

Extravasation

For use in (clinical areas):	Oncology/Haematology Unit (excluding Paediatrics)
For use by (staff groups):	Oncologists, Haematologists, Nursing Staff
For use for (patients):	Oncology/Haematology patients receiving chemotherapy
Document owner:	Cytotoxic User Group
Status:	Approved

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1 Purpose

1.1 To minimize the risk of permanent tissue damage by the quick effective management of suspected extravasation of cytotoxic drugs.

2 Documentation

The following documentation should be completed. Please refer to section 3.9 for further details.

- 2.1 Nursing documentation
- 2.2 Medical notes
- 2.3 WSH NHS Trust Accident/Incident Book
- 2.4 Extravasation report green card (in extravasation pack)
- 2.5 WSH (NHS) Trust Extravasation Documentation Report

3 Description

3.1 General Principles

3.1.1 Speed of diagnosis and prompt initiation of treatment is imperative in the effective management of vesicant extravasation of cytotoxic agents.

3.1.2 Extravasation of a vesicant drug should be treated as a medical emergency and treatment should ideally be initiated within 1 hour of the incident.

3.1.3 All treatment interventions must be prescribed and administered by a Consultant or SpR. Under exceptional circumstances the prescribing can be delegated to another doctor and the administration to an agreed delegated person.

3.1.4 Treatment will be dependant on the classification of the cytotoxic drug (see section 3.3).

3.1.5 The patient's Consultant must be informed of any extravasation of vesicant drugs. Out of hours the relevant on-call consultant should be informed

3.1.6 All extravasations of vesicant drugs should be discussed with a plastic surgeon (see section 3.6 and 3.7)

3.1.7 If clinical judgment dictates alternative treatment to that described in this protocol full details of the rationale and the intervention should be documented in the patient's notes.

3.2 Diagnosis

3.2.1 Extravasation refers to the accidental infiltration of a drug that has been administered via the intravascular route into surrounding subcutaneous tissues. It can be associated with extensive tissue damage.

3.2.2 Extravasation should be suspected if a combination or all of the following symptoms occur:

- Increased resistance when administering IV drugs
- Lack of blood returned from the cannula/CVAD
- Change in infusion quality, i.e. reduce flow rate
- Any change in colour such as redness/blanching at the injection site
- Swelling or oedema around the cannula
- Pain or discomfort around the cannula site (stinging or burning)
- Inflammation, erythema or blistering around the infusion site

Note: Individually the above points are not diagnostic but in combination they may indicate extravasation.

3.2.3 The degree of damage caused by extravasation relates to the amount of drug extravasated and the speed with which it is recognized and treated. Therefore drugs which are normally regarded as non vesicant should be treated as a vesicant if they have extravasated in large volumes e.g. 5-10mls.

3.2.4 Delays in recognition and treatment can increase the risk of tissue necrosis.

3.3 Classification of Cytotoxic Drugs

Drugs are classified in this protocol according to whether they are **irritant, exfoliant, non-vesicant** or **vesicant**. Treatment of vesicant extravasation is further classified as anthracycline or non-anthracycline.

Vesicant: capable of causing pain, inflammation and blistering of the skin, underlying flesh and necrosis, leading to tissue death and necrosis.

Exfoliant: capable of causing inflammation and shedding of the skin but less likely to cause tissue death.

