

The formation of maternal blood lacunae in the rabbit chorio-allantoic placenta begins on about day 9 post coitum on the mesometrial endometrium and diversifies into three distinct zones until day 10 p.c.: In the zone 1, the large arterial lacunal network originates from the former arterial limbs of subepithelial capillaries and is located at the base of the chorionic sprouts. This network becomes shaped by vessel dilatation and fusion which is an effect of the trophoblast-related degeneration and lysis of the endothelium. The large volume of these lacunae and the syncytial trophoblast ridges oriented perpendicular to the vessel axis may damp the arterial pulse pressure. The large lacunae also favor diffusible materno-fetal substance transfer either by the adjacent thin interhemal membrane as well as by the extended inner lacunal surface being rich of microvilli.

In the zone 2, the small lacunae originate from the former venous limbs of subepithelial capillaries and are located laterally to the chorionic sprouts. The syncytial trophoblast shapes the small lacunae to a real labyrinth by projections and bridges connecting each other to a meshwork. By this, blood flow is slowed down and the lacunal surface is increased so that the system of small lacunae can be expected to be most important for materno-fetal substance exchange.

In the zone 3, venous lacunae, located on the top of chorionic sprouts, progressively develop from venules with an intact endothelium and dilated prelacunae with degenerating endothelium. The endothelium seems to maintain integrity for a long time in spite of the immediate vicinity of trophoblast, but does degenerate when it is undercut and isolated from its substrate by the trophoblast. Although not showing lytic activities at a distance, the advancing trophoblast is clearly phagocytic and takes up debris.

ABSTRACTS

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