



Early Identification of Succenturiate Placenta May Reduce Risk of Preeclampsia

Rostislav Dvořák¹, Phoinix Carberry¹, Jude Bradley¹ and Paul Hartel^{2,3*}

¹*Atlantic Technological University Sligo, Department of Life Sciences, Ireland*

²*University Hospital Sligo, Department of Pathology, Ireland*

³*West Virginia University School of Medicine, Department of Pulmonary Medicine, USA*

***Corresponding Author:** Paul Hartel, Professor, Department of Pathology, Histology Level 4, University Hospital Sligo, The Mall, Sligo, Ireland.

Received: July 20, 2026

Published: September 15, 2026

© All rights are reserved by **Paul Hartel, et al.**

Abstract

To evaluate potential clinical implications of succenturiate placentas, we reviewed their gross and histologic findings and compared them to normal control placentas. Succenturiate placentas were seen in 1% of total placentas over a 10-year period (40/3640). Histologic findings with the greatest difference in prevalence compared with controls were those associated with maternal vascular malperfusion and included increased perivillous fibrin deposition, infarction, and distal villous hypoplasia. As succenturiate placentas are visible on ultrasound beginning at 10-12 weeks, increased monitoring of pregnancies from time of identification may help prevent serious clinical conditions associated with maternal vascular malperfusion such as gestational hypertension and preeclampsia.

Keywords: Succenturiate Placenta; Maternal Vascular Malperfusion; Ante-Partum Ultrasound; Pre-Eclampsia

Introduction

Placental development is a complex process which sets the stage for normal foetal development. Any variation or disruption occurring during placental formation may lead to placental malfunction and maternal-foetal morbidity and mortality [1]. Succenturiate lobe is a rare placental anomaly previously reported to be associated with haemorrhage, placental abruption, infection, pre-eclampsia, prematurity, impaired foetal growth, and caesarean delivery [2]. We reviewed 40 succenturiate placentas from pregnancies in the Sligo University Hospital catchment area from 2016-2026 and compared the prevalence of gross and histopathologic findings with 50 normal placentas. Anonymised data was obtained from electronic gross and histologic pathology

reports. Succenturiate placentas were seen in 1% of total placentas over a 10-year period (40/3640). Histologic findings with the greatest difference in prevalence compared with controls were those associated with maternal vascular malperfusion and included increased perivillous fibrin deposition, infarction, and distal villous hypoplasia. Succenturiate placentas did not meaningfully differ from controls regarding prevalence of acute funisitis, acute chorioamnionitis, meconium staining, chorangiosis, intervillous thrombi, calcifications, retroplacental haematoma or increased syncytial knots.

Methods

For National Histopathology Quality Improvement Report, clinical audit on prevalence of placenta abnormalities including

succenturiate placentas in Sligo University Hospital catchment area was performed. Anonymised data including maternal age and placental gross and histopathologic findings were reviewed for 40 succenturiate and 50 normal control placentas. Data was obtained from archival pathology department electronic gross and histologic pathology reports. Gross and histologic evaluations were performed by specialist registered consultant histopathologists.

Results and Discussion

Succenturiate placentas were seen in 1% of total placentas over a 10-year period (40/3640). Maternal age ranged from 21-46 years ($\bar{m}$ =34) and placental weights ranged from 105 to 625 grams ($\bar{m}$ =496). There were no cases of single artery umbilical cord. Histologic findings with the greatest difference in prevalence

compared with controls are shown in Table 1. Increased perivillous fibrin deposition was seen in 14/40 succenturiate placentas (35%) compared with 2/50 control cases (5%). Infarction was observed in 11/40 succenturiate placentas (28%) and in 2/50 controls (5%). Infarctions were less than 5% of total disc. Distal villous hypoplasia was seen in 8/40 succenturiate placentas (20%) versus 0/50 in control cases (0%). Arterial medial hypertrophy was seen in 3/40 succenturiate placentas (8%) and 0/50 control placentas (0%). Villous oedema was observed in 2/40 succenturiate placentas (5%) and 0/50 controls (0%). Succenturiate placentas did not meaningfully differ from controls regarding prevalence of acute funisitis, acute chorioamnionitis, meconium staining, increased villous capillaries, intervillous thrombi, calcifications, retroplacental haematoma or increased syncytial knots.

Placenta type	Maternal age, $\bar{m}$ years	Placental weight, $\bar{m}$ grams	Increased peri villous fibrin	Infarctions	Distal villous hypoplasia	Arterial medial hypertrophy	Increased villous oedema
Succenturiate	34	496	14/40 (35%)	11/40 (28%)	8/40 (20%)	3/40 (8%)	2/40 (5%)
Normal	34	476	2/50 (5%)	2/50 (5%)	0/50 (0%)	0/50 (0%)	0/50 (0%)

Table 1: Gross and histologic findings in succenturiate versus control placentas.

