



A Complete Holistic Approach in a Patient of Advanced Lung Cancer with Severe Breathlessness

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Abstract

A holistic approach is utmost beneficial to all patients at the end of their life. But at very same time, it is also relevant for patients with advanced incurable illness, like lung cancer particularly where suffering goes beyond disease. Approach of cure sometimes, treat often and comfort always must be followed in managing these cancer patients. Knowledge of the spectrum of expected symptoms is very important in order to optimize patient care. This article focuses on the symptomatic management of advanced lung cancer patients.

Keywords: Lung cancer; Holistic approach; ATT; COPD; SVC

Introduction

Lung cancer is the most common cause of cancer death worldwide in men and second most common cause of cancer death in women [1]. Patients with lung cancer are often diagnosed at an advanced stage in about 50% to 55% of cases [2]. A delay in diagnosis at various levels: failure to recognize suspicious cancer symptoms by patient, attributing symptoms to tuberculosis and prescribing unnecessary ATT (Anti-Tubercular Treatment) by primary care physician, patients with suspicious cancer at secondary care centers may not be seen on time due to high patient load and so on [3,4]. Among lower-income Indian patients, the most prominent delays occur prior to diagnosis [4]. Furthermore, the diagnostic workup is often time taking not because of involving serial procedures and evaluation for distant metastasis, but because of a long waiting list at various government centers. Due to prolonged time period between the initial consultation and treatment, patient may experience progression of tumor and clinical stage [3]. Advanced disease at the time of diagnosis limits curative treatment options. As mentioned earlier, nearly 50% of patients are diagnosed in the advanced stage and more than 80% die within 1 year of diagnosis [5]. What is good death, from Buddhist perspective is not determined by the way one dies, or the reason for death, it is rather characterized by the "state of mind at the time of death; dying in peace, without suffering and fear".

Patients with lung cancer experience more distress than patients with other cancers especially because of breathlessness and various other symptoms may result from local effects and regional or distant spread or distant effects not related to metastasis (paraneoplastic syndrome) as well as a variety of acute illnesses related to treatment or comorbid conditions (asthma, COPD). Symptoms such as cough, pain, breathlessness and hemoptysis may be associated with worsening of other personality changing symptoms including depression and fatigue affecting quality of life not only of patient itself but of caregiver also and early palliative care intervention including good symptomatic control not only improves nearly all the aspects of quality of life but sometimes may increase overall survival also [2].

Here I am discussing one such case of advanced lung cancer who was in severe distress and managed symptomatically with a holistic approach compassionately and effectively resulting into easing his distress and making him comfortable. It is all about a 45-year, non-smoker man who was diagnosed to have left sided massive malignant pleural effusion with no previous comorbid illness (Figure 1). At the time of presentation, he had complaint of severe breathlessness which gets aggravated in lying position not able to sleep for last two days. Before presenting to our center, pleural fluid (approximately 1.5 liter) was aspirated. In spite of that, his breathlessness persisted and so referred to higher center. Because, as per them there is no other treatment option available with him. Repeat chest radiograph revealed pneumothorax same side (Figure 2). Immediately chest drain

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Figure 1: Chest radiograph showing massive left sided pleural effusion.



Figure 2: Chest radiograph showing left sided pneumothorax.

was placed (Figure 3) and nebulization with bronchodilator, oxygen inhalation, and systemic steroid, non-invasive ventilation was started. Despite this, his distress continued. So, in view of cardiomegaly on chest radiograph, 2D-ECHO was planned which revealed massive pericardial effusion. Pericardiocentesis with indwelling catheter was placed in pericardial cavity (Figure 4). The very next morning, patient was comfortable, able to lie down and had a comfortable sleep overnight first time in last 3 to 4 days.

This case endorses that understanding of symptom-related approach in patient with lung cancer is an important clinical intervention to improve quality of life. So here we are discussing the possible management of distressing symptoms in advanced lung cancer patients.

