Progressive uterine artery occlusion in the Guinea pig leads to defects in placental structure that relate to fetal growth

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© 2018 Elsevier Ltd Intrauterine growth restriction (IUGR) is a common obstetric complication with immediate and life-long consequences for offspring health. Yet the mechanisms underlying its aetiology require elucidation. Recent work in the guinea pig shows that progressive uterine artery occlusion induced IUGR and vascular dysfunction in pups. Here we explore the extent to which uterine artery occlusion influences fetal outcomes via impacts on placental morphology. Our study demonstrates that uterine artery occlusion severely compromised both the labyrinth exchange zone (increased fibrosis and reduced vascularisation, trophoblast volume, surface area and diffusing capacity) and interlobium zone (increased apoptosis), which likely contributed to the IUGR observed.