

## SVIII6: THORACOSCOPIC REPAIR OF DIAPHRAGMATIC EVENTRATION IN CHILDREN: IS EARLY SURGICAL INTERVENTION USEFUL?

Zafer Dokumcu\*<sup>1</sup>, Ulgen Celtik<sup>1</sup>, Emre Divarci<sup>1</sup>, Coskun Ozcan<sup>1</sup> and Ata Erdener<sup>1</sup>

E-mail: Zafer Dokumcu — zdokumcu@gmail.com

<sup>1</sup>Ege University Faculty of Medicine Department of Pediatric Surgery, Izmir, Turkey

**Background** Diaphragmatic eventration (DE) is the elevation of a hemidiaphragm without defects of continuity. Asymptomatic DE may be amenable to conservative treatment whereas symptomatic DE in children may require surgical treatment. The purpose of this report is to review the results of our algorithm and emphasize the benefit of the early thoracoscopic diaphragmatic plication (TDP) in children.

**Materials and methods** After approval of the ethical committee, hospital records of children who were admitted for DE (n=30) at a tertiary center between 2006-2017 were reviewed. All patients were evaluated according to level of diaphragmatic elevation on X-ray. Patients with diaphragmatic elevation more than 3 vertebrae constituted Severe DE group (SDE, n=10). Moderate DE group (MDE, n=20) included the patients with diaphragmatic elevation less than 3 vertebrae. Patients with recurrent pneumonia, respiratory distress, and atelectasis on CT scan switched from MDE group to SDE group. Thoracoscopic diaphragmatic plication was performed for SDE group whereas MDE group was managed conservatively. Groups were compared regarding demographics, preoperative findings, indications, and outcome.

**Results** There were 30 DE cases (16 boys, 14 girls) with a mean age of 29.3±41.2 months. The most common clinical manifestations of these patients were recurrent pneumonia (n=14), pneumonia (n=7) and respiratory distress (n=5 cases). DE was due to prior cardiac surgery in 5 patients. The right side was the dominant side (21/30). Six patients with recurrent pneumonia and two patients with ongoing respiratory distress switched from MDE to SDE. One patient with a history of cardiac operation switched from SDE to MDE at 3rd month of follow-up. TDP was performed to 17 children. All procedures were completed via three trocars with non-absorbable interrupted sutures (extracorporeal 7, intracorporeal 10). Transient pleural effusion in 2 patients and pneumothorax in 1 developed as minor post-operative complications which were treated conservatively within a few days. Colonic perforation occurred in one patient with the chilaiditi syndrome (second patient of the series) that was repaired laparoscopically. Median postoperative hospital stay was 4 days (3-30 days) for the SDE group. Thirteen patients were managed conservatively in the MDE group, 75% out of which had respiratory symptoms (25% severe) and had a mean respiratory infections of 0.7 per year during a mean follow-up of 30.8±19.9 months. There was immediate remission of symptoms with no postoperative pulmonary infections

and recurrence in patients with whom TDP was performed within 36 months of mean follow-up.

**Conclusions** Clinical and radiological assessment and classification is essential in the management of DE. A significant proportion of the moderate group and nearly all severe group require surgical intervention. TDP is feasible and safe and early thoracoscopic plication should be considered for symptomatic children with moderate eventration or severe DE.

**Key words** thoracoscopy, diaphragmatic eventration, children