LARYNGOSPASM

MODULE: CRITICAL INCIDENTS

TARGET: ALL ANAESTHETISTS & INTENSIVISTS

BACKGROUND:

Laryngospasm is a common complication around the time of airway handling in adults and in paediatric patients. Junior trainees should have an approach to managing this crisis, and it's potential complications. A protocol for managing this process has been published as an appendix to the Difficult Airway Society Extubation Guidelines, along with the further potential consequence of laryngospasm: negative pressure pulmonary oedema.

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IG_BS_10	In respect of airway management: • Demonstrates optimal patient position for airway management. • Manages airway with mask and oral/nasopharyngeal airways • Demonstrates hand ventilation with bag and mask • Able to insert and confirm placement of a Laryngeal Mask Airway • Demonstrates correct head positioning, direct laryngoscopy and successful nasal/oral intubation techniques. • Confirms correct tracheal tube placement • Demonstrates correct use of bougies • Demonstrates correct securing and protection of LMAs/tracheal tubes during movement, positioning and transfer. • Correctly conducts RSI sequence • Correctly demonstrates the technique of cricoid pressure
IG_BS_11	Demonstrates correct use of oropharyngeal, laryngeal and tracheal suctioning
IO_BS_07	Demonstrates role as team player and when appropriate, leader in the intra-operative environment
IO_BS_08	Communicates with the theatre team in a clear unambiguous style
IO_BS_09	Able to respond in a timely and appropriate manner to events that may affect the safety of patients [e.g. Hypotension, Massive haemorrhage] [S]
CI_BK_02	Unexpected fall in SpO2 with or without cyanosis
CI_BK_03	Unexpected increase in peak airway pressure
CI_BK_13	Difficult/failed mask ventilation
CI_BK_17	Laryngospasm
CI_BK_19	Bronchospasm
CI_BS_01	Demonstrates good non-technical skills such as: [effective communication, team-working, leadership, decision-making and maintenance of high situation awareness]
CI_BS_02	Demonstrates the ability to recognise early a deteriorating situation by careful monitoring
CI_BS_03	Demonstrates the ability to respond appropriately to each incident listed above
CI_BS_04	Shows how to initiate management of each incident listed above
CI_BS_05	Demonstrates ability to recognise when a crisis is occurring
CI_BS_06	Demonstrates how to obtain the attention of others and obtain appropriate help when a crisis is occurring
CI_IS_01	Demonstrates leadership in resuscitation/simulation when practicing response protocols.
CI_IS_02	Demonstrates appropriate use of team resources when practicing response protocols.

INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- Consideration of appropriate options for the common complication of airway management
- Demonstration of recognition and a logical, structured approach to managing laryngospasm.
- An approach to managing the post-laryngospasm complication of post-obstructive pulmonary oedema.

SCENE INFORMATION:

- Location: Theatre

This scenario takes place at the end of an operation that required intubation e.g. laparascopic cholecystectomy. Following extubation in theatre, the patient develops laryngospasm signified by a 'crowing' stridor and a rapid desaturation. Mask ventilation is unsuccessful and the participant needs to adopt strategies to break the larygospasm. Following management of the laryngospasm, the patient develops negative pressure pulmonary oedema requiring further management.

EQUIPMENT & CONSUMABLES	PERSONS REQUIRED
Manikin – on theatre trolley. ETT in situ – IPPV. Checked anaesthetic machine Stocked Airway trolley - Laryngoscopes (2 x Macintosh) - ET Tubes (Various Sizes) - OP, NP and Advanced Supraglottic airways (iGels, LMAs) Working suction Theatre drapes (partially obscuring head and airway of mannequin)	Anaesthetic junior trainee Anaesthetic Assistant Anaesthetic Senior Trainee Surgeon (optional) Scrub nurse (optional)

PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

You are the anaesthetist for an elective Laparoscopic Cholecystectomy. Your patient is Jennifer Roberts, a woman in her 40's. She has a background of Cholecystitis, Gallstones and occasional heart burn. Her BMI is 36. She is allergic to Penicillin. She last ate at 2200 yesterday. Please proceed as appropriate,

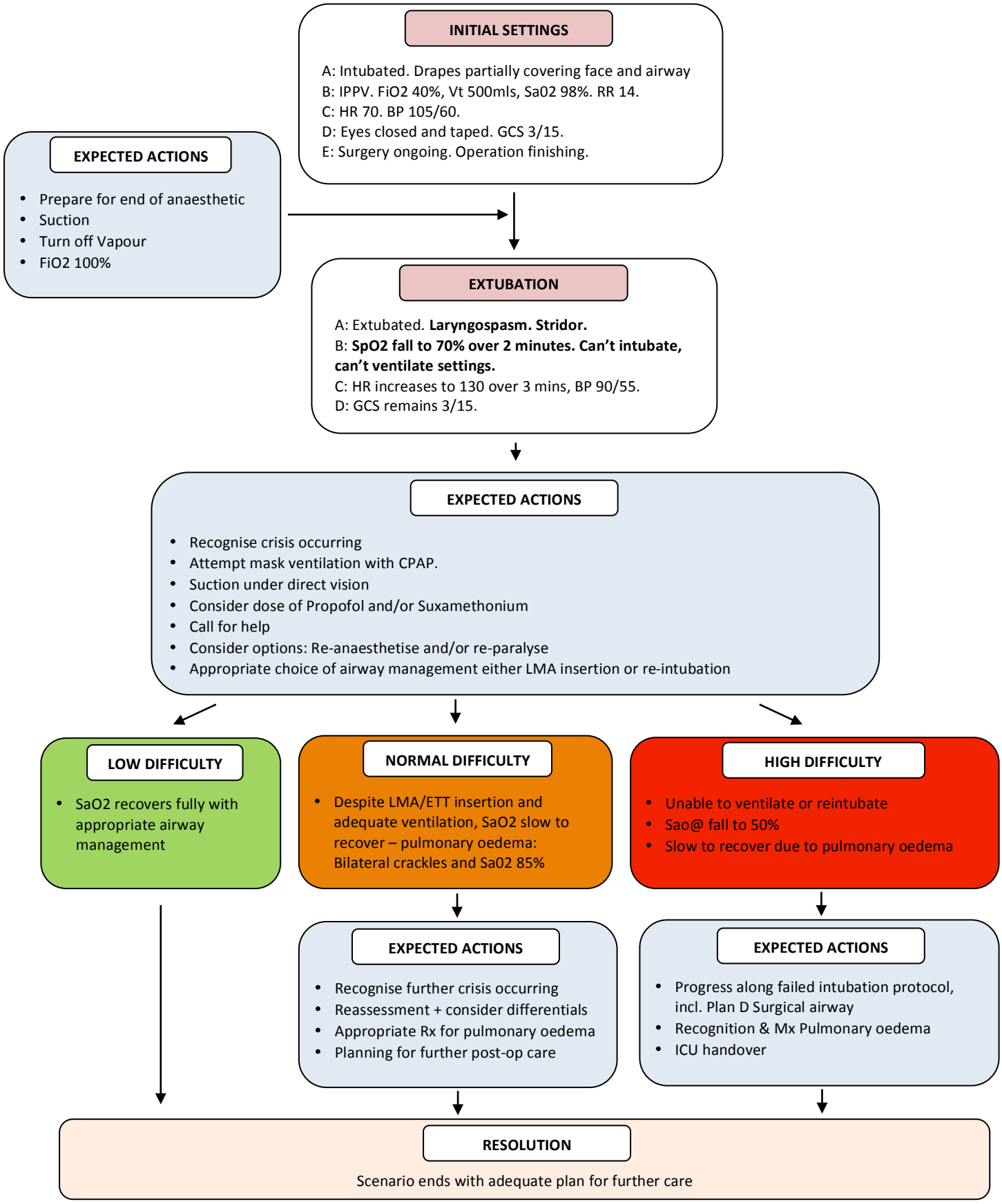
'VOICE OF MANIKIN' BRIEFING:

Silent whilst intubated. After extubation, a regular 'crowing' noise from the upper airway develops.

