



## Thoracic Surgery for Symptom Control

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Many lung cancer patients undergo thoracic surgery for resection of their tumours. Surgical intervention can also be considered for symptom control or palliation as part of a multidisciplinary approach to keeping patients comfortable.

### Dyspnea – Shortness of Breath

Patients frequently describe dyspnea (shortness of breath with minimal exertion) as a common symptom of their lung cancer. This is often due to multiple patient factors, but sometimes one particular problem can be contributing significantly to a patient's dyspnea.

A patient can experience breathlessness or painful breathing if an important part of the lung is collapsed. A patient can have portions of collapsed lung due to a tumour growing into and blocking a major section of the airway (Figure 1).

If left unattended, this blockage can develop into an infection or post-obstructive pneumonia. If the blockage occurs in a large enough part of the airway, a stent can be placed there, to allow air to travel to the lung and to allow mucous and secretions to drain out (Figure 2). The stent is inserted using a rigid bronchoscope (a straight hollow metal tube) under a general anesthetic. A rigid bronchoscopy can be performed to core out the airway if a stent cannot be inserted and if the tumour is occluding a

proximal or large bronchus. Both cases require a general anesthetic, and can often be performed as a one day procedure.

### Fluid

If cancer spreads to the lining of the lung (pleura) there can be a build up of fluid around the lung. This fluid can compress or collapse parts of the lung resulting in breathlessness. If there is excessive fluid collecting around the lung, the medical team can consider a number of interventions such as:

- **Thoracentesis:** needle drainage of the fluid (Figure 3);
- **Thoracoscopy:** placing a telescope into the chest under general anesthesia; or
- **Chest Tube Insertion:** (Figure 4).

**Thoracentesis** can be done in a clinic setting with minimal discomfort. The drainage of the fluid can cause quick resolution of shortness of breath however many times the fluid returns.

With a **thoracoscopy**, the surgical team can drain the fluid, but can also instill substances that reduce the risk of the fluid returning. Talc or bleomycon, for example, can be instilled to cause irritation and then scarring in the lining of the lung. This scarring will fill the space within which the fluid would normally collect in the lungs. A thoracoscopy is usually done as a day surgery and carries minimal risk.

**Chest tube** insertion is called for if the patient needs drainage of the pleural effusion but is not a surgical candidate. This requires a patient to be in hospital until the tube is removed. The chest tube will drain the fluid, allow the lung to re-expand and facilitates the instillation of sclerosing agents to prevent the return of the pleural fluid (Figure 4).

**Pericardiocentesis** or a **pericardial window** are two procedures which can be used if cancer spreads to the sac covering the heart (pericardium). In this case, fluid can accumulate and constrict the heart. This will cause a fast heart rate, low blood pressure, weakness and shortness of breath. If left to progress, the fluid can ultimately cause the heart to stop. A pericardiocentesis can be done with echocardiography to alleviate symptoms in the short term. A pericardial window is a procedure where a hole in the sac around the heart is made to allow the fluid to drain into either the chest or the abdomen. These are both one day procedures and are very effective in palliating fluid accumulation around the heart.

There are many other roles for surgery in the palliation of metastatic or locally advanced cancer. An open discussion with your oncologist about your symptoms is important in order to plan for the most effective intervention.



Figure 1

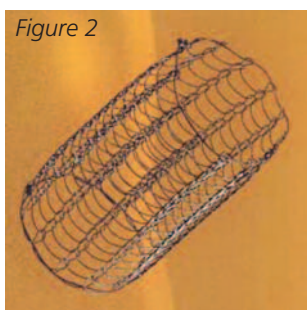


Figure 2



Figure 3



Figure 4



## Shortness of Breath – Dyspnea

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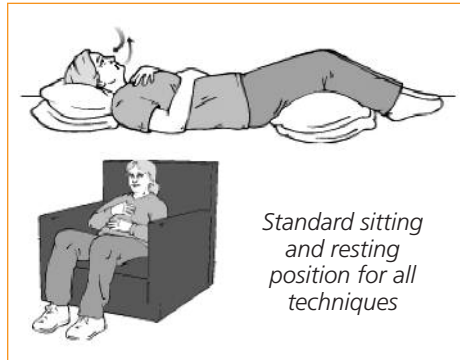
Dyspnea is a medical term that refers to shortness of breath with minimal exertion. "Hunger for air" "suffocation" or "breath constriction" are expressions sometimes used by patients to describe the uncomfortable sensations of dyspneic breathlessness. Dyspnea is a distressing symptom that accompanies many respiratory diseases. Patients with lung cancer are most commonly affected.

Dyspnea can be one of the most frightening and alarming symptoms of lung cancer. Its degree of intensity can vary from mild discomfort to severe pain at any given time. During an episode of extreme breathlessness, patients not only experience intense pain, but also feelings of panic and fear. These reactions often increase anxiety levels, which further limits oxygen intake, making breathing more difficult and painful. It is crucial to break this cycle as soon as possible. Breathing and relaxation techniques may apply some relief to breathlessness symptoms. If symptoms persist or worsen, contact your physician and proceed to the nearest hospital.

### Controlled Breathing or Pursed Lip Breathing

1. Sit up right to increase the capacity of air in your lungs. You can take the weight off your shoulders by resting your hands on the arms of a chair or on your lap
2. Purse your lips as though you are going to whistle

3. If possible, inhale through your nose with a gentle steady breath and try not force the air out of your lungs
4. Try to relax your shoulders and upper chest muscles as you breathe out
5. Breathe out gently through your pursed lips for 2 slow counts
6. Your exhale should be twice as long as your inhale to empty the "old air" out of your lungs ( inhale 3 seconds, exhale 6 seconds). Keep repeating this exercise until you receive some relief from your shortness of breath.



### Abdominal Breathing

1. You may sit up right or lie on your back with your knees bent and/or with a pillow under your knees
2. Place one hand on your upper chest and the other on the centre of your abdomen

3. Exhale slowly using the pursed lips breathing technique, gently squeezing your abdominal muscles
4. Inhale softly through your nose and feel your abdomen expand slowly
5. Continue this breathing technique until breathlessness subside.

### Relaxation strategies

1. Stop what you are doing and sit or lay down to rest in a comfortable position
2. Close your eyes or fix your sight on an object in your environment
3. Calmly breathe in and out through your mouth as fast as necessary while trying to relax your entire body
4. After 2 minutes begin to slow your breathing using the pursed lip breathing technique
5. Continue in this position for about 5 minutes.

### Use of Medical Therapies

Standard medical treatments for dyspnea can involve therapies that i) increase oxygen levels ii) reduce fluid build-up in the lungs iii) reduce anxiety and pain. Remember to keep your doctor informed and ask which treatment options are the best for you if shortness of breath has become a problem. You may be required to take a series of tests to conclude the exact cause of your breathlessness in order to determine best treatment options.

### Lung Cancer Support Information, Programs and Services:

Lung Cancer Canada; Wellspring; Gilda's Club; Canadian Cancer Society (for information, referral and peer support)

[www.lungcancerCanada.ca](http://www.lungcancerCanada.ca) info@lungcancerCanada.ca

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