

ASPIRATION DURING ANAESTHESIA

MODULE: CRITICAL INCIDENTS

TARGET: ALL ANAESTHETISTS

BACKGROUND:

Passive regurgitation or vomiting can occur during the pre-, peri- or post-operative period risking aspiration of stomach contents. This scenario simulates passive regurgitation and aspiration during anaesthesia, and the immediate actions that are expected. Trainees are expected to rapidly recognise aspiration occurring, take steps to achieve airway toilet and secure the airway. Appropriate communication with the theatre team should be maintained throughout.

RELEVANT AREAS OF THE ANAESTHETIC CURRICULUM

IG_BS_10	<p>In respect of airway management:</p> <ul style="list-style-type: none"> • 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_04	Progressive fall in minute volume during spontaneous respiration or IPPV
CI_BK_16	Regurgitation/Aspiration of stomach contents
CI_BK_17	Laryngospasm
CI_BK_18	Difficulty with IPPV, sudden or progressive loss of minute volume
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

INFORMATION FOR FACULTY

LEARNING OBJECTIVES:

- Systematic approach to identifying an unanticipated intraoperative problem with ventilation
- Appropriate management of intraoperative aspiration
- Appropriate postoperative management of possible aspiration

SCENE INFORMATION:

- Location: Theatre

Ongoing day case procedure (e.g. lower limb procedure) in a fasted patient. Anaesthetised with an uncomplicated anaesthetic technique and an LMA in situ. Participant has either been the anaesthetist throughout the case, or is taking over from a colleague. Soon after scenario starts, SaO₂ starts to fall. A vigilant participant may spot evidence of aspiration before adverse signs develop if the 'aspiration LMA' is used (see below).

SPECIAL EQUIPMENT NOTE:

An aspiration-simulating LMA can be created by passing a size 5 MLT into a size 5 LMA, in a similar manner to the insertion of an ETT through an ILMA. However, the cuff of the MLT should remain inside the lumen of the LMA and should be inflated – some glue around the outside of the MLT cuff will help ensure a watertight seal. The proximal (connector) end of the MLT can then be trimmed close to the connector of the LMA. This creates a sealed system with a central lumen for ventilation (the MLT) and a blind-ending watertight channel outside the MLT but inside the LMA lumen. This outer channel can be part-filled with liquid material to simulate stomach contents. A leak test of the outer channel should be undertaken before inserting the modified LMA into the mannequin.

Once inserted into the mannequin, this gives the visual appearance of stomach contents rising up the LMA during anaesthesia. In our experience the slightly different appearance of the LMA is not usually noticed by participants (even in the hyperawareness environment of the simulation suite) especially if partially covered by drapes.

As the modified LMA is removed in-scenario, the anaesthetic assistant in the scenario should be primed to receive the device to prevent spillage if in advertently tipped over – they should be a faculty member, or a pre- warned participant.

EQUIPMENT & CONSUMABLES

Manikin – with 'Aspiration LMA' in situ – see above.
 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)
 NG tube and drainage bag
 Evidence of suction contents – e.g. Suction tubing/NG drainage bag with stomach contents.

PERSONS REQUIRED

Anaesthetic junior trainee
 Anaesthetic Assistant
 Anaesthetic Senior Trainee
 Surgeon
 Scrub nurse

PARTICIPANT BRIEFING: (TO BE READ ALOUD TO PARTICIPANT)

Please take over the anaesthetic care of this patient. Her name is Brenda Ryan, she is in her early 40's and is undergoing varicose vein stripping. She has not had an operation before. She has no medical problems, but does take gaviscon occasionally for heartburn. There are no regular medications, and she has had a skin reaction to penicillin previously.

Her airway assessment was unremarkable. She had an iv induction and maintained with a volatile agent.

'VOICE OF MANIKIN' BRIEFING:

