


Management of Massive Hemoptysis: A Single Institution Experience			Healthcare
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Abstract

Introduction: Definition of massive hemoptysis is unclear: criteria range from 100cc /day to 1000cc over a few days. Massive hemoptysis is seen in 1.5 % of all hemoptysis cases. Deaths occurring by exsanguination or asphyxiation from flooding of the alveoli with blood and intractable hypoxemia. The 3 principles of management of hemoptysis consist: 1) maintain airway patency and oxygenation, 2) localize the source of bleeding, 3) control hemorrhage. Consider surgery for lateralized uncontrollable massive hemoptysis unresponsive to other measures or as a definitive therapy in patients whose hemoptysis and general medical condition have stabilized.

Objective: Analyses of our experience in treatment of 24 patients with severe hemoptysis for in single thoracic surgery Unit in SU”Shefqet Ndroqi” Tirana, Albania.

Material and Methods: In a 5-year period 2009-2013, twenty-four patients were admitted in our hospital with massive hemoptysis. All patients are estimated by: Physical examination, CXR, CT Chest, Bronchoscopy and Arteriography. Fifteen 15 (62%) patients received surgical resection as a definitive therapy.

Results: Of twenty-four patients enrolling in the study 18 were males and 6 females, mean age 54.9±13,7 years. The underlying pathology included bronchiectasis (n=5), active tuberculosis (n=9), pneumomycosis (n=7), lung cancer (n=2) and pulmonaryhydatid cyst(n=1). Hemoptysis ceased with conservative management in 9 patients (38%) only. Fifteen 15 (62%) patients received surgical resection. The procedures included lobectomy (n=13), bilobectomy (n=1) and pneumonectomy (n=1). The in-hospital mortality after surgery was 4.1% (1) patient. Redu-thoracotomy and right axillary open window in one patient. Postoperative morbidity occurred in 4 patients, including prolonged ventilatory support, bronchopleural fistulae, empyema and myocardial infarction.

Conclusions: The clinical outcome for massive hemoptysis reflects the generalized nature of a destructive disease process involving both lungs and a limited respiratory reserve. Surgery is associated with high risk of morbidity and mortality, and should be performed only in selected patients..

Introduction

Massive hemoptysis is generally used to describe the expectoration of a large amount of blood and/or a rapid rate of bleeding. Definition of massive hemoptysis is unclear: criteria range from 100cc /day to 1000cc over a few days.[1]. Some clinicians argue that a large volume of expectorated blood alone should not define massive hemoptysis, but rather, that abnormal gas exchange and hemodynamic instability should also be present [2].

