Thoracososcopic Repair of Congenital Diaphragmatic Hernia

Hye Kyung Chang, Jung-Tak Oh, Seung Hoon Choi, Seok Joo Han

Division of Pediatric Surgery, Department of Surgery, Yonsei University College of Medicine
Background

Treatment of Congenital Diaphragmatic hernia (CDH)

I. surgical repair via subcostal transverse laparotomy
II. laparoscopic repair since 1995
III. thoracoscopic repair since 2001 in western report

: tolerance to one lung ventilation depending on pulmonary function

in Korea,
only one case report of thoracoscopic repair of right sided CDH in 2007

Purpose

presentation of two cases of thoracoscopic repair of left sided CDH

✓ 3–month–old boy with delayed presentation of CDH
✓ neonate with prenatal presentation of CDH on U/S
CASE I

3-month-old boy, 7.6 kg
C/C: continuous irritability
referred from other hospital with diagnosis of diaphragmatic hernia,
Lt.

Chest and abdominal X-ray

herniated bowel shadow in the left lower lung field
decreased bowel gas in abdomen
 corresponding with Bochdalek hernia
Thoracoscopic repair of left sided CDH

- single lung ventilation by CO$_2$ inflation

- herniation of the stomach, small bowel and liver in the left lower thoracic cavity

- no adhesion between herniated organs and thoracic cavity or lung

- reduction of the herniated organs to the abdominal cavity: simple & easy

- four interrupted, non-absorbable sutures to close the diaphragmatic defect

- operating time: 162 minutes

- postoperative course: uneventful (discharge on POD#5)
Postop. Chest and Abdominal X-ray

Immediate postop.

Extubation on POD #1

수술 3주 후 OPD f/u
CASE II

F/ 1 day
IUP 32 wks, birth weight 1.795 kg
C–sec delivered d/t PROM, preterm labor
Apgar score 1’ – 4, 5’ – 6
Intubation, ambu bagging
Prenatal U/S : r/o CDH, r/o CCAM, hydramios on IUP 31 wks

Chest and abdominal x–ray
**Operation**

Thoracoscopic repair of left sided CDH  
Broviac catheter insertion

total operating time: 325 minutes  
operating time of thoracoscopic CDH repair: 160 minutes

- 3mm troca for camera on 6th ICS on mid. Ax.L.
- 3mm troca working port on 7th ICS on ant. Ax.L.
- 3mm troca working port on 8th ICS on post. Ax.L.
- Chest tube insertion
- Sutures b/w lat. diaphragm & chest wall
Postoperative X-ray findings

Immediate postop.

Chest tube removal on POD #3

Extubation on POD #6

Discharge on POD #23

수술 한달 후 OPD f/u
Conclusion

- Thoracoscopic hernioplasty is easy, feasible and safe technique for delayed CDH without pulmonary comorbidity in infants or children.

- Premature baby with adequate fetal pulmonary development and late presentation of diaphragmatic hernia may be considered as indication of thoracoscopic repair of CDH.

- In considering
  1) morbidity and pain on postop. course of thoracotomy or laparotomy,
  2) recovery time, and
  3) cosmesis,
  thoracoscopic approach may prove to be an alternative to classical methods for the repair of CDH with good results.