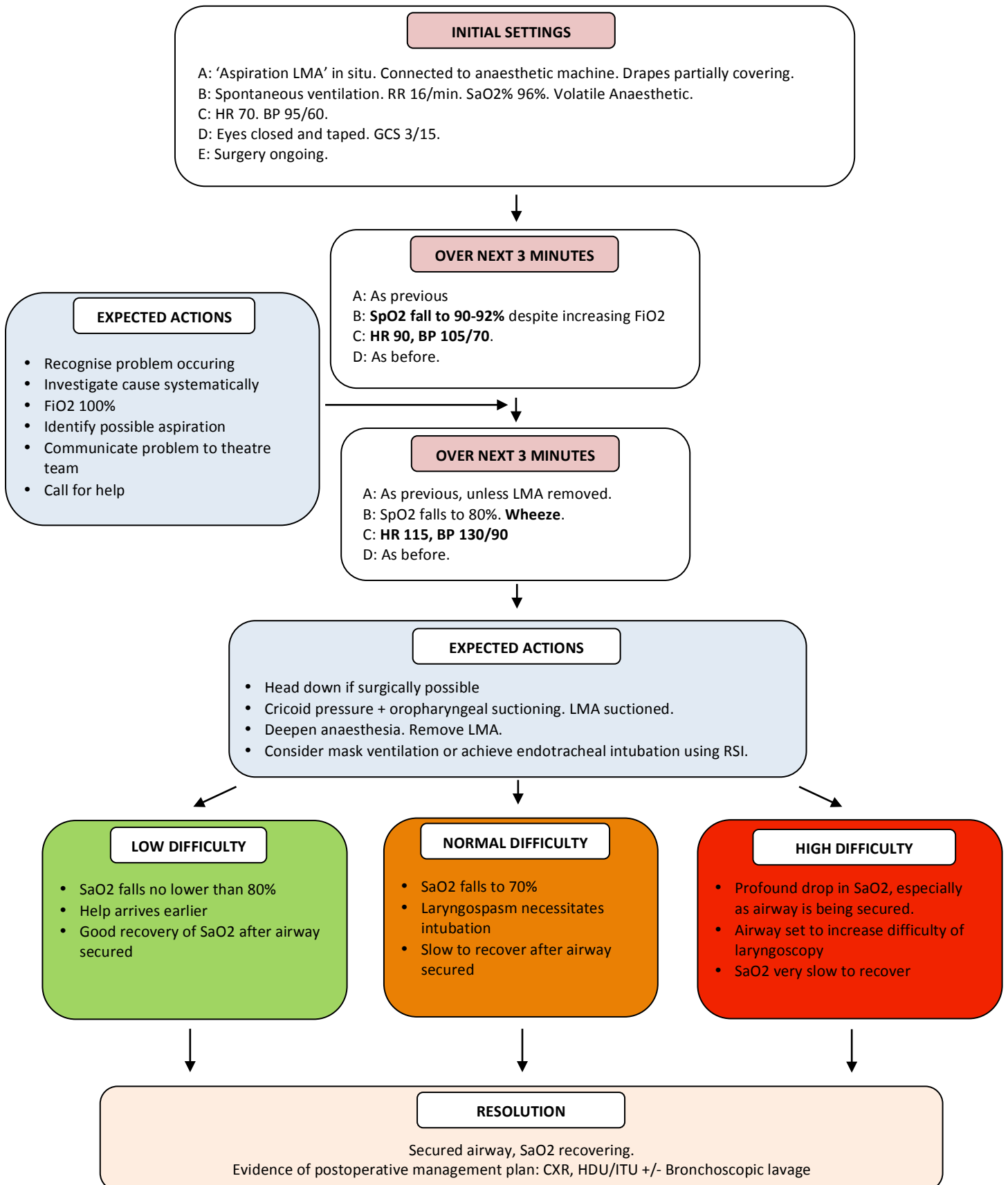
Anaesthetised and silent throughout.

OTHER IN-SCENARIO PERSONNEL BRIEFING:

Anaesthetic Assistant

Be supportive and helpful to the anaesthetist

CONDUCT OF SCENARIO



DEBRIEFING

POINTS FOR FURTHER DISCUSSION:

Technical:

- Investigating unexpected hypoxia during anaesthesia
- Management of aspiration during anaesthesia
- Post-operative care after aspiration

Non-technical:

- Based on established non-technical skills frameworks: e.g. ANTS.

DEBRIEFING RESOURCES

Crisis Management during anaesthesia: regurgitation, vomiting and aspiration. 2005. Qual Saf Health Care 2005. 14 (3): e7 Kluger M, Visvanathan T, Myburgh, Westhorpe R
<http://qualitysafety.bmj.com/content/14/3/e4.long>

Pulmonary aspiration of gastric contents in anaesthesia. 1999. BJA 83 (3): 453-60. Engelhardt T and Webster N

The aspiration of stomach contents into the lungs during obstetric anaesthesia. 1946. Am J Obstet Gynecol 52:191-205

INFORMATION FOR PARTICIPANTS

KEY POINTS:

- Systematic approach to identifying an unanticipated intraoperative problem with ventilation
- Appropriate management of intraoperative aspiration
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RELEVANCE TO AREAS OF THE ANAESTHETIC CURRICULUM

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WORKPLACE-BASED ASSESSMENTS

Basic Level WBPA's	
CIB_D01	<p>Demonstrates the emergency management of the following critical incidents in simulation:</p> <ul style="list-style-type: none"> • Unexpected hypoxia with or without cyanosis • Unexpected increase in peak airway pressure • Progressive fall in minute volume during spontaneous respiration or IPPV. <p>Demonstrates the emergency management of the following specific conditions in simulation:</p> <ul style="list-style-type: none"> • Aspiration of vomit • Laryngospasm • Bronchospasm

FURTHER RESOURCES

Crisis Management during anaesthesia: regurgitation, vomiting and aspiration. 2005. Qual Saf Health Care 2005. 14 (3): e7 Kluger M, Visvanathan T, Myburgh, Westhorpe R
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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?

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?