

흉강경 수술의 술 후 관리 및 합병증

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술 후 관리

Preoperative evaluation

- careful respiratory history
- routine pulmonary function testing(spirometry)
- preoperative pulmonary preparation
- nonpulmonary risk factor

General principles of postoperative care

Four categories

- drainage and obliteration of the pleural space
- control of postoperative pain
- care of the respiratory system
- care of the cardiovascular system

Drainage and obliteration of the pleural space

all patients who undergo thoracotomy are left with some degree of pneumothorax and the potential for developing a residual pleural space

- * seal all air leak as well as possible
- * large -bore thoracostomy tube
- * pleural drainage system
- * the tubes should not normally be clamped
- * removal of chest tubes is accomplished using a "inflate and hold" technique

Control of postoperative pain

- * atelectasis ↑
- * sympathetic tone ↑
- * vagal tone ↓
- * hormonal tone ↑

Techniques of pain relief

- * injecting IM narcotics every few hours
- * continuous intravenous infusion
- * angle intercostal nerve block(in OR)
- * epidural blockade

Care of the respiratory system

- patient's pulmonary reserve
- pulmonary function testing
- blood gas determination
- smokers, chronic bronchitis
- preoperative education of patient(techniques of postoperative bronchial hygiene)
 - effective coughing
 - incentive spirometer
 - proper position
 - chest physiotherapy
 - tracheal suctioning
 - control of pain
 - possible prolonged intubation and ventilation

Care of the cardiovascular system

- * ischemic heart disease
 - a. high index of suspicious during preoperative evaluation
 - b. preoperative EKG
 - c. exercise or thallium stress testing
 - d. cardiac catheterization & coronary angiography
- * myocardial infarction
 - : thoracostomy 환자의 0.2-3%에서 보이고 5-10%에서 electrocardiographic change
- * arrhythmia
 - : noncardiac patient의 20%에서 발생
- * heart failure

흉강경수술의 합병증

1. Complications of thoracoscopy

- *Ann Thorac Surg* 1993;56:796-8

overall incidence of complications:10%

- a. prolonged air leak longer than 7 days(3.7%)
- b. superficial wound infection(1.9%)
- c. bled significantly enough to require either-transfusion or reoperation(1.9%)
- d. required thoracotomy(4.1%)
- * inability to complete wedge excision
- * inability to locate pathology
- * failed decortication
- * inability to seal air leak
- * failed bullectomy
- * inability to complete excision of leiomyoma
- e. transient respiratory failure
- f. mucosa injury during esophageal myotomy for achalasia

Three years' experience in VATS for spontaneous pneumothorax

- *J Thorac Cardiovasc Surg* 1944;107:1410-14

- *. intraoperative complication(3.8%)
 - a. sinus bradycardia
 - b. intraoperative bleeding
- * Postoperative complication(5.1%)

a. recurrent pneumothorax

Video-assisted thoracoscopic treatment of spontaneous pneumothorax: Technique and results of 100 cases

- *J thorac cardiovasc Surg* 1966;112:385-91

	primary (n=74)	secondary (n=18)
prolonged air leak(>7 days)		
pleural detachment		
abscess(drain site)		
bronchopneumonia		
apical hematoma		
total (10)	5 (6.75%)	5 (27.7%)

비디오흉강경을 이용한 자연성기흉의 수술

-*Korean J Thorac Cardiovasc Surg* 1997;30: 1111-6

complications

- a. postoperative pneumothorax or air leakage
- b. trocar site bleeding
- c. atelectasis or pneumonia

An alternative technique in the management of bullous emphysema:

Thoracoscopic endoloop ligation of bulla

-*Chest* 1997;111:489-93

complication

- a. persistent air leak over 10 days
- b. wound infection
- c. localized empyema

Role of mechanical stapling devices in thoracoscopic pulmonary resection

-*Ann Thorac Surg* 1993;56:749-51

complication

- a. air leak>7 days(2%)
- b. clinically significant atelectasis(1.3%)
- c. pneumonia(1.3%)

Complications of VATS: A five-year experience

-Ann Thorac Surg 1966;61:533-7

postoperative complication

complication	%
prolonged air leak	6.7
pleural effusion	0.7
neurologic	0.5
chest wall involvement	0.5
deep vein thrombosis	0.4
pneumonia	0.4
chylothorax	0.3
empyema	0.3
septicemia	0.2
neoplastic seeding	0.2
arrhythmia	0.1
pulmonary embolism	0.1
respiratory insufficiency	0.1
renal failure	0.1
	10.9%

Video-assisted thoracic surgery in the elderly

A review of 307 cases-Chest 1966;110:751-58

major morbid events(7%)

- a. prolonged air leak
- b. respiratory failure, pneumonia
- c. reoperation for bleeding

minor morbid events

- a. dysrhythmia
- b. confusion
- c. port wound infection

Thoracoscopic pulmonary surgery: Indications and results

-Eur J Surg 1966;162:23-28

complications

- a. pulmonary embolism
- b. recurrent empyema
- c. hemorrhage
- d. infection of drain site
- e. persistent air leak

Lobectomy by video-assisted thoracic surgery with mediastinal node sampling for lung cancer-

J Thorac Cardiovasc Surg 1994;107:879-82

complication

- a. pneumonia
- b. air leak
- c. serous drainage

Potential complications of vascular stapling in thoracoscopic pulmonary resection

-Ann Thorac Surg 1995;59:736-8

0.82% failure rate for endovascular stapling

Tumor implants after thoracoscopic resection of a metastatic sarcoma

-Ann Thorac Surg 1995;59:215-6

extensive trocar & diaphragmatic implants
no protective endobag used

Prevention

- a. all lesions are now removed either in endobag or in thick orthopedic glove
- b. all instruments and stapling devices are passed through thoracoports rather than stab incisions to minimize the potential of chest wall contamination
- c. care is obviously taken to not directly hold a tumor with endoscopic forceps

Thoracoscopic resection of 85 small pulmonary lesion(<3cm) in the outer third of the lung-

Ann Thorac Surg 1992;54:415-20

complication

- a. postoperative atelectasis
- b. pneumonia
- c. bleeding requiring transfusion
- d. bronchopleural fistula of greater than 7 days duration

Thoracoscopic lobectomy for benign disease

-Chest 1966;109:554-56

complication

- a. persistent air leak & subsequent wound infection

Bilateral volume reduction surgery for diffuse pulmonary emphysema by video-assisted thoracoscopy-

J Thorac Cardiovasc Surg 1966;112:875-82

complication

- a. bacterial pneumonia
- b. recurrent pneumothorax(after chest tube removal)
- c. prolonged chest pain at operation port
- d. incomplete unilateral pneumothorax between 6-8weeks after discharge