SNS COLLEGE OF PHYSIOTHERAPY

1. Elderly Patient's Retained Secretions Post-Thoracotomy

Mr. Gopal, a 68-year-old farmer, reports thick cough and dyspnea 4 days post-left upper lobectomy. Observation: reduced breath sounds left base, coarse crackles, shallow breathing pattern. Real-time percussion reveals dullness, suggesting pleural effusion and secretion retention. History: COPD, smoker. Focus: indications and steps of nasotracheal suctioning in chest physiotherapy.

Options for Intervention:

A. Nasotracheal suction with pre-oxygenation.

B. Incentive spirometry every hour.

C. Postural drainage in Trendelenburg.

D. Vibration with nebulization.

Structured Reasoning: Compare options on physiological accuracy (airway clearance equilibrium), safety (mucosal trauma), efficiency (secretion removal), resources (suction unit), long/short-term impact (lung re-expansion vs. relief), ethics (autonomy).

Option A clears lower airways, indicated for thick secretions, safe with sterile technique, efficient, moderate resources, promotes long-term re-expansion, ethical.

Option B improves volumes long-term but ineffective for thick mucus.

Option C aids drainage, short-term.

Option D loosens secretions, adjunct only.

Best: A for accuracy and immediate clearance, transitioning to B for sustained volume.

2. Young Adult's Mucous Plug Post-Lobectomy

At a ward, 32-year-old Vijay complains of sudden wheezing 2 days post-right lower lobectomy. Observation: absent breath sounds right base, use of accessory muscles. Real-time: SpO2 drop to 88%, indicating lobar collapse. History: lung abscess drainage. Focus: types of suctioning and complications in chest physiotherapy.

Options for Intervention:

A. Oropharyngeal suction with Yankauer.

B. Endotracheal suction via mini-tracheostomy.

C. Saline instillation before suction.

D. Chest percussion only.

Structured Reasoning: Evaluate accuracy (plug removal equilibrium), safety (barotrauma), efficiency (lobar re-inflation), resources (catheter size), long/short-term (patency vs. relief), ethics (daily goals).

Option A superficial, safe but inefficient for deep plug.

Option B accesses lower airways, accurate for collapse, safe with < -120 mmHg, efficient, low resources, long-term patency, ethical.

Option C aids mobility, risk of infection.

Option D mobilizes, no removal.

Optimal: B for accuracy and ethics, with C as adjunct if mucus viscous.

3. Office Worker's Aspiration Risk Post-Pneumonectomy

During rehab, 45-year-old Suresh reports weak cough 1 week post-left pneumonectomy. Real-time: ineffective huff, retained secretions in right lung, risk of aspiration. History: esophageal surgery. Focus: indications and contraindications of suctioning.

Options for Intervention:

A. Routine nasopharyngeal suction.

B. Teach active cycle breathing technique.

C. Suction only if SpO2 < 92%.

D. Oral suction with soft catheter.

Structured Reasoning: Assess accuracy (secretions equilibrium), safety (aspiration prevention), efficiency (work return), resources (monitoring), long/short-term (cough strength vs. relief), ethics (productivity).

Option A risks trauma, not indicated prophylactically.

Option B empowers self-clearance, safe, efficient, low resources, long-term, ethical.

Option C indicated only when needed, safe.

Option D superficial, short-term.

Best: B for physiological correction and ethics.

4. Athlete’s Bronchospasm During Decortication Recovery

At a sports rehab, 28-year-old Karan reports wheezing 3 days post-decortication for empyema. Observation: prolonged expiration, thick secretions on auscultation. Real-time suction attempt causes bronchospasm. History: pleural peel removal. Focus: complications of suctioning in chest physiotherapy.

Options for Intervention:

A. Pre-suction bronchodilator nebulization.

B. Deep suction with large bore catheter.

C. Postpone suction for 24 hours.

D. Manual hyperinflation only.

Structured Reasoning: Compare accuracy (spasm equilibrium), safety (airway reactivity), efficiency (performance), resources (nebulizer), long/short-term (patency vs. delay), ethics (athletic goals).

Option A prevents spasm, indicated in reactive airways, safe, efficient, low resources, long-term, ethical.

Option B risks trauma and spasm.

Option C delays clearance, inefficient.

Option D ventilates, no secretion removal.

Optimal: A for precision and ethics.

5. Post-Trauma Patient's Hemoptysis Post-Thoracotomy

Following emergency thoracotomy, 50-year-old Meena shows blood-tinged secretions during suction. Real-time: bright red blood > 50 ml, BP drop. History: rib fracture with lung laceration. Focus: steps and complications of suctioning.

