

## **Comparison of pregnancy outcomes and placental characteristics for monochorionic diamniotic twins with and without proximate umbilical cord insertion**

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### **Objective**

This study was developed to assess relative placental characteristics and pregnancy outcomes for monochorionic diamniotic (MCDA) twins with and without proximate umbilical cord insertion (PCI).

### **Methods**

All MCDA twins delivered with complete placentas for whom placental characteristics were assessed via dye injection between April 1, 2013 and April 1, 2021 were included in the present cohort study. Cases were separated into PCI and non-PCI groups, with pregnancy outcomes and placental characteristics being compared among groups.

### **Results**

Birthweight discordance rates were significantly lower in the PCI group relative to the non-PCI group ( $7.3\pm 7.5\%$  vs  $29.9\pm 16.8\%$ ,  $P<0.001$ ), while relative to the non-PCI group, rates of artery-artery (AA), vein-vein (VV), thick AA, and thick VV anastomoses were significantly higher in the PCI group ( $95.5\%$  vs  $67.0\%$ ,  $P=0.008$ ,  $59.1\%$  vs  $16.4\%$ ,  $P<0.001$ ,  $90.5\%$  vs  $34.9\%$ ,  $P<0.001$ ,  $54.5\%$  vs  $10.5\%$ ,  $P<0.001$ ). Significantly more anastomoses were observed in the PCI group, and they were significantly larger on average than those in the non-PCI group ( $7(3,11)$  vs  $6(3,15)$ ,  $P=0.015$ ,  $12.8(6.7,21.3)$  mm vs  $11.9(3.4, 24.6)$ ,  $P=0.009$ ). Significantly lower placental territory discordance and UCI ratios were evident in the PCI group relative to the non-PCI group ( $23.5(15.0,51.0)\%$  vs  $60.0(2.0,80.0)\%$ ,  $P<0.001$ ,  $13.3\pm 5.8\%$  vs  $56.1\pm 18.0\%$ ,  $P<0.001$ ). Marginal cord insertion incidence rates were lower in the PCI group relative to the non-PCI group ( $13.6\%$  vs  $77.5\%$ ,  $O<0.001$ ).

### **Conclusion**

The placental structure of MCDA twins with PCI is distinct from that of twins without PCI, with these results suggesting that PCI may be representative of the more even distribution of placental territory between MCDA fetuses.