Somerset NHS Foundation Trust

Protocol for the Management of Suspected Superior Vena Cava Obstruction (SVCO)

Protocol

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This Version	1		**Status**	Final
Replaces	Current protocol			
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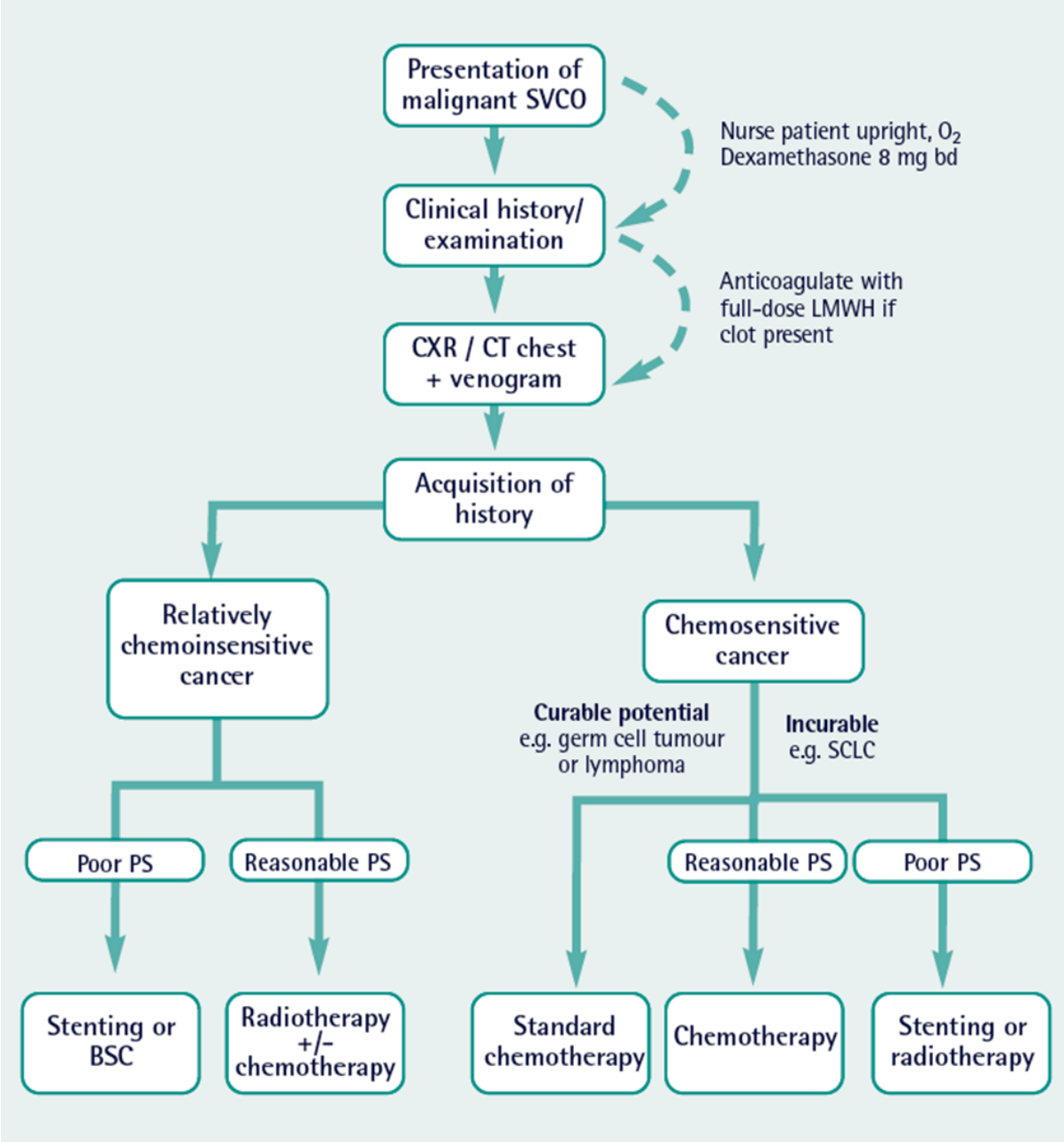
Ratification	Date	19/10/2021	Where	CSSS Governance
Date of issue	19/10/2021		**Review date**	19/10/2024
Applies to	Patients with confirmed or suspected superior vena cava obstruction		**Exclusions**	none