VOICE OF 'TELEPHONE HELP BRIEFING'

Help will arrive as soon as possible.

CONDUCT OF SCENARIO



ANAESTHETIC RECORD SHEET

PATIENT DETAILS / ADDRESSOGRAPH
Hospital No.
SURNAME: Jennifer Roberts
(Block Letters)
FORENAMES: 15/06/1968
Address:
Ward/Hosp.
DOB: Sex: M / F

NHS

Procedure(s) proposed:
Laparoscopic Cholecystectomy
CEPOD CLASS: ELECTIVE / SCHEDULED / URGENT / EMERGENCY

Anaesthetist's preoperative assessment by

Name: **Grade:** ☐Cons ☐AS ☐SG ☐Trainee _____

Date: **Time:** **Signature**

Anaes / Surg history:

No previous GAs

Medical history:

Recurrent Cholecystitis
Gallstones
Occasional Reflux
Increased BMI (36)

VTE Risk: ☐ High ☐ Low

O/E

Unremarkable

Airway Assessment

Mouth Opening:
MP Score: 1 2 3 4
Jaw: MP 2, mouth opening
Neck: 3cm, slightly limited neck

TEETH

8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8
8 7 6 5 4 3 2 1	1 2 3 4 5 6 7 8

X = missing L = loose B = bridge
C = caps / crowns D = damaged

ASA
BP:
HR:
Temp:
Weight:
Height:
BMI:
Smoke:
Alcohol:
Apfel Score

NBM since
Solids: 2200 yesterday
Clear Fluids:
Pregnancy : Neg
Lactation:

Relevant Medication:

ALLERGIES
Penicillin

Investigations

☐ Haematology	☐ Biochemistry	☐ Coag.	☐ ECG	Other:
FBC Hb 11.8	U & E NAD	NAD	NAD	Abdo USS - Gallstones
Sickle:	Blood Sugar:	☐ Gp. & Save	☐ X - Ray	
		☐ X - Match		

CONSENT: ☐ GA ☐ Sedation ☐ Epidural ☐ Spinal ☐ Regional ☐ Suppository
☐ PCA ☐ EPCA ☐ Other

Notes / Discussion / Technique proposed:

Consented for GA and local anaesthetic infiltration.
Risks explained: dental damage, sore throat, post-op nausea and vomiting.

☐ Anaesthetic Information leaflet received by patient

For attention of ward staff: (further investigations, fasting, continue/omit current medication, etc.)

All orders / information regarding medication & fluids must be entered on patient's drug prescription & administration record

SPG2299

Date:	Anaesthetist(s): Name	Grade	Operation / Procedure(s):	Surgeon(s): Name	Grade
Location / Theatre:					

Supervising Anaesthetic Consultant (S-AC) *Name:* ☐ AOD

Location of S - AC ☐ In Theatre ☐ In Th. Complex ☐ In Hospital ☐ Remote

Discussed With S - AC ☐

Anaesthetic Machine Check ☐ AR ☐ OR

ANAESTHETIC TECHNIQUE:

Vascular access:

Airway & Size
☐ Mask..... ☐ Nasal.....
☐ Oral ..... ☐ LMA.....

