

Note: Guidance comments are written in *italics*

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| <i>Extravasation injuries</i> |
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| Amendments | | | |
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| Date | Page(s) | Comments | Approved by |
| 03/16 | ALL | Completely updated guideline | |

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Date Ratified: *March 2016*

Date Issued:

Review Date: *March 2019*

Target Audience: *e.g. All staff / All nursing staff / All Non-clinical staff /
All Clinical Staff / All administrative staff*

Impact Assessment Carried Out By:

Comments on this document to:

ASHFORD & ST. PETER'S HOSPITAL NHS FOUNDATION TRUST

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| POLICY/GUIDELINES NAME |
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See also: *Reference to any other pertinent policies/procedures/guidelines*

Corporate font is Arial and font size is 11. Paper margins must be 2cm all round.

*Main headings should be in CAPITAL LETTERS and **bold**.*

Sub heading should be in CAPITAL LETTERS AND underlined.

1. INTRODUCTION

Extravasation is defined as the inadvertent leakage of infused fluid into the surrounding tissue. The resultant damage to tissue can be very serious ranging from skin loss and tendon damage to loss of digits or limb.

About 4% of infants leave neonatal intensive care units with cosmetically of functionally significant scars, thought to be caused by extravasation injuries.

A survey of regional neonatal units in the United Kingdom determined a prevalence of 38 per 1000 neonates who sustained an extravasation injury that caused skin necrosis with 70% of these injuries occurring in infants of 26 weeks or less gestation.

Most extravasations occur from extravasation of peripheral venous cannulae (93%) with the veins in the dorsum of the foot and the back of the hand being most vulnerable.

2. PURPOSE

3. DUTIES/RESPONSIBILITIES

The management of extravasation is partially dependent on the characteristics of the extravasated agent and include limb elevation, exposure of affected site, occlusive dressing, use of hyaluronidase and use of topical nitroglycerin

Once extravasation has occurred it may be difficult to predict whether a soft tissue complication will occur or whether the leak will dissipate without problems.

NOTE : ONCE A SIGNIFICANT EXTRAVASATION HAS OCCURRED,

1. Notify the neonatal doctor immediately
2. Fill in a wound assessment form
3. Complete Datix form

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4. Take a photograph of the site. Parental consent **MUST** be obtained before the pictures are printed and attached to the patient's records, but treatment should be initiated without delay. If consent is refused, then pictures must be deleted

5. Use **HYALURONIDASE as soon as possible.**

ACTION

| Grade1 | Grade2 | Grade3 | Grade4 |
|--------------------------------------|---------------|---|---------------|
| 1. Remove all splints and tapes | | 1.Remove all splints and tapes | |
| 2. Elevate limb | | 2.Elevate limb | |
| 3. Document and communicate findings | | 3.Document and communicate findings 4.Inform Consultant 5.Photograph site 6.Identify extravasated drug/infusion 7. Consider active treatment. | |

HYALURONIDASE FOR EXTRAVASATION INJURIES MATERIALS

- 0.5% Lignocaine/Xylocaine (no adrenaline)
- 1 vial Hyaluronidase (1500units). Dilute with 1.5ml of normal saline as per neonatal formulary
- 250ml Normal saline
- 20 or 50cc syringe
- 2x 10ml/ 50ml syringes
- 2 x 21G green needles 2 x 25G orange needles
- 23/25 gauge cannula
- 1 kidney dish.

METHOD (ASEPTIC CONDITIONS)

Remove the cannula

GIVE SUCROSE

1. Infiltrate local anaesthetic agent in and around the extravasation site
2. (0.3ml/kg maximum) Wait 3-5 minutes after infiltrating the anaesthetic agent
3. Using a 25G needle, infiltrate hyaluronidase in 0.3 – 0.5 ml aliquots into the subcutaneous tissue (1 vial is diluted with 1.5ml of normal saline)
 - in 3-4 separate sites around the extravasation aiming at the centre of the site. Wait 3 – 5 minutes after administering the hyaluronidase
4. Make multiple small exit wounds with a green needle around the periphery of the area and within the affected area