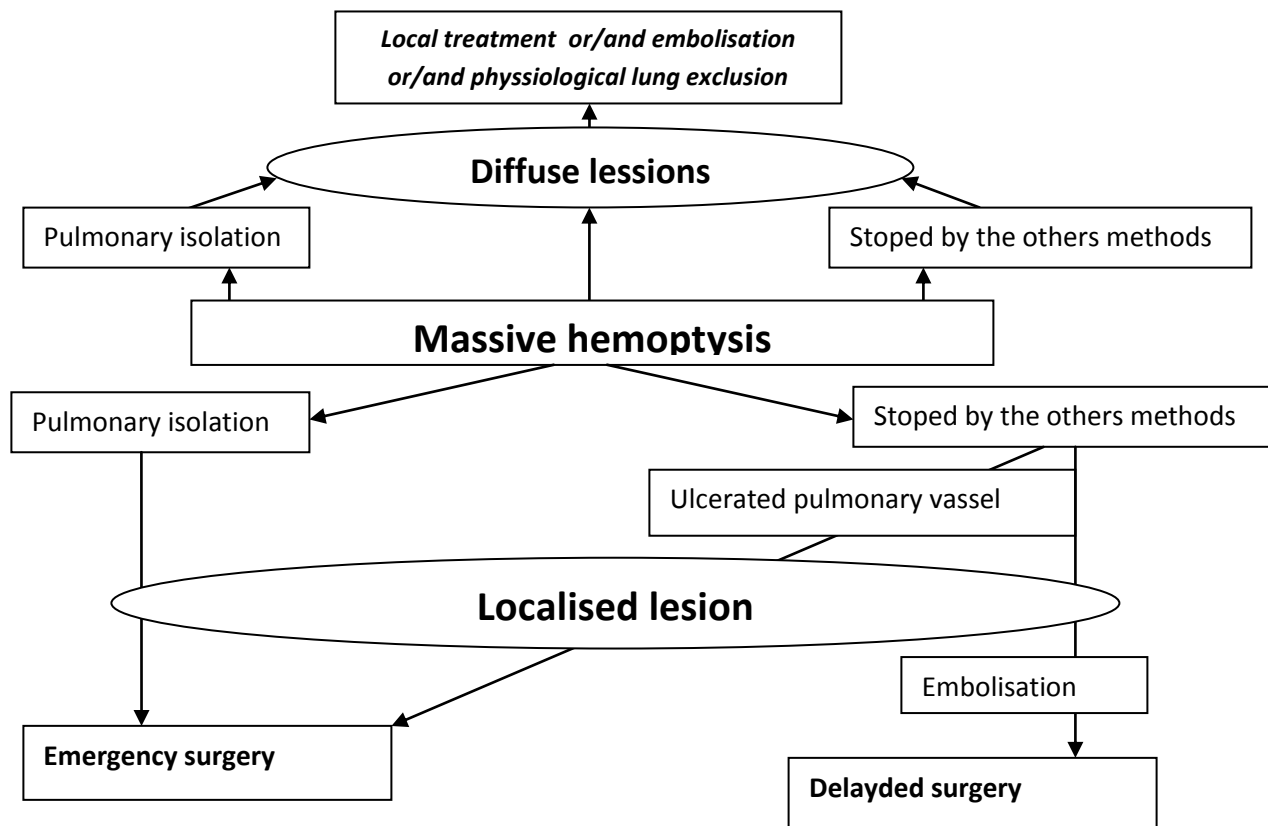
Massive hemoptysis is seen in 1.5 % of all hemoptysis cases. Deaths occurring by exsanguination or asphyxiation from flooding of the alveoli with blood and intractable hypoxemia. Risk of death correlates strongly with amount of blood expectorated, rate of bleeding, amount of blood within the lungs, and underlying pulmonary reserve.

The top 3 causes of massive hemoptysis are TB, bronchiectasis, and carcinoma. Other common diseases as etiology of hemoptysis includes: Bronchitis, aspergilloma, lung abscess, emboli, coagulopathy, autoimmune disorders, AVM, alveolar hemorrhage, mitral stenosis, pneumonia, Iatrogenic Hemoptysis [3]

The 3 principles of management of hemoptysis consist: 1) maintain airway patency and oxygenation, 2) localize the source of bleeding, 3) control hemorrhage. Obtain urgent CXR and ABG to assess the status of oxygenation and the amount of blood in the lung. If emergent intubation needed, use a 8mm catheter or larger (so that bronchoscopy can be performed). Monitor pts in the ICU. If bleeding site is known, place pt. in the lateral decubitus position with the affected lung in the dependent position. Obtain good venous access [4,5].

In general, early bronchoscopy is the procedure of choice. Bronchoscopic techniques include: irrigation with cold saline, topical administration of vasoconstrictive agents, endobronchial tamponade, and unilateral lung ventilation. If bleeding is severe, place a double lumen endotracheal tube (permits ventilation of both lungs, while preventing aspiration from one lung to another). The choice of bronchoscopy method depends not only on the situation of the patients but is also influenced by availability of special equipment and expertise[6,7].

If bronchoscopic techniques are inefficient, use pulmonary angiography and embolization[8]. Consider surgery for lateralized uncontrollable massive hemoptysis unresponsive to other measures or as a definitive therapy in patients whose hemoptysis and general medical condition have stabilized [9,10,11]. Below is the algorithm of massive hemoptysis treatment



Objective

Analyses of our experience in treatment of 24 patients with severe hemoptysis for 5 years period 2009-2013 in single Unit in SU "Shefqet Ndroqi" Tirana Albania.

