Bronchoscopy: Linear Endobronchial Ultrasound (EBUS) and EBUS-TBNA Set Up (Respiratory Therapy)

Site Applicability

St. Paul's Hospital

Policy Statements

All endobronchial ultrasound (EBUS) procedures will be scheduled in Cerner via Pacific Lung Health Centre clerk on the order of an attending Respirologist or Respirology Fellow.

General Information

The EBUS set-up and procedure is restricted to a Respiratory Therapist who is EBUS-trained and has been deemed competent in these skills and has completed the Bronchoscopy Suite Orientation Checklist.

The *Bronchoscopy Safety Checklist* will be completed by the Respirologist or Respirology Fellow in the presence of the RN and RT prior to the commencement of the procedure. The Respirologist is required to be present in the suite prior to the first dose of sedation being administered and remain there for the duration of the bronchoscopy procedure.

Refer to B-00-07-12001 for more information regarding table setup and scope preparation.

Indications

The clinical indication for performing linear EBUS is based on the assessment by the Interventional Respirologist. Linear EBUS with transbronchial needle aspiration (EBUS-TBNA) is most commonly used as a tool to diagnose and stage patients with suspected or known non-small cell lung cancer. It is usually performed as a secondary procedure after the initial visual inspection of the lung using a standard bronchoscope. Refer to B-00-07-12001 for Bronchoscopy Standard Procedures.

Contraindications

- Absence of patient consent
- Patient has not been NPO for a sufficient length of time
- Absence of skilled care providers proficient in performing and assisting with the procedure
- Allergy to any medications or substances that may be used during the procedure

Infection Control Precautions

Bronchoscopy is considered an aerosol generating medical procedure (AGMP) and as such all health care providers involved in the procedure should be wearing complete Personal Protective Equipment (PPE) attire including an N95 mask and eye protection.

See the following link for more information: Aerosol Generating Medical Procedures (AGMP) in the context of COVID – Infection Prevention and Control

Cautions

Check carefully for latex allergy prior to setting up the linear EBUS bronchoscope. The EBUS balloon, which facilitates contact of the ultrasound transducer with the airway wall, contains latex.

Special Considerations

- Ensure that chilled sterile saline and/or 1:20000 of epinephrine and a therapeutic scope are readily available in the event that uncontrolled bleeding occurs during the procedure.
- For patients that have an allergy to Xylocaine (lidocaine), the alternate drug Nesacaine (chloroprocaine) may be requested from Pharmacy by the Respirologist at least 24 hours in advance of the procedure.

Required Supplies & Equipment

- EBUS bronchoscope
- Balloon application tool (re-usable)
- Denture cup
- 20 mL luer lock syringe
- 10 mL luer lock syringe
- Male/female red port cap
- 3-way stopcock
- Latex EBUS balloon
- 4x4 gauze
- Saline
- 21g Vizishot Needle kit or other biopsy needle assembly
- Spare scope bin

Procedure

EBUS Balloon Application (OMIT if patient has a documented latex allergy):

1. Wash hands and don gloves before handling the EBUS bronchoscope.
2. Position EBUS scope on the covered bench with ceramic transducer facing upwards. (See Exhibit 1.)
3. Using a 10 mL syringe, draw up 10 mL of saline and flush through balloon channel; remove syringe.
4. Securely attach 3-way stopcock to balloon channel; ensure that it cannot be turned easily.

Exhibit 1.

5. Attach the 10 mL syringe of saline to the vertical port of the stopcock. Flush the side port of the stopcock with a few mLs of fluid prior to attaching the red port cap. Position the 10 mL syringe about 45 degrees from the vertical plane.
6. Gather the balloon applicator tool, EBUS balloon and gauze. Clean the applicator tool using an alcohol swab. (See Exhibit 2.)

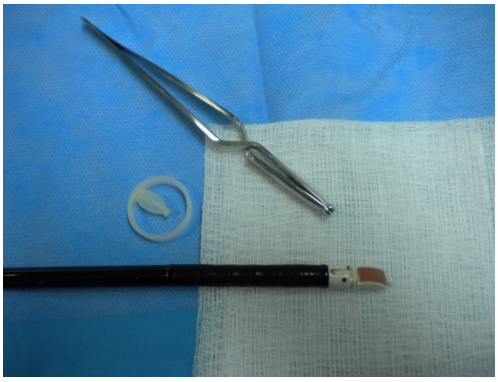

Exhibit 2.

7. Open the EBUS balloon package and gently grab the narrow end of the balloon with the applicator tool (about ½ the length), then flip the wider top portion inside out over top the applicator tip. (See Exhibit 3.)

