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IP Journal of Diagnostic Pathology and Oncology

Journal homepage: <https://www.jdpo.org/>

## Letter to Editor

## Incidental detection of chorangiosis of placenta – Letter to editor

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## ARTICLE INFO

## Article history:

Received 19-02-2022

Accepted 26-02-2022

Available online 19-05-2022

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Placenta is a highly specialised organ of pregnancy that connects the mother and fetus, two important ends of reproduction in contact with each other. Its an effective index not only to know the maternal status but also provides crucial information on deleterious affects on fetal outcome. Placenta being highly vascular, it has intricately arranged blood vessels derived from mother and fetus.<sup>1</sup> There are many factors that triggers its vasculogenesis and angiogenesis. Any alterations in its haemodynamics affects the growth of fetus as well as its outcome.<sup>1</sup> Chorangiomas are widely described as a compensatory response to chronic hypoxia causing hypervascular terminal villi without stromal hypercellularity. The case is discussed to highlight incidental detection of this rare placental pathology without causing any pregnancy disorders or developmental anomalies of the fetus in a young female.

Apart from the routine histopathological specimens, that we normally get, placentas were grossed as a part of thesis conducted by an OG resident. A 20 year old normotensive, nondiabetic female with G3P2A1 admitted at 35 weeks of gestation in active labor. Ultrasound done during 9 weeks and 20 weeks revealed no fetal or placental abnormality. Amniotic fluid was adequate. Labor and delivery were uncomplicated. She delivered a healthy female baby. Placenta was delivered completely and was sent for histopathological study. Grossly, placenta weighted 1.4 kg,

measured 26 cm × 18 cm × 5.5 cm with centrally attached umbilical cord, and radially distributed allantoic blood vessels. Cut surface was grayish white, firm in consistency [Figure 1a,b]. The umbilical cord was centrally placed with three vessels on cut section. Membranes appeared normal grossly. Histosections from the surrounding normal placenta showed diffuse involvement of placenta showing increased vascular proliferation. The number of capillary sized vascular channels in the chorionic villi varied in number from 10 to 12/villi in 10 different regions accompanied by villous expansion [Figure 2a-c]. Hence, the final diagnosis of chorangiomas, of placenta was made.

Vascular lesions of placenta includes chorangiomas, Chorangiomas and Chorangiomas of which Chorangiomas is most common followed by Chorangiomas.<sup>2</sup> In the year 1984, Altshuler proposed the diagnostic criteria of Chorangiomas, often called as 'Rule Of 10' as presence of 10 villi.<sup>3</sup> Each villi with 10 or more vascular channels in 10 or more areas of 3 or more random, non-infarcted placental areas.<sup>1,2</sup> Chorangiomas is considered as hypoxia related angiogenesis mainly associated with numerous maternal, fetal, and placental disorders.<sup>4</sup> Hypercapillarization is probably due to increase coiling and elongation of terminal villous capillaries.<sup>5</sup> Common conditions associated with chorangiomas are maternal factors like diabetes, hypertension, obesity and tobacco use.<sup>6</sup> Review of literature suggests that study done by Suzuki et al., have shown an association between oxygen

