Body: Introduction: Diaphragmatic hernia (DH) is one of rare complications in pediatric liver transplantation (LT), with multiple factors in the patho-physiology. DH is usually emergent and be rescued by surgical treatment. DH in pediatrics following living donor liver transplantation (LDLT) has been reported with increased frequency in recent years, though the operational technics improving. We here report successful diagnosis and treatment of two pediatric cases with DH secondary to LDLT.

Materials and Methods: The primary disease was biliary atresia in two pediatric patients and both of the patients underwent LDLT using a left lateral graft. The first case was a 9-month-old male child who received LDLT from his father at 6-month-old. The second case was a 6-month-old female child who received LDLT from her mother at 5-month-old. The LDLT procedure and the postoperative course were uneventful.

Results and Discussion: The graft weight of first case was 170 g with graft to recipient body weight ratio (GRWR) of 2.7% and the second one was 170 g with GRWR of 2.5%. In clinical, the first case was manifested with urgent respiratory distress and long-time dyspepsia. Otherwise, the second one was manifested with intestinal obstruction for several days before diagnosis. Then DH was diagnosed by CT scan on 3 months and 1 month post-LDLT, respectively. The first case was diagnosed by right DH and the second one was diagnosed by left DH. The first case underwent prompt surgery to repair the DH. However, the second case was received surgical intervention of DH 13 month later because of light digestive symptom. The operations were performed successfully without any complications. Increase of the intraabdominal pressure can result in diaphragm rupture. The diagnosis in pediatrics post-LDLT is difficult because of non-specific symptoms and is to be overlooked. It has been suggested that the use of a left lobe liver graft, malnutrition, thermal or mechanical injuries to the bare area, elevated intra-abdominal pressures, or mTor inhibitors may predispose to development of DH in infants.

Conclusion: DH post-LDLT is unusual but should be recognized as a possible complication when a left lateral segment graft is used. A high index of suspicion and prompt surgery could minimize complications. The unexplained respiratory or gastrointestinal symptoms after LDLT in pediatric patients, DH should be high in the differential diagnosis.