CONTENTS

1.0 FLOW DIAGRAM



Source: Ernie Marshall, Alison Young, Peter I. Clark, Peter Selby: Problem Solving in Acute Oncology

2.0 INTRODUCTION

2.1 Increased Superior Vena Cava (SVC) syndrome results from any condition that leads to obstruction of blood flow through the SVC. Obstruction can be caused by internal obstruction (e.g. thrombosis) or external compression from adjacent structures (e.g. right lung, lymph nodes, mediastinal structures) or in some situations a combination can occur.

2.2 An intrathoracic malignancy accounts for 85% of SVCO (lung cancer and lymphoma account for 95% of malignant SVCO), non-malignant causes are commonly related to indwelling central venous access devices but could also be due to fibrosing mediastinitis, post-radiotherapy fibrosis or fungal infections.

2.3 The rapidity of onset of symptoms and signs depends on the speed at which the SVC is occluded. Slow occlusion allows the formation of collaterals usually over the chest wall, whereas rapid obstruction leads more commonly to facial and upper body swelling.

2.4 Underlying histological diagnosis is key to determining the optimal treatment strategy, therefore confirming tissue diagnosis prior to treatment is preferable. Endovenous stenting may be considered for sustained symptom palliation in patients with SVC syndrome, but this is dependent on the underlying nature of the malignancy

2.5 This policy describes the guideline for identification, assessment and management of patients presenting with suspected SVCO.

3.0 DEFINITIONS

3.1 Superior Vena Cava Obstruction (SVCO) - any condition that leads to obstruction of blood flow through the SVC which in turn causes increased Superior Vena Cava (SVC) syndrome

4.0 ROLES and RESPONSIBILITIES

The following teams may need to be involved to discuss the optimal management strategy for a patient with SVCO depending on the individual patient circumstances
Somerset Foundation Trust Contact Numbers

- Acute Haemato-Oncology Team via bleep 3606
- Consultant Respiratory Physicians via red top referral
- Consultant Clinical/Medical Oncologists via secretaries Ext. 2417/2418
- Lung Cancer Nurse Specialists Ext. 3820
- Consultant Radiologist Ext 4757
- Interventional Radiology Consultants (in hours via Ext 4757, OOH via switchboard)
- Consultant Haematologists via the haematology secretaries
- Palliative Care Team via bleep 2014 or Ext 2656; Out of hours or weekends (St Margaret's Hospice) 0845 0708910

YDH Contact Numbers

- Acute oncology service 07789615167
- Macmillan centre 01935 384329
- Secretary ALL YDH oncology Consultants share the same secretary 01935 38 3001

- Lung CNS team: 01935 38 4574

5.0 PROCESS DESCRIPTION

5.1 **Risk Factors**

- Past history of cancer (e.g. Lung, Lymphoma, Breast or Teratoma)
- May be initial presentation of previously undiagnosed malignancy

5.2 **Signs and Symptoms**

Table 1

Symptoms	**Signs**
Breathlessness	Facial oedema
Facial swelling/head fullness (worse on lying down or bending forward)	Distended neck and chest wall veins
Arm swelling	Arm swelling
Dysphagia	Facial plethora
Chest pain	Cyanosis
Cough	Stridor
Raised intracranial pressure symptoms (headache, confusion, drowsiness, nausea)	
Syncope and dizziness	

5.3 **Assessment**

- If Stridor present, or airways compromise suspected, plan to control the airway in the event of deterioration and inform the on-call Anaesthetic/ITU registrar (Bleep 2222) and Medical Registrar (Bleep 2150).
- History and Examination to assess for signs and symptoms as described above and speed of onset
- Detailed background history of cancer diagnosis and previous lines/modalities of treatment if known
- Inform Acute Haemato-Oncology Service (bleep 3606 Mon-Fri 9am-5pm))

5.4 **Investigations**

1) Observations, including oxygen saturations

2) CXR and baseline blood tests (including FBC, U+E, LFT and clotting)

3) If new diagnosis, consider human chorionic gonadotrophin (HCG), alpha-fetoprotein (AFP) and lactate dehydrogenase (LDH)

4) Request urgent contrast enhanced spiral CT, neck and thorax. The scan is to be undertaken within 24 hours of the request being made. If out of hours (including weekends) liaise with Consultant Radiologist/Tele-medicine service and highlighted senior radiographer.