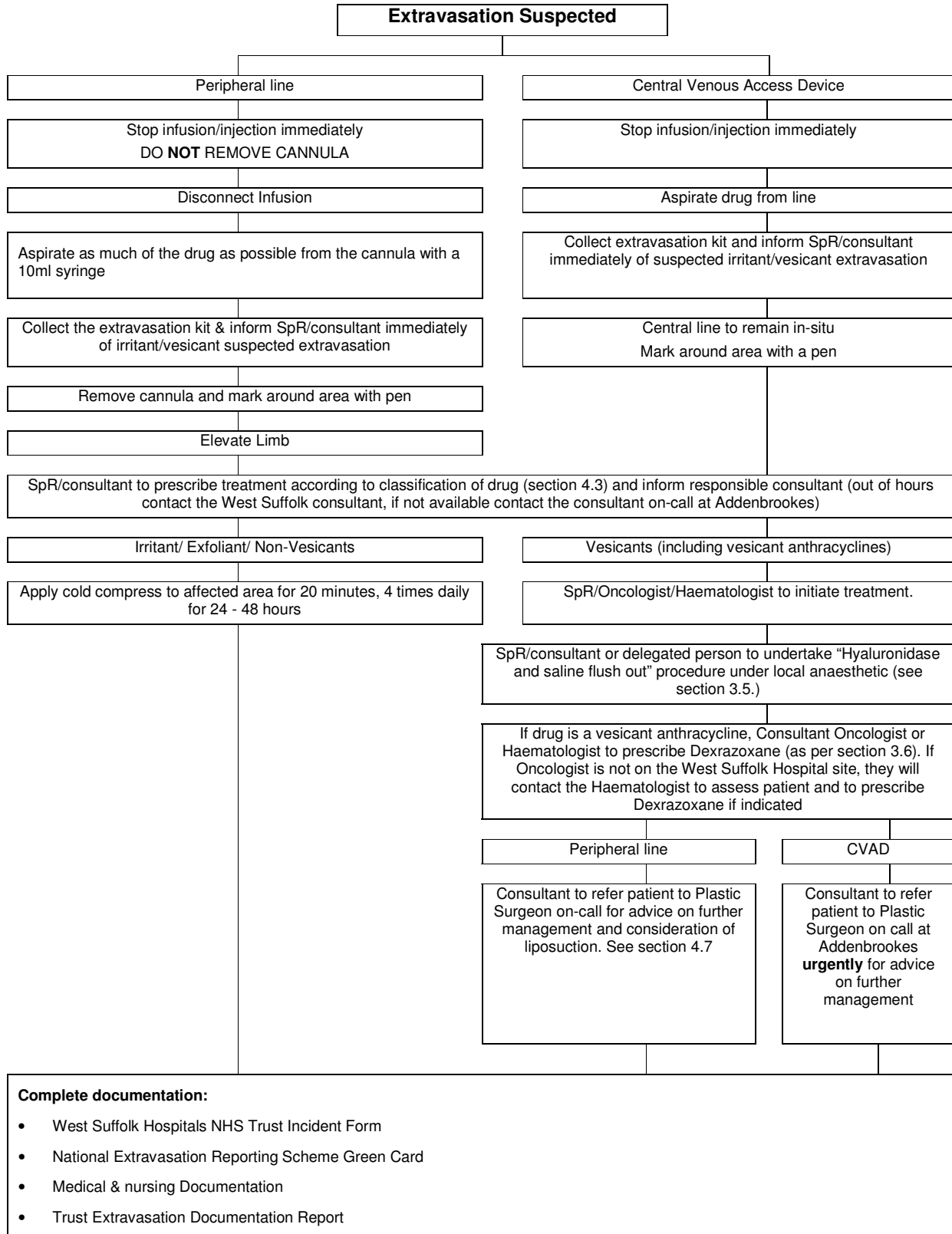
Irritants: capable of causing inflammation and irritation, rarely proceeding to breakdown of tissue.