5. * Flush 20-50ml of normal saline through the subcutaneous space in 3-5ml aliquots. The saline is irrigated through 4-5 of the exit wound sites, exiting as a shower through the remainder. (*The amount of fluid used depends on the size of the baby and extent of the wound)
6. Gentle massage of the limb can be done to express fluid through the injection site
7. Apply a sterile non-stick dressing and place the limb in a comfortable neutral position.
8. The site must be reviewed on a regular basis
9. Post procedural photographs are recommended
10. If necessary, the patient will be followed up by the plastic surgery service in conjunction with the neonatal service (community and outpatient follow up)

Saline flush-out technique

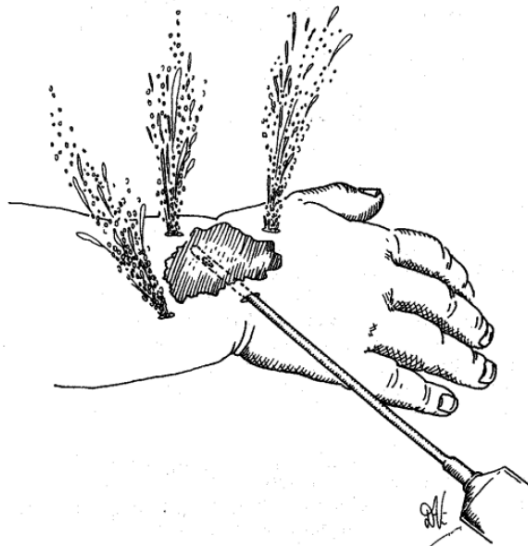


Figure 2 Saline flushout technique using a Verres needle.

GLYCERINE TRINITRATE (GTN) FOR EXTRAVASATION INJURIES AND ISCHAEMIC INJURIES

Nitroglycerin increases collateral circulation to the local area of peripheral venous ischemia and has been found to be useful to use after extravasation with certain agents. These have included dopamine, adrenaline and TPN.

It has also been found to reduce peripheral vasospasm caused by indwelling umbilical arterial catheters and peripheral arterial lines. A patch or ointment can be used. The latter is preferred when used on irregular joints.

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The main side effect is systemic vasodilatation and a rise in methaemoglobin level. The blood pressure needs to be monitored on regular basis. If used for prolonged periods, measure methHb levels.

CURRENT INDICATIONS FOR USE

Ischaemia secondary to arterial cannulation

TREATMENT

If there is persistent blanching or duskiness of the peripheries of the affected limb, remove the catheter/cannula.

Keep under close observation.

If the vasospasm does not improve in a few minutes, apply a GTN patch

DOSAGE AND DURATION

TRANSDERMAL PATCH

Apply a 18.5mg patch (delivers 5mg/day) to the affected area for 24 hours or less
Review and reassess on a regular basis.

If required reapply a patch and review at regular intervals

4. DISSEMINATION AND IMPLEMENTATION

EXTRAVASATION GRADING.

ASSESSMENT:

| Grade1 | Grade2 | Grade3 | Grade4 |
|-----------------------|-----------------------|-------------------------|--------------------------------------|
| Pain at infusion site | Pain at infusion site | Pain at infusion site | Pain at infusion site |
| No swelling | Swelling | Swelling | Swelling |
| | No skin blanching | Skin blanching | Skin blanching |
| | | Capillary refill normal | Reduced capillary refill |
| | | | +/- Decreased or absent distal pulse |
| | | | +/- Blistering or skin breakdown |

5. MONITORING OF COMPLIANCE

RISK FACTORS AND DRUGS/INFUSION COMMONLY ASSOCIATED WITH TISSUE DAMAGE INCLUDE:

| Patient Factors | Drugs and Fluids |
|---|--|
| Extreme Prematurity | Dextrose greater than 12.5% Concentration |
| Infusion of irritant or Vasoactive drugs and fluids via peripheral venous canulae | Parental Nutrition (TPN) Fluids containing calcium, Potassium, Bicarbonate, Hypertonic dextrose, Vasoactive drugs eg: Dopamine, Dobutamine, Adrenaline and Antibiotics Blood |

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6. EQUALITY IMPACT ASSESSMENT

Document all findings and actions, with timings, very carefully in the notes.

Make drawings and take photos (parental consent needed) where possible.

7. ARCHIVING ARRANGEMENTS

This is a Trust-wide document and archiving arrangements are managed by the Quality Department, who can be contacted to request master/archived copies.

8. REFERENCES AND BIBLIOGRAPHY

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ADDITIONAL READING

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9. APPENDICES

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