AN ALTERNATIVE FOR ONE LUNG VENTILATION (OLV) IN AN ADULT HORSE REQUIRING THORACOTOMY

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Introduction
- Devil Warmblood horse, 580 kg, 4y 7m old
- Surgical debridement/exploration of wound of thoracic wall at level of left shoulder (procedure 1)
- Postoperative pleural drainage system placed in standing horse; no clinical improvement but worsening of the condition (ASA IV)
- Explorative thoracoscopy & thoracotomy planned (procedure 2) with possible OLV.

Materials & methods

“Home made” endobronchial blocker (Fig 1 & 2)
- Endotracheal Tube (ETT) + Broncho Alveolar Catheter (BAL)
- Sealed to avoid leakage (tape) → no leaks

Anaesthetic protocol for procedure 2
Free access to water, no food 12 hrs before anaesthesia.

Premedication
- Romifidine (80 µg kg⁻¹) + Morphine (0.1 mg kg⁻¹) IV

Induction
- Ketamine (2.2 mg kg⁻¹) + Midazolam (0.06 mg kg⁻¹) IV

TIVA
- Right lateral recumbency
- ETT up to larynx → placement of BAL into left bronchus (nasal endoscopic guidance)
- ETT advanced into trachea once BAL was in place

Maintenance
- Isoflurane in O₂
- Matrix large animal unit + Smith LA 2100 ventilator
- IPPV (10 mL kg⁻¹) + PEEP (10 cm H₂O)
- Lactated Ringer’s (10 mL kg⁻¹ hr⁻¹), CRI Romifidine (40 µg kg⁻¹ hr⁻¹)

Monitoring
- ECG, pulse-oxymetry, CO₂, O₂ & isoflurane concentratrions, BP, arterial blood gases

Complications
- slight hypotension → CRI dobutamine (0.5 µg kg⁻¹ min⁻¹)
- MAP>70mmHg
- ↓ PaO₂, ↑ PaCO₂ (clinically OK)

Recovery
- Rope assisted (head collar & tail)
- O₂ supplementation (15 L min⁻¹)
- Recovery score 2/5

Surgery (left approach)
- Pleuritis & communication with right half pleural cavity, fibrin & necrotic ribs removed from left hemithorax
- Flushing thoracic cavities (100 L physiological fluids)
- OLV not required → inflation of cuff of BAL & adjustment of ventilator settings would have been sufficient to allow OLV

Postoperative follow-up
- Analgesia: intercostal nerve blocks (bupivacaine), morphine (0.1 mg kg⁻¹ IM, QID), CRI lidocaine (2 mg kg⁻¹ hr⁻¹, IV) & ketamine (0.8 mg kg⁻¹ hr⁻¹, IV)
- After 2 hrs: signs of shock, ↑ HR, ↑ RR, congestive mucosae.
- After 7 hrs COLLAPSE (lateral recumbency, dyspnoea)

Discussion
- This case report offers an easy & cheap alternative to perform OLV without a tracheostomy whereby the tube-in-tube technique in the collapse of the lung on the surgical side2 are combined.
- Mechanical ventilation including IPPV & PEEP is justified to prevent hypoaemia.
- Although OLV was finally not required, inflation of the BAL cuff allows the collapse of the one lung to ameliorate the surgical intervention.
- More cases (clinical or experimental) are needed to validate this simplified technique.

Bibliography