

Prenatal imaging characteristics and outcomes of left versus right-sided congenital diaphragmatic hernia

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OBJECTIVES

To compare prenatal imaging characteristics and neonatal outcomes between left- and right-sided congenital diaphragmatic hernia (CDH).

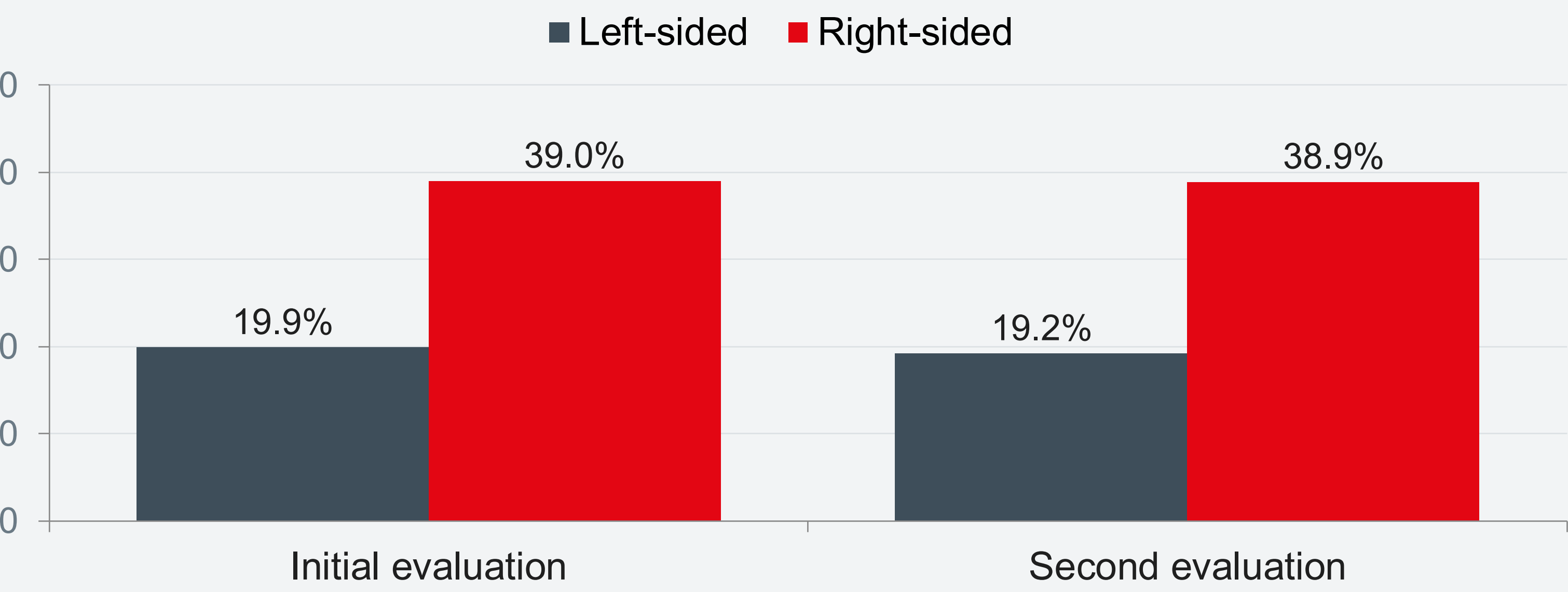
METHODS

This retrospective cohort study included fetuses diagnosed with CDH at a tertiary center between 2012 and 2025. Cases undergoing fetoscopic tracheal occlusion and ventral CDH cases were excluded. Prenatal ultrasound and MRI findings including observed-to-expected lung-to-head ratio (o/e LHR), total fetal lung volume (o/e TFLV), liver herniation percentage, and interval change in o/e LHR as well as neonatal outcomes were compared by CDH laterality.