Breathing System
☐ Bain ☐ T-Piece
☐ Circle + Absorber

Tracheal Intubation
☐ Oral ☐ Nasal
☐ Tracheostomy
Size ..... ☐ Cuff
Type: .....
Laryngoscopy Grade
☐ Bougie ☐ ILMA ☐ FOB

Oral Pack ☐ In ☐ Out
NG Tube ☐ In ☐ Out

Monitoring	AR	OR
SpO_2	☐	☐
ECG	☐	☐
NIBP	☐	☐
E_TCO_2	☐	☐
$F_I O_2$	☐	☐
Anaes. Vapour	☐	☐
Disconnection	☐	☐
Airway Press.	☐	☐
Nerve Stim.	☐	☐
Temperature	☐	☐
	☐	☐

Drugs ▽	(units) ▽	Time: →	Total Dose

Oxygen	F_IO_2	L /min	
N_2O / Air / Total Gas Flow	%	L /min	
Iso / Sevo / Des	E_T%	Mac	
Ventilation Mode (SV, VCV, PCV, Jet etc)			
Freq	/ min		
Tidal Volume	ml		
Paw	cm H_2O		
Peep	cm H_2O		

Events: ▽ Event No. →

100 SpO_2 % 90 — 250 BP HR — 200 — 150 — 100 — 50 — 0

HR ● Sys BP V Dia BP Λ

Position Of Patient
☐ Supine ☐ Prone
☐ L-Lateral ☐ R-Lateral
☐ Lithotomy ☐ DHS Table
☐ Deck Chair

Tourniquet (site / times)
Site:
On :
Off :

DVT Prophylaxis
☐ Heparin ☐ Rivaroxaban
☐ TEDS ☐ IC Boots

☐ Eyes Protected
☐ Pressure areas padded
☐ Warming Blanket
☐ Fluid Warmer
☐ Warming Mattress

E_TCO_2
IV Fluids
Blood Loss
Urine Out

RBH INT AR DOC May 2019 © RAD

Comments:

Post Op / recovery instructions:

Anaesthetic Record Entered By:

Name:	
Grade:	
Signature:	

INFORMATION FOR PARTICIPANTS

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WORKPLACE-BASED ASSESSMENTS

Basic Level WBPA's	
CIB_D01	Demonstrates the emergency management of the following critical incidents in simulation: • Unexpected hypoxia with or without cyanosis • Unexpected increase in peak airway pressure Demonstrates the emergency management of the following specific conditions in simulation: • Laryngospasm • Bronchospasm

FURTHER RESOURCES

Difficult Airway Society Guidelines for the management of tracheal extubation (Mar 2012). Appendix 1: Laryngospasm, and Appendix 2: Post-obstructive pulmonary oedema. Popat M, Mitchell V, Dravid R, Patel A, Swampillai C, Higgs A Anaesthesia 67(3) 318-340.
http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2044.2012.07075.x/pdf

Crisis Management during anaesthesia: Laryngospasm (2005). Qual Saf Health Care 2005;14:e3 Visvanathan T, Kluger MT, Webb RK, Westhorpe RN
http://qualitysafety.bmj.com/content/14/3/e3.full

Laryngospasm – The Best Treatment (1998). Anaesthesiology 89(5)1293-1294. Larson P
http://homepage.mac.com/changcy/downloads/laryngospasm.pdf

PARTICIPANT REFLECTION:

What have you learnt from this experience? (Please try to list 3 things)

How will your practice now change?

What other actions will you now take to meet any identified learning needs?

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PARTICIPANT FEEDBACK

Date of training session:.....

Profession and grade:.....

What role(s) did you play in the scenario? (Please tick)

Primary/Initial Participant	
Secondary Participant (e.g. 'Call for Help' responder)	
Other health care professional (e.g. nurse/ODP)	
Other role (please specify):	
Observer	

	Strongly Agree	Agree	Neither agree nor disagree	Disagree	Strongly Disagree
I found this scenario useful					
I understand more about the scenario subject					
I have more confidence to deal with this scenario					
The material covered was relevant to me					

Please write down one thing you have learned today, and that you will use in your clinical practice.

How could this scenario be improved for future participants?
(This is especially important if you have ticked anything in the disagree/strongly disagree box)

FACULTY DEBRIEF – TO BE COMPLETED BY FACULTY TEAM

What went particularly well during this scenario?

What did not go well, or as well as planned?

Why didn't it go well?

How could the scenario be improved for future participants?