Dyspnea

Dyspnea in lung cancer patients can occur at rest or slight exertion, which is often accompanied with anxiety. The various causes of dyspnea in patients with advanced disease are recurrent pleural effusion, central airway obstruction, post-obstructive pneumonia, pulmonary embolism, Superior Vena Cava (SVC) syndrome, pericardial effusion, radiation pneumonitis, anxiety and tobacco-related illnesses, mainly Chronic Obstructive Pulmonary Disease (COPD) and ischemic or hypertensive heart disease, last but not the least is anxiety. Recurrent pleural effusion is one of the most common causes of dyspnea. Once the diagnosis of malignant pleural effusion is established, talc pleurodesis *via* thoracoscopy (poudrage) or chest tube (slurry), pleurodesis using a chemical agent (e.g. tetracycline, doxycycline, bleomycin) is recommended as definitive treatment of malignant pleural effusion [6]. Serial thoracentesis can be considered in patient with symptomatic effusion with life expectancy of less than one month [7].



Figure 3: Chest radiograph showing chest drain *in situ*.



Figure 4: Chest radiograph after pericardiocentesis.

Mediastinal and hilar mass may compress or invade the central airways resulting in airway obstruction or pneumonia. Relief of central airway obstruction is an important factor to relieve dyspnea and in treating obstructive pneumonitis [8]. CT with contrast and/or flexible bronchoscopy is helpful in evaluating the site of obstruction and to find out whether it's in lumen or extra-luminal. An intraluminal obstruction may be treated with immediate effect therapy like endobronchial laser resection, APC, electrocautery, mechanical debulking or delayed effect therapies like brachytherapy, photodynamic therapy, cryotherapy whereas extraluminal obstruction can be treated with dilation airway stenting [9]. Administer broad spectrum antibiotics to manage post-obstructive pneumonia along with attempt to overcome obstruction as early as possible [10].

Deep Venous Thrombosis (DVT) with Pulmonary Embolism (PE) is the leading cause of death in patient with cancer. Once per day regimen (except in fragile patient who are at risk of bleeding) of Low-Molecular Weight Heparin (LMWH) is recommended for the initial treatment of established DVT/PE with creatinine clearance ≥ 30 ml per minute [11]. Patients who do not have high risk of gastrointestinal or genitourinary bleeding, rivaroxaban (in the initial 10 days) can also be used [11]. Primary prophylaxis with LMWH, vitamin K antagonist or direct oral anticoagulant is not recommended in locally advanced or metastatic lung cancer treated with chemotherapy, including patients with low risk of bleeding.

SVC obstruction is usually due to compression by adjacent bulky tumor, although it may be due to frank invasion or thrombus.

Clinical severity depends on rapidity and degree of compression. Symptoms include swelling of the head and neck, dilated superficial veins in upper part of the body, dyspnea, stridor, dysphagia and life threatening cerebral edema [12]. Now days, SVC obstruction is no longer a medical emergency except cerebral edema leading to altered mental status, hemodynamic compromise and stridor where treatment include placement of endovascular stent.

Pericardial effusion may be seen in lung cancer patients, similar to pleural effusion. Its major complication is cardiac filling restriction with hemodynamic compromise leading to cardiac tamponade [13]. Monitoring with serial echocardiogram and cancer directed therapy is reasonable in stable patients without evidence of cardiac tamponade. Pericardiocentesis, placement of indwelling catheter and instillation of sclerosing agent (for refractory effusion) may be used. Additional surgical options like pericardial window and pericardiectomy may be considered in selected patients [13].

Radiotherapy induced pneumonitis can be iatrogenic cause of dyspnea. Irradiation of lung cancer is also associated with part of a healthy lung leading to pneumonitis. Clinical symptoms include cough, dyspnea, fever, and chest pain [14]. Treatment includes steroid, bronchodilators and oxygen therapy.

In the course of advanced lung cancer with dyspnea, it is recommended to use opioids like morphine for the symptomatic control. Use of opioids should be modified in cases with renal failure. Oxygen therapy is used for relief of dyspnea if oxygen saturation is below 90%. Oxygen therapy should be given preferably by nasal cannula along with lubricating cream as oxygen mask causes dryness of mouth and difficulties in fluid intake and communication with family [15].