RESULTS

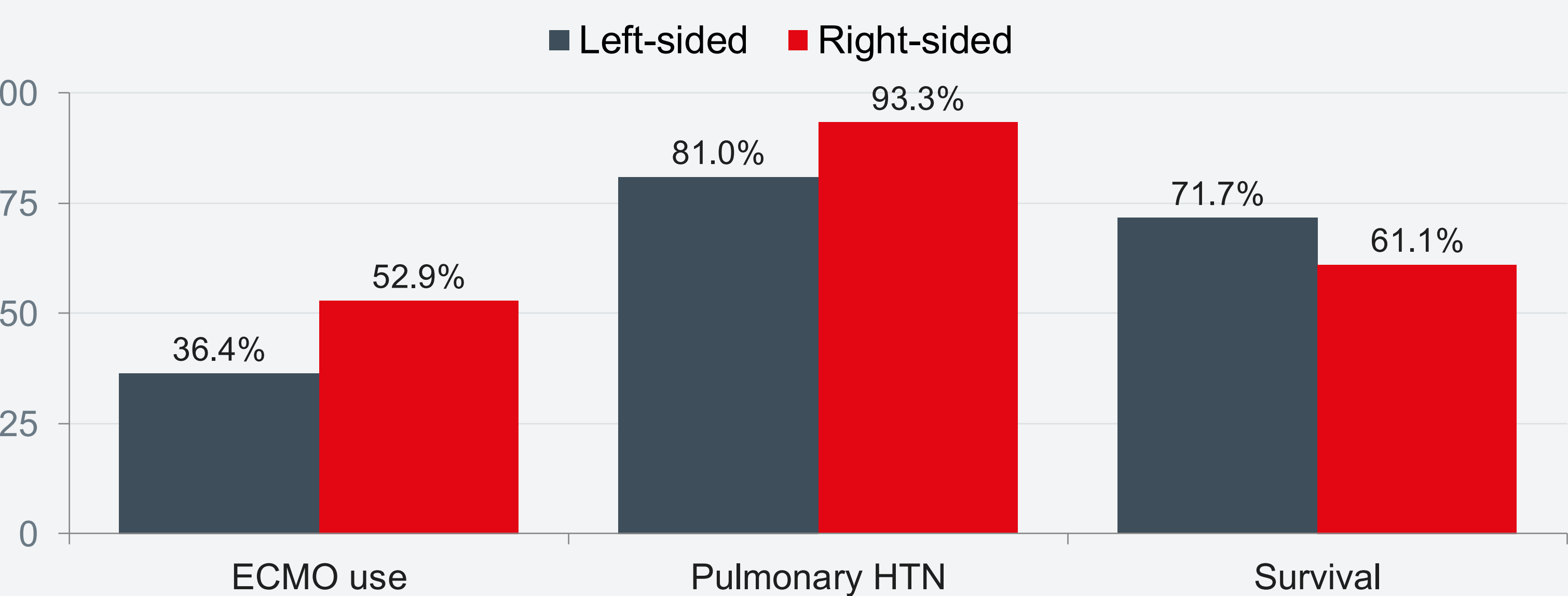
Among 286 cases, 234 (81.8%) were left-sided and 52 (18.2%) right-sided. -MRI: Right-sided CDH demonstrated significantly greater liver herniation at both evaluations (initial: 39.0% vs 19.9%, $p < 0.001$; second: 38.9% vs 19.2%, $p < 0.001$). O/E TFLV was similar between groups (initial o/e TFLV: 35.5% vs 33.7%, $p = 0.53$; second o/e TFLV: 33.4% vs 32.2%, $p = 0.75$). -Ultrasound: O/E LHR was higher in right-sided CDH, and interval change in o/e LHR differed significantly (+22.5 vs -1.0, $p = 0.002$). -Neonatal outcomes were similar, although right-sided CDH showed trends toward increased ECMO use (52.9% vs 36.4%, $p = 0.073$) and higher rates of pulmonary hypertension (93.3% vs 81.0%, $p = 0.10$). Survival did not differ significantly between groups (61.1% vs 71.7%, $p = 0.21$).

FIGURE 1. LIVER HERNIATION



Liver herniation (%) by laterality at initial and second evaluation. Both $p < 0.001$.

FIGURE 2. NEONATAL OUTCOMES



Percentages by laterality. $p = 0.073$, 0.10 and 0.21 respectively; none significant.

AT A GLANCE

234 / 52

left-sided / right-sided cases (n = 286)

39.0 vs 19.9

liver herniation (%) at initial evaluation ($p < 0.001$)

+22.5 vs -1.0

interval change in o/e LHR ($p = 0.002$)

61.1 vs 71.7

survival (%) ($p = 0.21$)

CONCLUSIONS

- Right-sided CDH is associated with greater liver herniation, but similar MRI-derived lung volumes compared with left-sided CDH.
- Differences in longitudinal o/e LHR trends suggest ultrasound measurements may behave differently depending on defect laterality.
- Neonatal outcomes did not differ between the two groups.