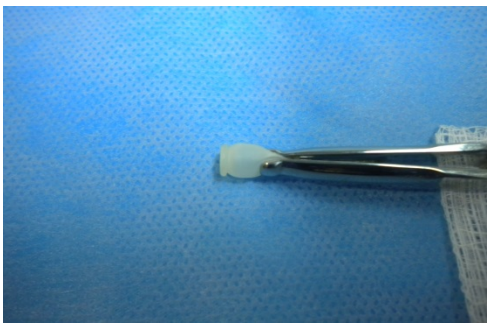
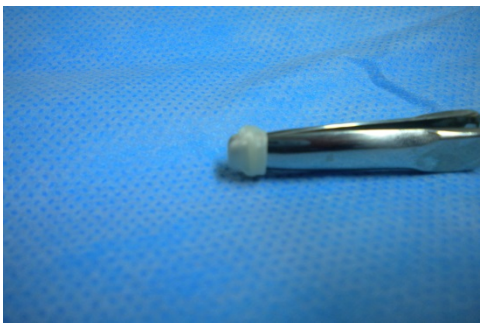

Exhibit 3.

8. Depress the applicator carefully until the blunted tip of the applicator end is wide enough to fit balloon onto the EBUS transducer.
9. Place the balloon over the transducer, ensuring the tweezers are NOT directly over the delicate transducer. Do not apply any excessive force to or bend the distal end of the endoscope.
10. Carefully roll the balloon from the tweezers onto the scope, placing the wide rim into the balloon groove of the scope. (See Exhibit 4.)

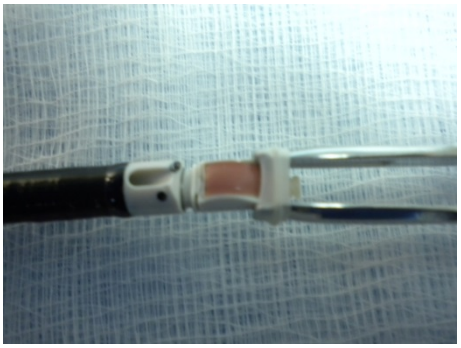

Exhibit 3.

11. Open the 3-way stopcock port to the scope and flush with attached saline syringe until the balloon fills with saline, checking for any holes. At this time, any air bubbles can be gently expelled out through the distal end of balloon.
12. Once the integrity of balloon is confirmed, seat the small balloon rim onto the tip of the endoscope by using index finger to gently push down on balloon circumference.
13. Inflate balloon to check for any air bubbles by gently flicking the balloon and expelling them through the top of the balloon. **It is very important to remove any air bubbles prior to using the scope because they can distort the ultrasound picture and overall affect the quality of the exam.**
14. Inflate the balloon and rotate it gently until the widest part of the balloon is over the transducer. Deflate the balloon afterwards.

Biopsy Needle Preparation:

1. Attach the EBUS biopsy port to the prepared EBUS bronchoscope, place scope in a bin and cover.
2. Obtain a 21G Vizishot 2 needle or physician preferred biopsy needle and remove from package. Inspect needle for any kinks or irregularities and test the function of the needle assembly.

Post Procedure:

** Lymph node biopsies are extremely time sensitive, and samples should be prepared for stat transport to the cytology laboratory as soon as possible post-procedure. **

Scope Pre-Cleaning Procedure:

1. Power off the light source and processors, disconnect the bronchoscope and attach the water resistant caps to the side ports of both the linear and standard flexible scopes.
2. Empty the remaining saline from the sterile bowl and refill with sterile water.
3. Perform pre-clean of standard flexible scope as per RTD8500.
4. Using gauze, gently roll the EBUS balloon off the transducer of the linear EBUS scope and discard.
5. Remove the 3-way stopcock from the balloon channel port and discard. Retain the 10 mL syringe, discard remaining normal saline in syringe and reattach it directly onto the balloon channel port.
6. Perform pre-clean procedure of linear EBUS scope as per RTD8500, with the addition of aspirating 20 mL of enzyme solution, and then sterile water through the balloon channel.
7. Discard suction and biopsy valves and place linear scope into a transport bin with soiled sign indicating the time pre-clean procedure was completed.

Documentation & Communication:

- Check all specimen laboratory requisitions for accuracy and completeness with physician and pair with labeled specimens and initial the Bronchoscopy Time Out Sheet that this has been done.
- The nurse will enter relevant procedure documentation in Cerner.

Education & Orientation:

1. Complete Bronchoscopy Suite Orientation Checklist with core respiratory therapist in the bronchoscopy suite.
2. Complete practical portion of orientation that includes supervised standard bronchoscopy cases, as well as a minimum of 6 linear EBUS cases with EBUS-TBNA, or until competency is demonstrated.
3. Complete *Procedural Sedation BCCA Certification Program* accessed at https://learninghub.phsa.ca/

References

1. Olympus. (2021). *EBUS Bronchoscope (BF-UC180F)*. Olympus. https://medical.olympusamerica.com/products/bf-uc180f-ebus-bronchoscope

Initial Effective Date:	01-JUN-2016
Posted Date:	14-APR-2021
Last Revised:	14-APR-2021
Last Reviewed:	
Approved By:	PHC
	Bronchoscopy Quality & Safety Team
Owners:	PHC
	Respiratory Therapy