5) If new malignancy:

- Obtain histology where possible

- If underlying lung cancer is suspected please send a red top referral to the respiratory team and add to lung MDT via lungmdtreferrals@tst.nhs.uk.

- If lung cancer NOT suspected, refer to Malignancy of Unknown Origin proforma on trust intranet and discuss with AHOS for advice.

5.5 **Management**

- Management of SVCO is dependent on severity, see diagram 1 for flow chart of management options and table 2 for severity grading.

- Patients who are asymptomatic with radiological diagnosis only do not require stenting but liaise with AHOS team for advice (bleep 3606).

Table 2

Category	**Grade**	**Definition**
Asymptomatic/Mild	1	□ Radiological diagnosis in absence of symptoms □ oedema in head/neck (vascular distension) □ cyanosis □ plethora
Moderate	2	□ Oedema in head/neck with functional impairment □ Mild dysphagia □ Cough □ Mild/moderate impairment of head/jaw/eyelid movements □ Ocular oedema (visual disturbance
Severe	3	□ Mild/moderate cerebral oedema (headache, dizziness) □ Mild/moderate laryngeal oedema □ Diminished cardiac reserve (syncope on bending)
Life threatening	4	□ Significant cerebral oedema (confusion, obtundation) □ Significant laryngeal oedema (stridor) □ heamodynamic compromise (hypotension, renal insufficiency, syncope without precipitant)

Symptomatic Relief:

Sit patient up, prescribe oxygen, prescribe analgesia, and support arms
If dyspnoea: 5mg oramorph 4 hourly is usually effective.

Steroids

High dose steroids (with PPI cover) can be used (Dexamethasone 8 mg BD 8am and 12 noon) but there effectiveness has not been proven. If lymphoma or suspected lymphoma needs to be discussed with haematology consultant via switchboard out of hours or haematology SpR on bleep 2009/2036 prior to prescribing.

Chemotherapy

If SVCO due to chemo-sensitive tumours (e.g. Small cell lung cancer, lymphoma, germ cell tumours) chemotherapy is the treatment of choice – please liaise urgently with the AHOS team (bleep 3606)

Anticoagulation

If SVCO related to central line and early (< 5 days) thrombosis confirmed, try thrombolysis with Streptokinase 250,000 U over 1 hour or TPA (if no medical contraindications). If thrombosis established and > 5 days old, for LMW heparin at therapeutic doses (as for DVT) and Warfarin 1 mg / day, (aim at INR < 1.6; full warfarinisation may be difficult to control in the presence of malignancy or chemotherapy)

Radiotherapy

This is no longer routinely used due to better availability of stenting but please discuss with AHOS if stenting not deemed appropriate or possible.

Stenting

Endovascular stenting can be used to rapidly and effectively palliate symptoms of moderate, severe or life threatening SVCO. Referral is made via discussion between the Consultant clinically responsible for the patient and the Consultant interventional radiologist (see contacts). After this discussion, further discussions regarding the benefit and risks of stent placement may be required with the patient before proceeding.
Although the technical success rate of endovascular stenting is high (95-100%), it is not without risks. Overall major complication rates from SVC stents are in the region of 4% and significant complications include stent migration, bleeding, infection, thrombotic events, SVC rupture, pericardial tamponade, cardiac failure and arrhythmias. Minor complications are in the region of 3.2% and include puncture site haematoma, chest pain, epistaxis, infection and re-stenosis.

7.0 REFERENCES

7.1. Yu JB, Wilson LD, Detterbeck FC; Superior vena cava syndrome--a proposed classification system and algorithm for management, J Thorac Oncol. 2008 Aug;3(8):811-4

7.2 Uberoi R, Patel R, Cox P, Xie C, Mueller-Huellsbeck S, Rand T, Tsetis D. CIRSE Quality Assurance Guidelines for Superior Vena Cava Stenting in Malignant Disease. Cardiovascular and Interventional Radiology. 2006 Jun(29):319-322 (Revised Jan 2015)