Material and Methods

In a 5-year period, 24 twenty-four patients were enrolled in the study. These patients often present with continuous bleeding with large volume of hemoptysis, or with recurrent episodes of bleeding. All patients are estimated by: Physical examination, CXR, CT chest, Bronchoscopy, Arteriography. RBC scan and Bronchography were not performed. All the patients were treated in Intensive Care Unit. CT chest arteriography performed upon admission in all patients.

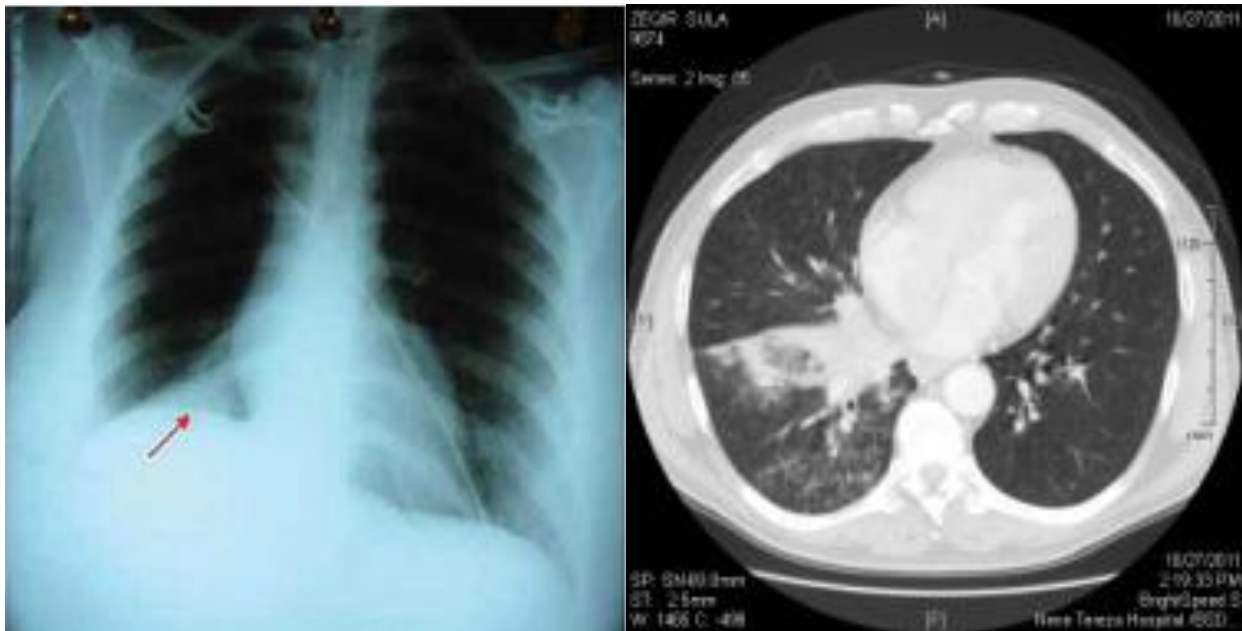


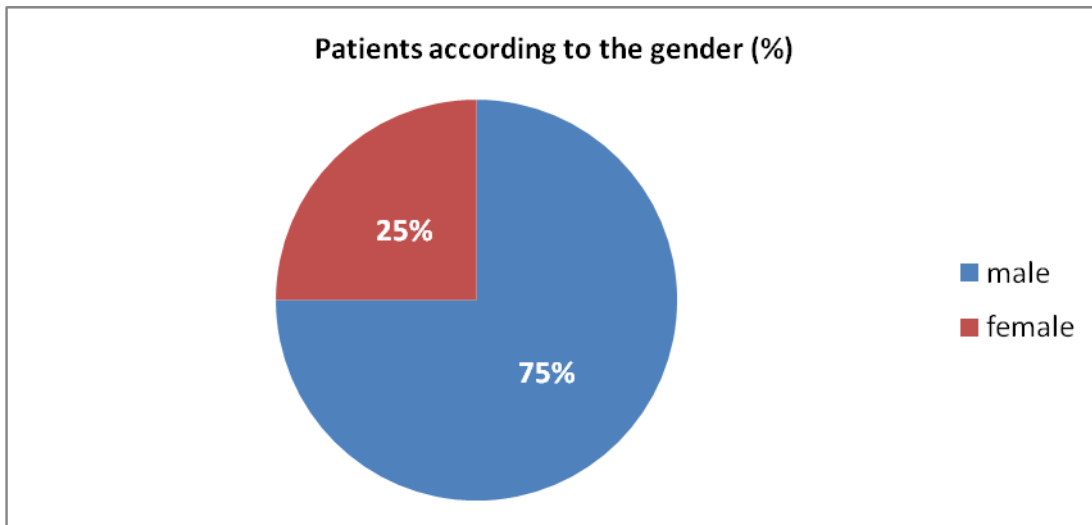
Figure 1: X-ray Chest AP view and CT-scan showing opacity in the right lower zone.

