local anaesthetic using ultrasound
- Aspirate to ensure the needle is not in a blood vessel

- Slowly inject the local anaesthetic, visualizing its distribution on ultrasound
- Repeat the procedure for additional injection sites as needed (ie if bilateral fractures but note maximum dose of local anaesthetic (2mg/Kg for L/Bupivicaine) should be split between sides of bilateral blocks required.

10.6. Post Procedure Care

- Monitor patient for adverse reactions for 30mins, observations at 5, 10, 15, 30mins
- Provide other analgesia if needed.
- Document procedure on SAPB Procedure Record

10.7. Follow up

- Check patient at 30mins post procedure to ensure adequacy of block and address and other issues
- Observations to be carried out 5, 10, 15 and 30 minutes post procedure

Monitoring:

11.1 Intravenous access should be obtained, monitoring including ECG, oxygen saturations and NIBP with baseline observations should be completed.

Prosthesis verification:

Not Applicable

Prevention of retained Foreign Objects:

12.1. This is not an open procedure so retained item is not possible, however the clinician performing the procedure must adhere to standard practice of accounting for all sharps and disposing of them at bedside.

Radiography:

12.2. The confirmation of rib fractures will be a combination of clinical assessment, plain X-ray and CT scan.

Sign Out:
Not applicable
Handover:
13.1. The procedure will be recorded in the medical notes and information f the block will be passed on during standard handover practices between clinicians and nursing staff either at shift changes or transfer to ward.
Team Debrief:
14.1. As this is completed by a single clinician no formal debrief is required. Any complication or clinical issue will be raised to the Emergency Physician in charge of ED, any equipment issues will be passed on to the relevant equipment lead and / or ED equipment team.
Post-procedural aftercare:
14.2. Patient must remain in the Emergency department for 30mins post procedure. 14.3. Post procedure observations will include standard observations at 5, 10, 15 and 30mins 14.4. 2x Serious complications include: • Pneumothorax – look for: dyspnoea, chest pain, signs of hypoxia • Intra-vascular injection and local anaesthetic toxicity (Very rare) – look for : Peri-oral numbness, tinnitus, bradycardia, ECG changes, dizziness, drowsiness / falling GCS, hypotension, coma, seizures, cardiac arrest 14.5. In the case of either of the above complications follow standard resuscitative treatment. Local anaesthetic toxicity is treated with intra-lipid.

Discharge:

15.1. If this procedure is performed in ED patients will typically be admitted for on going management

15.2. In rare occasions it may be appropriate to discharge patients back to either other services (eg. Community hospital / hospice / care home etc) if it is clear that hospital admission is not in their interests or is declined. In this situation, the discharge letter should include details of the procedure performed. An information leaflet should be provided including risks and common complications to be aware of. If performed pre-hospital (by PRU) then the patient should be observed for 45mins post procedure and details recorded on relevant clinical records and patient discharge and information paperwork provided.

Governance and Audit:

16.1. A safety incident would include a significant complication of the procedure including; arterial or venous local anaesthetic injection, pneumothorax, local anaesthetic toxicity, wrong site blockade.

16.2. The above and other incidents should be reported by the Datix system and investigated via the normal processes (OP-G/COTD). The datix does not need to be investigated by the clinical lead for this procedure but if additional expertise is required then and opinion of appropriate consultant lead should be sought.

16.3. Any learning from errors should be disseminated via the normal clinical governance channels.

16.4. Outcomes and compliance with the Loccsip should from time to time be audited, however, given the numbers are likely to be small then it is recognised that this will likely happen infrequently.

Training:

17.1. Clinicians will be trained with a combination of theoretical learning, practical demonstration and supervised practice prior to being signed off as independent to perform this procedure.

Documentation:

18.1. The procedure will be documented in the patient's notes by way of a procedure record for Serratus Anterior Plane Block form – this is currently paper but may be uploaded to the electronic notes and may in the future change to be incorporated within the paper light system on nervecentre. (see appendix for form).

References to other standards, alerts and procedures:

For all procedures include reference to NatSSIPs and the UHL Safer Surgery Policy:

National Safety Standards for Invasive Procedures, NHS England 2015:
https://www.england.nhs.uk/patientsafety/wp-content/uploads/sites/32/2015/09/natssips-safety-standards.pdf
UHL Safer Surgery Policy: B40/2010
UHL Sedation Policy: Safety and Sedation of Patients Undergoing Diagnostic and Therapeutic Procedures B10/2005
UHL Consent to Treatment or Examination Policy A16/2002
UHL Delegated Consent Policy B10/2013
UHL Guideline: Anticoagulant Bridging Therapy for Elective Surgery and Procedures B30/2016

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