Options for Intervention:

A. Continue suction with smaller catheter.

B. Stop suction, position head down.

C. Immediate saline lavage.

D. Apply chest binder.

Structured Reasoning: Gauge accuracy (hemostasis equilibrium), safety (hemorrhage), efficiency (airway patency), resources (monitoring), long/short-term (recovery vs. relief), ethics (independence).

Option A risks worsening bleed, contraindicated.

Option B stops trauma, safe, efficient, no resources, promotes hemostasis, ethical.

Option C dilutes, increases bleed.

Option D restricts breathing.

Best: B for safety and physiological focus.

6. Driver's Secretion Retention Post-Lobectomy

At a follow-up, 40-year-old Raj reports cough with driving post-right middle lobectomy. Observation: retained secretions, weak cough effort. Real-time: unable to clear during traffic stops. Focus: types and indications of suctioning.

Options for Intervention:

A. Portable home suction unit training.

B. Huffing technique education.

C. Nebulization before driving.

D. Avoid driving for 2 weeks.

Structured Reasoning: Assess accuracy (clearance equilibrium), safety (road safety), efficiency (mobility), resources (device), long/short-term (independence vs. restriction), ethics (livelihood).

Option A indicated for weak cough, safe with training, efficient, moderate resources, long-term, ethical.

Option B empowers, short-term.

Option C loosens, adjunct.

Option D safe but inefficient.

Best: A for accuracy and ethics.

7. Child’s Thick Mucus Post-Decortication

School clinic: 10-year-old Riya shows gurgling sounds 5 days post-decortication. Real-time: unable to expectorate, nasal flaring. History: empyema. Focus: pediatric suctioning steps and safety.

Options for Intervention:

A. Nasotracheal suction with 8Fr catheter.

B. Oral suction games with straw.

C. Saline nebulization only.

D. Postural drainage play.

Structured Reasoning: Compare accuracy (airway equilibrium), safety (child distress), efficiency (play), resources (catheter), long/short-term (patency vs. relief), ethics (development).

Option A indicated for thick mucus, safe with < -100 mmHg, efficient, low resources, long-term, ethical with play integration.

Option B superficial, fun but inadequate.

Option C loosens, short-term.

Option D mobilizes, no removal.

Best: A for physiological correction.

8. Performer’s Secretion Issue Post-Pneumonectomy

Studio: 35-year-old singer reports phlegm on stage post-left pneumonectomy. Real-time: unable to clear discreetly, voice strain. Focus: suctioning indications in functional tasks.

Options for Intervention:

A. Discreet oropharyngeal suction backstage.

B. Hydration and steam inhalation.

C. Teach forced expiration technique.

D. Cancel performance.

Structured Reasoning: Evaluate accuracy (vocal equilibrium), safety (aspiration), efficiency (show), resources (portable unit), long/short-term (voice vs. rest), ethics (artistic goals).

Option A clears rapidly, indicated for retention, safe, efficient, low resources, long-term with technique, ethical.

Option B preventive, short-term.

Option C empowers, adjunct.

Option D avoids risk, inefficient.

Optimal: A for precision.

9. Runner’s Collapse Risk Post-Lobectomy

Trail: 30-year-old Priya reports sudden dyspnea mid-run post-right upper lobectomy. Observation: lobar collapse suspected, thick secretions. History: bronchiectasis. Focus: suctioning complications and management.

Options for Intervention:

A. Emergency oropharyngeal suction.

B. Stop and rest in sitting.

C. Hyperventilation technique.

D. Call ambulance only.

Structured Reasoning: Assess accuracy (patency equilibrium), safety (hypoxemia), efficiency (running), resources (portable), long/short-term (recovery vs. relief), ethics (fitness).

Option A indicated for collapse, safe with shallow pass, efficient, low resources, long-term prevention, ethical.

Option B relieves, short-term.

Option C risks alkalosis.

Option D delays care.

Best: A for physiological correction.

10. Senior’s Weak Cough Post-Decortication

Community: 70-year-old Mrs. Lakshmi reports retained mucus 10 days post-decortication. Observation: weak cough, basal crackles. History: osteoporosis. Focus: suctioning indications and contraindications in elderly.

Options for Intervention:

A. Gentle nasopharyngeal suction.

B. ACBT with support.

C. Vibration and clapping.

D. Suction with high negative pressure.

Structured Reasoning: Compare accuracy (clearance equilibrium), safety (fracture risk), efficiency (daily tasks), resources (technique), long/short-term (independence vs. relief), ethics (autonomy).

Option A indicated for ineffective cough, safe with < -80 mmHg, efficient, low resources, long-term with training, ethical.

Option B empowers, preferred.

Option C mobilizes, adjunct.

Option D risks trauma, contraindicated.

Best: A for efficiency and ethics, transitioning to B.