# Life threatening Hemoptysis for Emergency Lung Resection

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Hemoptysis has numerous causes, with 90% of cases being associated with a chronic infectious process.[1,2] Active tuberculosis is the most common infectious cause followed by bronchiectasis and bronchitis respectively. Rest of the cases are attributed to malignancy, trauma, iatrogenic sources (e.g. pulmonary artery catheterization) and cardiovascular disease.[3]

Experience in management of these cases is limited in western world because of better control of Tuberculosis and bronchiectesis.[4]

We hereby present a case that was operated for removal of affected lobe immediately after onset of life threatening hemoptysis.

## CASE REPORT

A 45 year old man was admitted to hospital with complaints of recurrent hemoptysis, with increasing frequency since few days. He was a chronic smoker and had undergone treatment for pulmonary koch's 2 years back. Presently patient had frequent bouts of coughing with streaks of blood in sputum. He had moderate effort tolerance and cardiorespiratory examination revealed no abnormality.

On Chest X-ray patient had non homogenous opacity with consolidation in right upper lobe of lung. CT scan of lungs revealed irregular fibrocavitatory lesion within a large cavity with surrounding consolidation and volume loss in same region. Inestigations revealed haemoglobin: 7.1gm/dl, TLC: 8600/cumm. Rest of the blood investigations were normal.

Patient was advised for Pulmonary function tests and transfusion of 2 units of blood preoperatively and 3 units in reserve for intraoperative use. Chest physiotherapy, nebulization with bronchodilators and incentive spirometry were also advised for a smooth postoperative course.

On the next morning patient had an episode of massive hemoptysis associated with voilent coughing. He had coughed out approximately 300 ml of blood within an hour. Patient was posted for emergency surgery with high risk informed consent. Intraoperative monitoring included $SpO_2$, ECG, NIBP, $EtCO_2$ and CVP. Thoracic epidural was inserted in $T_{10}$-$T_{11}$ intervertebral space and bupivacine (0.5%) given

**Figure 1**
*Chest X-ray patient showing opacity with consolidation in right upper lobe of lung (arrow).*

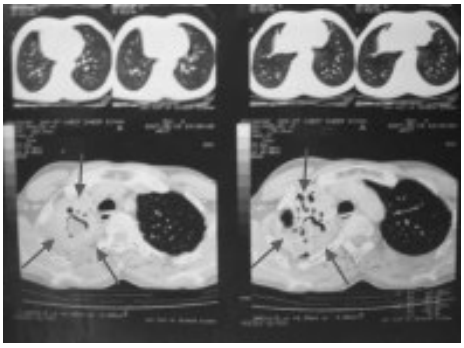

**Figure 2**
*CT scan of lungs showing volume loss in right lobe of lung (arrow)*

**Figure 3**
*Photograph of patient during hemoptysis.*

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for intraoperative analgesia. A slight head low tilt was preferred to facilitate gravity dependent drainage of blood during induction. Patient was preoxygenated with 100% $O_2$ and anaesthesia was induced with pentazocine, propofol and succinylcholine in standard IV doses. A left-sided Double-Lumen Endotracheal Tube (Robertshaw's 39 FG) was sited and proper placement confirmed by auscultating for unilateral and bilateral air entry in supine and left Lateral Decubitous Position (LDP). Thoracotomy was performed via right posterolateral incision and frequent suctioning of tracheal lumen of DLT was done to prevent further soiling of unaffected right sided lobes and their occlusion by clots. Anaesthesia was mantained using $O_2$, Halothane (1-2%) and vecuronium.

Intraoperatively, transient episodes of desaturation were dealt by giving 10 cm PEEP to the dependent lung and intermittent inflation of non-dependent lung. Neuromuscular blockade was antagonised with glycopyrrolate and neostigmine and patient's trachea was extubated. The resected lobe (right upper) was confirmed to have bronchiectatic changes with squamous metaplasia and fibrosis on biopsy. The postoperative course was uneventful and patient was discharged after 8 days. The patient was in good health on 6 months follow up.

## DISCUSSION

Massive hemoptysis has been arbitrarily defined, on the basis of volume of blood expectorated from 200 to 600 mL in 24 hours, or if it causes acute airway obstruction or major hypotension.[3] Chronic infection and inflammation leads to profuse vascularization of the high-pressure bronchial artery system and subsequently, any erosion or rupture of enlarged bronchial arteries results in massive hemoptysis.[4]

Surgical treatment should be instituted if patient has massive hemoptysis, unlikely to be controlled by embolization & has an identified operable lesion. Bronchial artery embolization can also be attempted where facilities are available, or if patient cannot withstand surgery, has an inoperable lesion or mild to moderate hemoptysis.[1,2,4]

Voilent coughing may increase bleeding, but it clears the respiratory tract and is lifesaving, therefore cough suppressants or sedative premedications are avoided in massive hemoptysis.[3] Death usually occurs due to flooding of unprotected airways and not due to exsanguination from bleeding.

Correct placement of DLT is crucial, as after administration of induction agents, protective reflexes are lost and spillage of blood to other functionally active areas of lungs will lead to their occlusion by clots, leading to grave consequences.

In our case, we got some time for reaching a diagnosis, localizing the lesion and arranging blood, although proper preoperative respiratory preparation could not be performed. Postoperative ventilation is advised after lung resection or prolonged general anaesthesia but was not required in our case, probably due to preserved residual lung function.

In conclusion, massive hemoptysis should be treated as a life threatening emergency where protection of respiratory tract should be the priority followed by hemodynamic stablization and attempts to identify and arrest bleeding.

## REFERENCES

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