COPD and cardiovascular disease have common factors which also promote lung cancer. Management of COPD with bronchodilators and cardiovascular disease is important in lung cancer patients [16].

Pain

There are three main causes of pain in patients with lung cancer at advanced stage: Bone metastasis and chest wall invasion (Pancoast tumor/local infiltration) [17]. General principle of pain management [17], as per World Health Organization's (WHO) analgesic ladder for cancer pain relief, provides a stepwise approach of pain management. Step 1 advises the use of paracetamol or non-steroidal anti-inflammatory drugs. If not satisfactorily controlled, move to step 2 which includes the use of weak opioids like codeine and tramadol. Patient with severe pain require direct step 3 analgesia which includes strong opioid (morphine and fentanyl) [17]. At any step of this analgesic ladder, adjuvant analgesics play an important. Most commonly antidepressants (like amitriptyline) or anxiolytics (like pregabalin or gabapentin) are used specifically for neuropathic component of pain (like Pancoast tumor has involvement of brachial plexus and nerve). Palliative radiotherapy has an important role to alleviate pain in advanced lung cancer, not only for bone metastasis, also for brain metastasis as well as local infiltration like Pancoast tumor. Another important adjuvant is steroid (commonly used is dexamethasone) which is specifically used for local pain due to bone metastasis and in headache due to brain metastasis (drug of choice for headache associated with increased intra cranial pressure).

Hemoptysis

Hemoptysis related to lung cancer occurs in about 20% of the cases [18]. Hemoptysis is defined as the presence of blood in the bronchial secretions. Its presentation can be minor or massive (life threatening). In literature, a reported threshold for massive hemoptysis varies from 100 mL to 1000 mL in 24 h period [19-21]. The "magnitude of effect" including airway obstruction, hypoxemia, hypotension, intubation, transfusion requirement, death may be more adequate to define massive hemoptysis than volume based definition [22,23]. Therefore, better definition of massive hemoptysis is expectoration of large volume of blood with clinical instability. Minor hemoptysis can be managed with conservative approach alone (bed rest, cough suppressant, tranexamic acid and mild sedation). In patients with massive hemoptysis, assessment to protect the airway and hemodynamic stabilization remains the first priority [18]. Once stabilized, in this case bronchoscopy is done for localization of bleeding point and local treatment. Endobronchial instillation of various agents (cold saline, adrenaline injection, hemostatic agents), bronchoscopic guided topical hemostatic tamponade, Argon Plasma Coagulation (APC), endobronchial electrocautery, laser therapy are the bronchoscopic interventions to stop bleeding [18]. In some cases, if the above mentioned procedure fails, bronchial artery embolization is considered [2]. In terminal stage of disease, mitigation procedure like appropriate position to prevent choking, anti-anxiety drugs, dark-colors bed linen, presence of loved ones should be considered [2]. Palliative radiotherapy can be helpful in case of persistent hemoptysis [2].

Cough

Cough is one of the irritating symptoms usually faced by lung cancer patients. Detailed medical history and clinical examination is essential to determine the cause of cough. Many patients with lung cancer have coexisting disease like COPD that may cause coughing. In addition to treatment that is directed at the cause of cough, administration of antitussive drugs and opioids should be considered [2]. Oral steroids may alleviate coughing caused by direct tumor infiltration of the airway [2]. In patients with lung cancer, expectorant drugs and mucolytic agents have limited use.

Conclusion

In summary, Lung cancer is the most common cause of cancer related death in the world. But unfortunately, most of the patients with lung cancer present with advanced stage of disease, resulting into limited curative treatment options due to various reasons as mentioned earlier and so need a holistic approach since beginning of their treatment course for symptomatic relief and improvement in quality of life. Knowledge about various methods allows one to alleviate symptoms in patient with lung cancer as an important clinical intervention.

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