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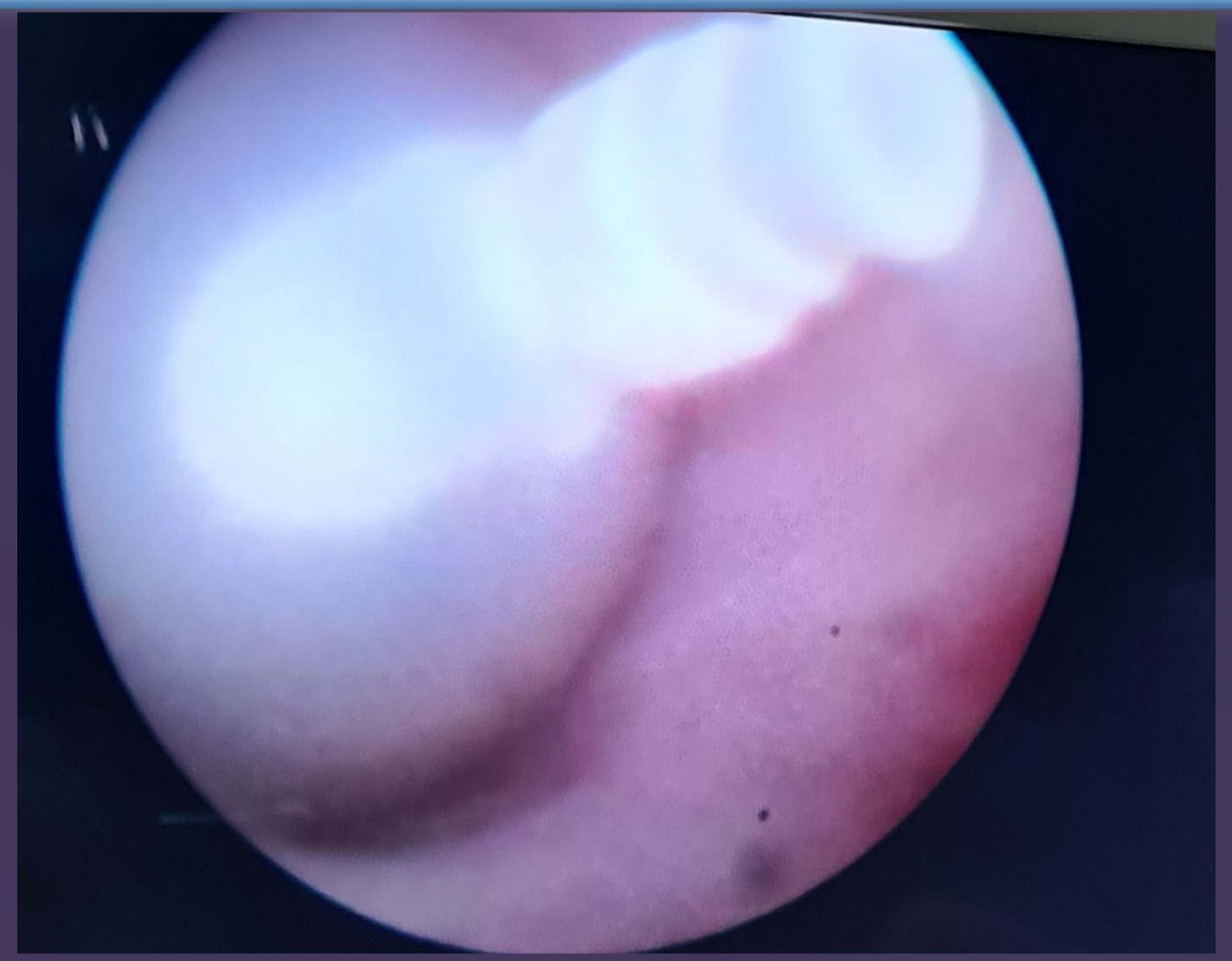
## In utero fetal surgery for severe diaphragmatic hernia

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Minimally invasive intra-uterine procedure



Fetal tracheal occlusion with a balloon

### Background

Severe congenital diaphragmatic hernia (CDH) is associated with an extremely high rate of neonatal death due to pulmonary hypoplasia. Temporary fetal tracheal occlusion promotes prenatal lung growth by entrapment of lung fluid which stretches the airways, leading to lung growth. Fetoscopic Endoluminal Tracheal Occlusion (FETO) with a balloon is a minimally invasive intra-uterine procedure that is performed during pregnancy and improves postnatal survival.

Rabin Medical Center is one of few centers in the world performing this cutting edge fetal surgery.

### Objective

To provide a comprehensive report of the experience gained in the prenatal treatment of CDH using FETO following its implementation at a new fetal medicine center.

### Methods

Fetuses with severe CDH were offered to enroll at the newly established fetal medicine center in the attempt to improve their life expectancy and quality through prenatal treatment by FETO.

### Results

Between 2018-2021, 16 cases of severe CDH underwent FETO. The median gestational age (GA) at balloon insertion was 28.4 weeks (IQR 27.8-28.6). The median GA at delivery was 37 weeks (IQR 34.4-37.8); four cases (25%) delivered before 34 weeks. The survival rate was 8/16 cases (50%). None of the survivors required oxygen at home at 6 months of age. Comparison between the survivors and deceased infants showed that survivors had balloon insertion one week earlier (27.8 vs. 28.4 weeks,  $p=0.007$ ), a higher amniotic fluid level change between pre- to-post FETO (3.4 vs 1.3,  $p=0.024$ ), a higher O/E LHR change between pre- to-post FETO (50.8 vs. 37.5,  $p=0.047$ ), and a gestational week at delivery that was 2 weeks later (37.6 vs. 35.4 weeks,  $p=0.032$ ).

### Conclusion

At 6 months of age, the survival rate in cases of severe CDH treated with FETO in our center was 50%. Our center matches the performance of other leading international centers.