Literature surrounding succenturiate placentas is relatively limited, with a documented incidence between 0.16% and 5% of overall pregnancies [1]. This morphological anomaly is characterised by the formation of an accessory lobe residing adjacent to the main placental disc [3-5]. It is clinically considered a rare placental variant, with a significantly higher risk of incidence with advanced maternal age, previous caesarean sections, uterine scarring, diabetes and use of *in vitro* fertilisation or other assisted reproductive methods [6]. The accessory lobe develops either due to atrophy of villous tissue between placental lobes or implantation of the ovum in the uterus sulcus [4]. The anomaly arises during early placental development due to inconsistencies in decidual perfusion and altered uterine vascularity. Rather than undergoing normal regression, a localised cluster of villi undergoes discontinuous focal proliferation to survive areas of decreased oxygenation. This process ultimately establishes a separate accessory lobe to ensure optimal vascularisation and, in turn, adequate metabolic exchange. Connecting vessels between the main placenta and succenturiate lobe lack the protection normally provided by placental tissue, making them vulnerable to

compression, tearing, or rupture during pregnancy and delivery. Complications include foetal distress, foetal growth restriction, haemorrhage, retained placental tissue, postpartum haemorrhage, infection, placental abruption, and vasa previa [3,5]. Methods of detecting a succenturiate placenta include 2D ultrasound, colour Doppler, B-flow and, optimally, 3D ultrasound [7].

Our research supports that succenturiate placentas are highly vulnerable to vascularity issues, including increased perivillous fibrin deposition, infarction, distal villous hypoplasia and arterial medial hypertrophy. These histologic findings in succenturiate placentas can be clinically linked to serious conditions such as gestational hypertension, preeclampsia and vasa previa. Early diagnostic and management procedures are vital, with a planned caesarean section often being a necessary intervention to increase the chance of foetal and maternal survival.

Conclusion

Succenturiate placentas showed a greater prevalence of histologic findings associated with maternal vascular malperfusion

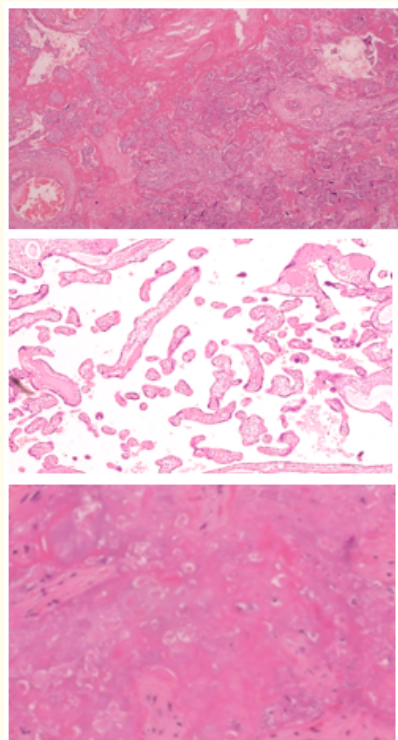


Figure 1: Top) increased fibrin; Middle) distal villous hypoplasia; Bottom) infarct.

than controls, including increased fibrin, infarction and distal villous hypoplasia. As succenturiate placentas are visible on ultrasound beginning at 10-12 weeks, increased monitoring of pregnancies from this point may help prevent serious clinical conditions associated with maternal vascular malperfusion such as gestational hypertension and pre-eclampsia.

Bibliography

1. Goidescu IG., *et al.* "Succenturiate Placental Lobe Abruption". *International Journal of Women's Health* 16 (2024): 1041-1047.
2. Ma JS., *et al.* "Risk Factors and Adverse Pregnancy Outcomes of Succenturiate Placenta: A Case Control Study". *Journal of Reproductive Medicine* 61.3-4 (2016): 139-144.
3. Stickler M., *et al.* "Succenturiate placental lobe abruption: a placental pathology complicating a dangerous delivery". *Marshall Journal of Medicine* 9.1 (2023): 4.

4. Rijal Y., *et al.* "Early detection of placenta succenturiate in preventing complications: a case report". *Authored Preprints* (2022).
5. Cavaliere AF, *et al.* "Succenturiate lobe of placenta with vessel anomaly: a case report of prenatal diagnosis and literature review". *Clinical Imaging* 38.5 (2014): 747-750.
6. Kumari S., *et al.* "Succenturiate placenta: an Incidental Finding". *Journal of Case Reports and Images in Obstetrics and Gynaecology* 1 (2015): 1.
7. Bakare TY., *et al.* "Succenturiate Placental Lobe Presenting with Antepartum Hemorrhage: A Case Report". *Nigerian Hospital Practice* 35 (2026): 82-84.