

# Impact of cord entanglement on perinatal outcome

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## Background

Cord entanglement, a common occurrence affecting up to 30% of pregnancies, can impair fetal growth due to compromised nutrient exchange. Associations between cord entanglement and adverse perinatal outcomes, including low Apgar scores, fetal distress, and low birth weight, have been reported but remain controversial and require further investigation.

## Aims

to evaluate the impact of cord entanglement on perinatal outcomes.

## Methods

A retrospective population-based study was conducted, including all deliveries between 1988–2016 at a tertiary medical centre. Immediate perinatal outcomes of patients with and without cord entanglement were compared. Cord entanglement was defined as one or more loops of the umbilical cord around any part of the fetal body (e.g. neck, torso, limbs).

## Results

The prevalence of cord entanglement in our population was 16.62% (**45,312 cases** out of **272,713 deliveries** during the study period). Cord entanglement was found to be significantly associated with antepartum fetal death (OR = 2.13, 95% CI 1.77–2.57,  $p < 0.001$ ) and one-minute Apgar score less than 7 (OR = 1.21, 95% CI 1.16–1.27,  $p < 0.001$ ).

## Conclusions

Cord entanglement has been observed to exhibit an association with intrauterine fetal death, while no significant associations have been identified between cord entanglement and intrauterine growth restriction or small-for-gestational-age.

Clinical characteristics of the study and control groups

Characteristics	Cord entanglement N = 45,312	Control group N = 227,401	P-value
Vaginal delivery (%)	38,844 (85.7)	190,492 (83.8)	< 0.001
Vacuum delivery (%)	1,840 (4.1)	7,296 (3.2)	< 0.001
CS (%)	4,628 (10.2)	29,613 (13.0)	< 0.001
Gestational age at delivery, weeks, mean+ SD	39.5 ± 1.26	39.4 ± 1.29	< 0.001
Apgar score	2,461 (5.5)	10,181 (4.5)	< 0.001
Apgar score	157 (0.3)	724 (0.3)	0.4
IUGR (%)	614 (1.4)	3275 (1.4)	0.16
Labour induction (%)	11,779 (26)	55,053 (24.2)	< 0.001
Umbilical cord blood pH, mean + SD	7.37 ± 0.84	7.37 ± 1.18	0.99
APD (%)	156 (0.3)	368 (0.2)	< 0.001