Also Bronchoscopic assessment and interventions were performed upon admission in all patients. Bronchoscopic techniques include: irrigation with cold saline, suction, topical administration of vasoconstrictive agents (epinefrine), endobronchial tamponade. Topical coagulants lasers and embolotherapy did not performed in our clinic.

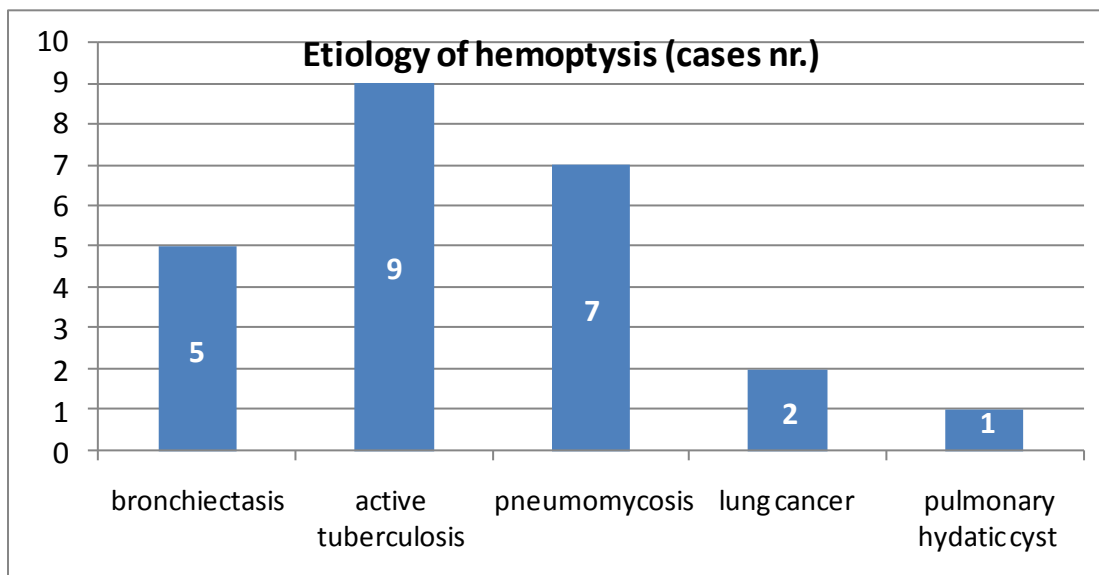
Surgery was considered if the patient had acceptable pulmonary reserve and a bleeding source was clearly identified. If the patient was not considered fit for surgery, conservative management was attempted.

Results

Of twenty-four patients (24) were 18 males and 6 females with mean age 54.9±13,7 years (min 21 and max 74 yrs) were treated for massive hemoptysis in our unit.

