

Placental Contribution to Adverse Pregnancy Outcomes in Asian Women with Polycystic Ovary Syndrome

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Objective:

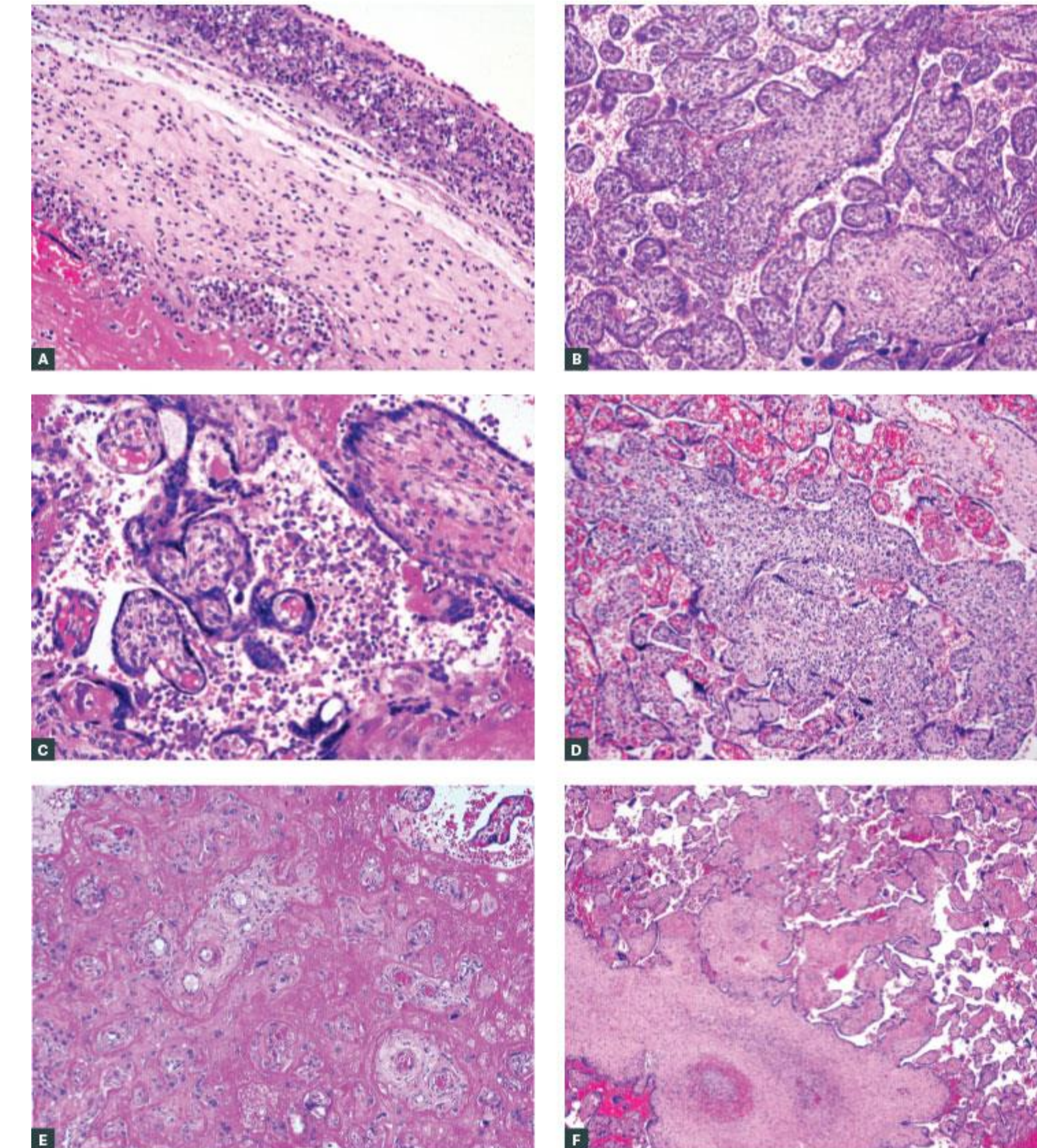
This study investigates the relationship between placental histopathological abnormalities and polycystic ovary syndrome (PCOS) in pregnant women. PCOS, affecting 5–15% of reproductive-aged women, is associated with a 2–4 times increased risk of adverse pregnancy outcomes such as gestational diabetes, preeclampsia, preterm labour, and caesarean delivery. These pregnancies are marked by significant maternal and fetal morbidity.

Design:

A retrospective cross-sectional study was conducted between January 2023 and January 2024 including pregnant women who were admitted to Newham University Hospital with an adverse obstetric outcome and whose placentas were sent for histopathological examination.

Method:

placental histopathological reports for 132 women reported to have adverse obstetric outcomes included preterm labour, fetal growth restriction, preeclampsia and related complications, placental abruption, and chorioamnionitis were investigated. Postnatal placental samples were investigated for chronic villitis, massive perivillous fibrin deposition, chronic histiocytic intervillitis, materno-fetal vascular malperfusion and delayed villous maturation.



A. Stage 3 acute chorioamnionitis with early necrotising inflammation of the amniotic basement membrane; B. Acute villitis in a case of fetal demise due to in utero *Listeria monocytogenes* infection; C. Chronic villitis of unknown aetiology involving terminal villi in the centre at low power; note the reduced vasculature, broad outlines and hypercellularity; D. Chronic histiocytic intervillitis (CHIV): histiocytic and lymphocytic cells aggregate between uninvolved chorionic villi. Malarial infection and idiopathic CHIV elicit similar histopathological features; E. Massive perivillous fibrin deposition; pink fibrinoid material encases the majority of chorionic villi in the placenta, rendering them non-functional for nutrient supply and oxygenation; F. Segmental fetal vascular malperfusion; occlusive thrombosis of stem villous vasculature associated with fibrotic and avascular distal terminal villi

Results:

Maternal under perfusion lesions were present in 75% of cases, 21% of them were in PCOS women ($p < .00001$).

Conclusions:

Women with PCOS are at significantly increased risk of maternal vascular malperfusion in the placenta. Gestational androgen excess in PCOS may contribute to placental dysfunction, potentially explaining the higher rates of maternal-fetal complications in these pregnancies.