Mini-BAL

SOP [RT-Mini-BAL]

Signatory Authority:
Edita Vines
Chief, of Respiratory Services

Service Line(s):
Medicine Service

Responsible Owner:
Respiratory Care

Effective Date:
July 7th, 2020

Recertification Date:
July 7th, 2025

1. PURPOSE AND AUTHORITY:

Mini-Bal catheter (BAL Cath) will be used on patients to obtain deep lung specimens traditionally retrieved via bronchoscopy. Utilizing the Bal Cath to retrieve a sputum sample
will isolate the pathogen from the lower lung making antibiotic selection more specific to the
organism. The Bal Cath is a 12 Fr inner catheter covered by a 16 Fr outer sheath. The design
permits the advancement of the inner catheter into the **distal bronchial segments** while
reducing exposure to upper airway microorganisms.

1. PROCEDURES:

- Confirm order for Mini-BAL. Request should indicate right or left lung and specify reason for collection and specimens/tests requested. Appropriate lab slips should be generated when the order is taken off. Review for contraindications. Contact MD and discuss further if any contraindications are present.
- Request nursing to turn off tube feedings 30 minutes prior to the procedure
- Patient's ETT or trach tube must have at least a 7.5 mm internal diameter to perform the Mini-Bal
- This is a 2-person procedure and should never be done with just one person.
- Close monitor patient throughout the procedure. Immediately terminate the procedure with any evidence of desaturation and or bradycardia.
- Gather necessary equipment with assistance from nursing
  1. Packaged BAL Cath
  2. Unopened bottle of Isotonic (non-bacteriostatic/cidal) normal saline
  3. Suction tubing
  4. Sputum trap
  5. 60 ml Luer lock syringe (may need 2)
  6. Appropriate PPE's, gloves, face shield, mask, and eye protection
  7. Chux or clean drape to hold equipment

- Identify patient, self, and department
- Wash hands. Procedure need not be sterile, but aseptic technique should be followed
- Where appropriate, explain procedure and confirm patient understands. Confirm with proxy if available.
- Closely monitor patient throughout procedure. Immediately terminate the procedure if evidence of desaturation (SpO2 <85%), increased ICP, arrhythmias, hemodynamic instability, or patient intolerance of the procedure.
  Notify the physician and document adverse reaction.
- Assemble equipment and organize work field.
- Administer 100% oxygen for at least 5 minutes prior to and during the procedure
- Suction airway (ETT or tracheostomy) with regular in-line catheter
- Draw up 60 ml of normal saline into the syringe and set aside in a clean field for later instillation.
- Place the mucous trap in-line between the suction tubing attached to the wall canister and the sterile suction tubing provided.
- Attach the graduated suction adapter to the three-way stopcock on the inner catheter and close the stopcock to the suction.
- Remove the sterile protective cover from the tip of the Bal Catheter
- Pass the Bal Cath through the ETT access port elbow until it extends approximately 1.5 cm. This will ease advancement of the catheter. Do not contaminate the Bal Cath tip prior to insertion.
- Remove the in-line suction device and attach the Bal Cath adapter to the ETT or trach tube while guiding the catheter tip into the lumen of the tube.
- Reconnect and maintain mechanical ventilation.
- Rotate the O2 port to either the 3:00 (right) or 9:00 (left) position which will position the coude tip into the specific lung for sampling.
  If the O2 port is turned to the right, the catheter tip will go into the left lung segment, and vice versa.
- Advance the outer catheter in the ETT until the numbers on the catheter and ETT match. This will place the end of the catheter at the end of the ETT tube.
- Once the ETT and catheter numbers match, advance the outer catheter 4 cm further into the right or left bronchus. Confirm right or left lung position after advancement by looking at the oxygen adaptor port position.
- On inspiration, advance the inner catheter 2-3 cm until a slight resistance is felt. The inner catheter should now be in a wedge position.
- Lock the catheter in position with the blue slide lock.
- Gently infuse saline in 30ml doses. Generally, 2- 30ml doses will be enough.
- Turn 3-way stopcock to suction to fill trap with a minimum of 5 ml. If return is not enough, a slight retraction of the inner catheter may be necessary, and/or instill additional quantities of normal saline in 30 ml increments not to exceed 4 times or a maximum of 120 ml.
- When the trap has 5 ml, disconnect the specimen to protect the sample.