Drug	Classification	Treatment
Aclarubicin	Irritant/Exfoliant/Non Vesicant	Cold compress
Actinomycin D (Dactinomycin)	Vesicant	Hyaluronidase and saline flush out
Alemtuzumab	Irritant/Exfoliant/Non Vesicant	Cold compress
Amsacrine	Vesicant	Hyaluronidase and saline flush out
Arsenic	Irritant/Exfoliant/Non Vesicant	Cold compress
Asparaginase	Irritant/Exfoliant/Non Vesicant	Cold compress
Azacytidine	Irritant/Exfoliant/Non Vesicant	Cold compress
Bevacizumab	Irritant/Exfoliant/Non Vesicant	Cold compress
Bleomycin	Irritant/Exfoliant/Non Vesicant	Cold compress
Bortezomib	Irritant/Exfoliant/Non Vesicant	Cold compress
Busulfan	Vesicant	Hyaluronidase and saline flush out
Carboplatin	Irritant/Exfoliant/Non Vesicant	Cold compress
Carmustine	Vesicant	Hyaluronidase and saline flush out
Cisplatin	Irritant/Exfoliant/Non Vesicant	Cold compress
Cladribine	Irritant/Exfoliant/Non Vesicant	Cold compress
Clofarabine	Irritant/Exfoliant/Non Vesicant	Cold compress
Cyclophosphamide	Irritant/Exfoliant/Non Vesicant	Cold compress
Cytarabine	Irritant/Exfoliant/Non Vesicant	Cold compress
Cetuximab	Irritant/Exfoliant/Non Vesicant	Cold compress
Dacarbazine	Vesicant	Hyaluronidase and saline flush out
Dactinomycin (Actinomycin D)	Vesicant	Hyaluronidase and saline flush out
Daunorubicin	Vesicant anthracycline	Hyaluronidase and saline flush out + dexrazoxane
Docetaxel	Irritant/Exfoliant/Non Vesicant	Cold compress
Doxorubicin	Vesicant anthracycline	Hyaluronidase and saline flush out + dexrazoxane
Epirubicin	Vesicant anthracycline	Hyaluronidase and saline flush out + dexrazoxane

Etoposide	Irritant/Exfoliant/Non Vesicant	Cold compress
Floxuridine	Irritant/Exfoliant/Non Vesicant	Cold compress
Fludarabine	Irritant/Exfoliant/Non Vesicant	Cold compress
Fluorouracil	Irritant/Exfoliant/Non Vesicant	Cold compress
Gemcitabine	Irritant/Exfoliant/Non Vesicant	Cold compress
Gemtuzumab Ozogamicin (Mylotarg)	Irritant/Exfoliant/Non Vesicant	Cold compress
Idarubicin	Vesicant anthracycline	Hyaluronidase and saline flush out + dexrazoxane
Ifosfamide	Irritant/Exfoliant/Non Vesicant	Cold compress
Interleukin – 2	Irritant/Exfoliant/Non Vesicant	Cold compress
Irinotecan	Irritant/Exfoliant/Non Vesicant	Cold compress
Liposomal Daunorubicin	Irritant/Exfoliant/Non Vesicant	Cold compress
Liposomal Doxorubicin (Adriamycin)	Irritant/Exfoliant/Non Vesicant	Cold compress
Melphalan	Irritant/Exfoliant/Non Vesicant	Cold compress
Methotrexate	Irritant/Exfoliant/Non Vesicant	Cold compress
Mitomycin C	Vesicant	Hyaluronidase and saline flush out
Mitoxantrone	Irritant/Exfoliant/Non Vesicant	Cold compress
Mylotarg (Gemtuzumab Ozogamicin)	Irritant/Exfoliant/Non Vesicant	Cold compress
Oxaliplatin	Irritant/Exfoliant/Non Vesicant	Cold compress
Paclitaxel	Irritant/Exfoliant/Non Vesicant	Cold compress
Panitumumab	Irritant/Exfoliant/Non Vesicant	Cold compress
Pegasparaginase	Irritant/Exfoliant/Non Vesicant	Cold compress
Pemetrexed	Irritant/Exfoliant/Non Vesicant	Cold compress
Raltitrexed	Irritant/Exfoliant/Non Vesicant	Cold compress
Rituximab	Irritant/Exfoliant/Non Vesicant	Cold compress
Streptozocin	Vesicant	Hyaluronidase and saline flush out
Teniposide	Irritant/Exfoliant/Non Vesicant	Cold compress
Thiotepa	Irritant/Exfoliant/Non Vesicant	Cold compress
Topotecan	Irritant/Exfoliant/Non Vesicant	Cold compress
Trastuzumab	Irritant/Exfoliant/Non Vesicant	Cold compress
Treosulfan	Vesicant	Hyaluronidase and saline flush out
Vinblastine	Vesicant	Hyaluronidase and saline flush out
Vincristine	Vesicant	Hyaluronidase and saline flush out
Vindesine	Vesicant	Hyaluronidase and saline flush out
Vinorelbine	Vesicant	Hyaluronidase and saline flush out

3.4 Treatment Intervention

3.4.1 Use Table in section 3.3 to assess classification of drug and treat according to classification of drug and type of venous access.



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