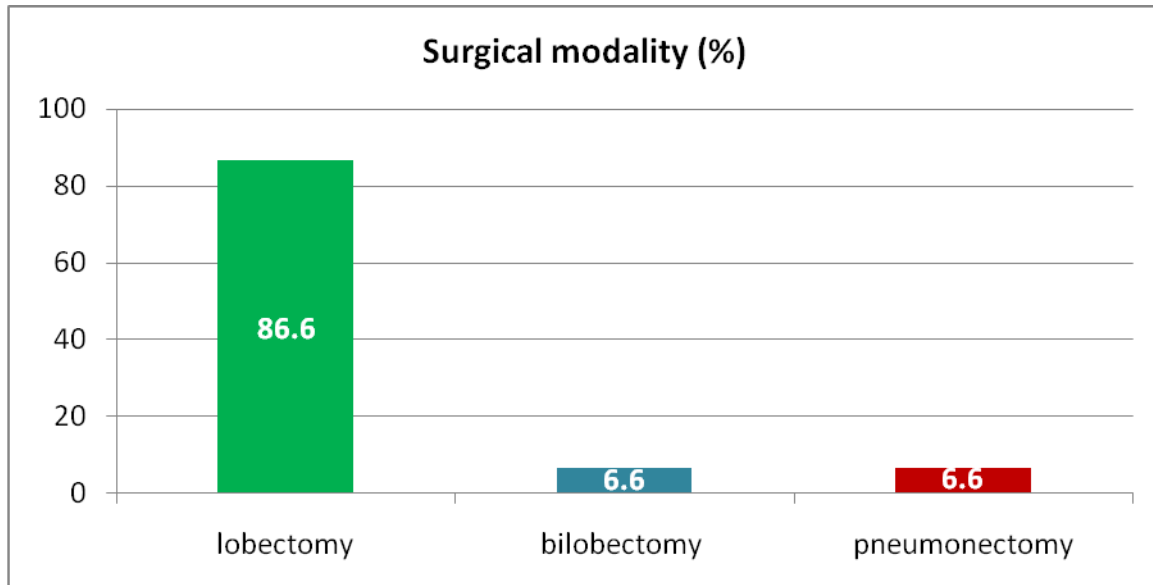


The underlying pathology included bronchiectasis (n=5), active tuberculosis (n=9), pneumomycosis (n=7), lung cancer (n=2) and pulmonary hydatid cyst(n=1).



Physical examination and chest x-ray were equivocal and not helpful in 68% of patients. This poor localization of bleeding reflects the fact that blood may be widely distributed in the lung by coughing.

Nine patients (38%) not suitable for surgery were treated conservatively, which was successful in 7 patients without any complications. Fifteen 15 (62%) patients received surgical resection. The procedures included lobectomy (n=13), bilobectomy (n=1) and pneumonectomy (n=1).



The in-hospital mortality after surgery was 1(4.1%) patient. Redu-thoracotomy one patient and right axillary open window. Postoperative morbidity occurred in 4 patients, including prolonged ventilatory support, bronchopleural fistulae, empyema and myocardial infarction.

Table 1: Major complications

Major complications	Number	(%)
Life-threatening disorders	4	16
Postoperative bleeding	1	4.1
Respiratory failure	1	4.1
Bronchopleural fistulas	1	4.1
Myocardial infarction	1	4.1
Cerebral infarction	-	-
Cardiac failure	-	-
Renal failure	-	-
Pulmonary embolism	-	-
Chilothorax	-	-

Table 2: Minor Complications within first 30 days after lung cancer surgery

Minor complications	Number	(%)
Non-life-threatening disorder	5	20
Supraventricular arrhythmias	-	-
air leakage	2	8.3
Lung Atelectasis	1	4.1
Obstructive symptoms	1	4.1
Paresis of recurrent nerve	-	-
Insufficient wound healing	-	-
Diaphragmatic paresis	1	4.1
Mediastinal shift displacment	-	-

Conclusions

The clinical outcome for massive hemoptysis reflects the generalized nature of a destructive disease process involving both lungs and a limited respiratory reserve.

Surgery is associated with high risk of morbidity and mortality, and should be performed only in selected patients. Meanwhile, aggressive conservative therapy including bronchial artery embolization (but us did not performed)should be pursued.

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