- Unlock the blue slide and pull the inner catheter out until the black line is behind the oxygen port.
- Hold outer catheter and pull entire system out.
- Reconnect Ballard and circuit to the patient.
- Follow up monitoring to include BP, Pulse, RR, SpO2, any bleeding, etc.

Lab slips and sample processing:

- To send the sample through the pneumatic tube, make sure the screw on cap is on the Lukens trap container
- Send lavage fluid to appropriate labs as per print out
  1. Microbiology
  2. Cytology
  3. Hematology
- To distinguish true infection from colonization and the specific lung sample site, document on the lab slip:
  Right or Left Lung Mini-Bal Quantitative Culture
- Cytology for PCP, cancer, viral cytopathology, hemosiderin-laden macrophages for pulmonary hemorrhage where appropriate.
- Non-blood fluids slip for cell count and differential.

Special considerations for Trach tubes:

- Before inserting the catheter into the Trach, insert the outer catheter into the same sized spare trach with inner cannula, noting the number at the flange when the outer catheter is at the end of the trach.
- Pass the Mini-BAL catheter through the ETT adaptor about 1.5 cm. (L-Shaped adaptor)
- Connect the ETT adaptor to the Trach. Turn the outer catheter to right or left to position the Mini-Bal either to right or left lung.
- Advance the outer catheter until the number at the flange is the same as your measured number. This will place the catheter at the end of the trach. (Do not force the catheter further).
- Once the measure number is at the flange matched, advance the outer catheter to 3-5 cm further into the airway. Lock the catheter in place with the blue slide lock.
- Now advance the inner catheter until you feel the resistance. This should place you in a wedge position.
- Gently infuse saline in 30ml doses. Generally, 2- 30ml doses will be enough.
- Turn 3-way stopcock to suction to fill trap with a minimum of 5 ml. If return is not enough, a slight retraction of the inner catheter may be necessary, and/or instill additional quantities of normal saline in 30 ml increments not to exceed 4 times or a maximum of 120 ml.
- When the trap has 5 ml, disconnect the specimen to protect the sample.
- Unlock the blue slide and pull the inner catheter out until the black line is

behind the oxygen port.
- Hold outer catheter and pull entire system out.
- Reconnect Ballard and circuit to the patient

2. ASSIGNMENT OF RESPONSIBILITIES

A well trained Licensed Registered Respiratory Therapist will perform this procedure with the supervision of MD or RN at bedside.

3. DEFINITIONS:

Mini-BAL Sampling **Catheter** is to retrieve a sputum sample will isolate the pathogen from the lower lung making antibiotic selection more specific to the organism.

Indications diagnosis and evaluation
- Ventilator Associated Pneumonia- VAP, if R.T. cannot complete the study within 2 hours of receipt of the order, the MD has the option to perform the study
- PCP
- Acute interstitial disease
- Pulmonary hemorrhage

Contraindications: Patient conditions that require the ordering physician to perform the study. **RT SHOULD NOT** attempt the procedure without direct consultation with the ordering physician if any of the following conditions exist

- P/F<100
- Pplat>40
- Elevated intracranial pressure (>20)
- Severe coagulopathy (INR>3)
- Platelet count <10,000
- Dependence on PEEP>20
- HFOV
- Tracheal tumor
- Tracheobronchial stent
- Serious cardiac arrhythmias
- Hemodynamic instability

Hazards/complications
- Similar to those of bronchoscopy BAL
- Pneumothorax
- Fever
- Bronchospasm

- Hypoxemia
- Bleeding
- The Coudé tip of the BAL Cath should protect against trachea bronchial perforation which has been reported with other Mini-BAL catheters.

4. REFERENCES:

AARC Clinical Practice Guidelines; Respiratory Care; Postural Drainage Therapy.

5. REVIEW

July 7th, 2022

6. RECERTIFICATION

This SOP is scheduled for recertification on or before the last working day of November 2025. In the event of contradiction with national policy, the national policy supersedes and controls.

7. SIGNATORY AUTHORITY

Edita Vines, MS, RRT-ACCS, AE-C
Chief, Respiratory Care Services
Date Approved: January 17th, 2020

NOTE: *The signature remains valid until rescinded by an appropriate administrative action.*