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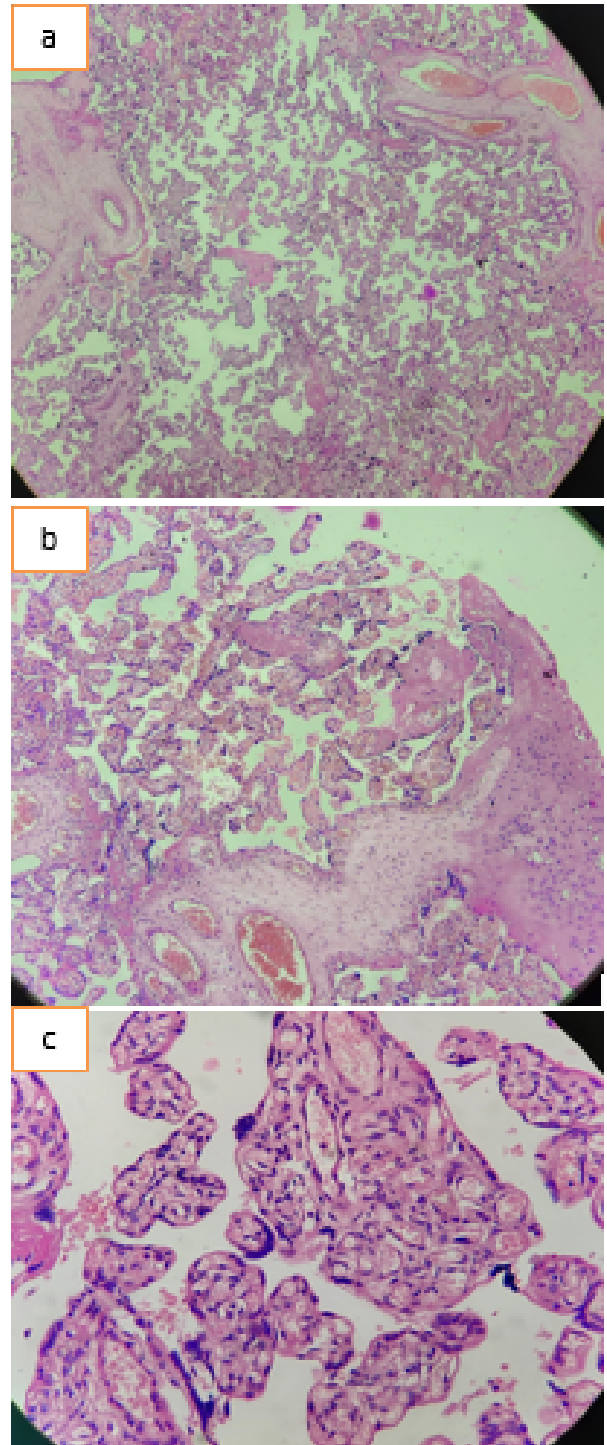
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saturation of maternal blood in intervillous spaces and development of chorangiosis by using placental tissue oxygen index values.<sup>6</sup> They postulate that low efficiency of oxygen transfer from maternal to fetal circulation enhances the vascular remodeling in adaptation to low oxygen supply, resulting in chorangiosis.<sup>6</sup> Further more chorangiosis has been associated with umbilical cord complications such as umbilical cord thrombosis. The exact pathology of such complication was likely related to the patient’s diabetes, since infants of diabetic mothers have increased  $\alpha$  2-antiplasmin and decreased fibrinolysin activity resulting in higher risk of thrombus formation.<sup>7</sup> As our patient was non diabetic no such cord complications were seen. Other placental abnormalities associated with chorangiosis includes fibrin deposition, calcification and retroplacental haemorrhage.



**Fig. 1: a,b:** Gross pic – Showing the fetal and maternal surface of Placenta.

Chorangiosis has to be differentiated from chorangiomatosis. Chorangiomatosis involves more proximal elements of villous tree, show increased stromal cellularity and stromal collagenization seen before 32



**Fig. 2: a:** Scanner view 40x – microsection of placenta showing terminal villi proliferation and expansion; **b:** LP 100X; **c:** HP 400x -Microsection of placenta showing increased vascular proliferation. The number of capillary-sized vascular channels inthe chorionic villi ranging from 10 to 12/villi in 10 different regions

weeks of gestation<sup>8</sup> where as Chorangiomas is a diffuse process involving the tips of terminal villi and commonly seen after 37 weeks of pregnancy, and has numerous closely approximating capillaries with the intact basement membrane.<sup>8</sup>

Chorangiomas on the other hand are considered as placental hamartomas.<sup>9</sup> It is a non-trophoblastic tumor that arises from chorionic tissue and occurs mostly in the third trimester. Most frequently found on the fetal surface of the placenta close to the umbilical cord insertion, where as larger ones attached to the chorion. It affects placental parenchyma and presents with abnormal vascular development in it. Chorangiomas are mostly symptomless, usually missed in routine USG scans and is detected incidentally. Chorangiomas if multiple or greater than 5cms are considered as clinically significant that are known to cause complications. Maternal complications includes haemorrhage, hydramnios, premature placental separation, premature delivery and placenta previa<sup>10,11</sup> that may lead to severe foetal distress or even intrauterine death. Neonatal complications can result in anaemia, thrombocytopenia or even congestive cardiac failure.<sup>3</sup> Therefore, the normal terminal chorionic villi should have less than 5 vascular channels irrespective of vessel present in more than one plane<sup>11,12</sup> of section. Grossly, it is well-circumscribed with congested cut surface area. Marchetti described three histologic types of Chorangioma as angiomatous, cellular and degenerative type.<sup>13</sup> Angiomatous type is more common and presents as multiple proliferative blood vessels from capillary to cavernous type in various stages of proliferation. Cellular type has occasional ill-formed vessels with stromal component in predominance. Necrosis, calcification, hyalinization and myxoid changes are seen in degenerative type of chorangiomas.<sup>2</sup>

To conclude chorangiomas should be considered as hypoxia associated placental lesion and is associated with higher incidence of perinatal and neonatal morbidity. It accounts for 39% of congenital malformations and 42% of mortality.<sup>2</sup> So it should be regarded as clinical sign of adverse pregnancy outcome and needs special mention in pathology reports so that the patient should be investigated for associated conditions such as diabetes, anemia, syphilis, and preeclampsia.

### Conflict of Interest

The authors declare no relevant conflicts of interest.

### Source of Funding

None.

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**Cite this article:** Behera L, Mohapatro M, Mishra D, Dehury M, Mohanty S. Incidental detection of chorangiomas of placenta – Letter to editor. *IP J Diagn Pathol Oncol* 2022;7(2):148-150.