Extravillous Trophoblast Cyst

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11.1 Introduction

Extravillous trophoblast cysts are grossly visible cysts usually located in the subchorionic region or within the septa. They are not an uncommon finding in cut slices of the mature placenta.

11.2 Definition

Cyst that is filled with eosinophilic proteinaceous fluid and lined by an irregular layer of extravillous trophoblastic cells.

11.3 Synonyms

The preferred term to use is extravillous cytotrophoblast cyst. 'X' cell cyst is a derivative term of extravillous cytotrophoblastic cell cyst, which is a fuller version of extravillous cytotrophoblast cyst. Different terms have been given to these cysts based on their location within the placenta: placental surface cyst, subchorionic placental cyst, septal cyst and microscopic chorionic cyst. It is a misnomer to label these cysts as chorionic cysts as they are neither part of a villus nor are they bound by a villous trophoblastic layer. They have also been called decidual septal cyst but the adjectival decidual is unnecessary since the septum is formed from a pulled-up portion of the basal plate, which includes the Rohr's stria, decidua and extravillous cytotrophoblast.

11.4 Epidemiology

Placental cysts are found in 10–20% of placentas examined at term [1]. It is uncommon before 38 weeks gestation [2] and said to be rare before 36 weeks gestation [3]. Depending on how many microscopic sections are examined, the incidence of extravillous trophoblast cysts rises correspondingly [4].

There are two theories for the pathogenesis of the extravillous cytotrophoblast cyst, in both of which hypoxia may play a part. Cytotrophoblast proliferates in response to hypoxia. One posits that the cyst results from degeneration due to the expanded extravillous trophoblastic population outstripping the nutritional support. The other is that cytotrophoblastic cells produce major basic protein that is toxic and causes degeneration and cyst formation and fills the cyst [3].

The clinical significance of the extravillous cytotrophoblast cyst is unclear. They are thought to be of no clinical significance [1, 5]. Early reports indicate that the incidence of septal cysts is considerably increased in maternal diabetes and preeclampsia [2]. The histomorphological

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similarity of the extravillous cytotrophoblast cysts in the placental disc to those seen in the chorion laeve of the amniochorial membranes (Chap. 42) has prompted a re-evaluation of the clinical associations and it has been suggested that the extravillous cytotrophoblast cysts in the placental disc is also associated with in utero hypoxia [6].

Rare cases of extravillous cytotrophoblast cysts that are large enough to reduce umbilical cord blood flow and cause fetal asphyxia and growth restriction have been described [7].

11.5 Gross Findings

Grossly visible cysts are usually small, less than 30 mm, and are usually spherical or ovoid. They are most commonly located under the chorionic plate where they are termed subchorionic cysts or within placental septa when they are termed septal cysts. They are filled with fluid that appears gelatinous grossly (Fig. 11.1). Grossly visible cysts are usually singular. Most extravillous trophoblast cysts are discovered microscopically.

11.6 Histopathology

The cyst wall is composed of an irregular layer of extravillous trophoblastic cells and is filled by an amorphous eosinophilic proteinaceous fluid. Occasionally, the cyst may be devoid of contents or only partially filled with fluid.

Cysts located in the subchorionic region (Fig. 11.2) can be found to be continuous with a placental septum which can be followed down to the basal plate. The septum is an invagination of the decidual basal plate that anchors the chorionic plate to the basal plate. Similar cystic spaces are found anywhere along the septa (Figs. 11.3 and 11.4), cell islands (Fig. 11.5) and also in the basal plate (Fig. 11.4). Thus, despite their different locations in the placental disc, they have similar histomorphologic features and likely have the same pathogenesis.

Cases labelled as subchorionic placental cysts that contain haemorrhage [8] and also called subchorionic haematoma or chorionic haematoma are likely to be a different type of cyst. They are likely to be subchorionic intervillous thrombi or haemorrhages that have undergone cystic degeneration.

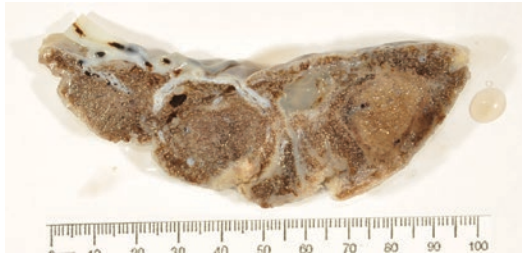

Fig. 11.1 An extravillous cytotrophoblast cyst located in the subchorionic zone and is within a septum that can be traced to its origin from the basal plate

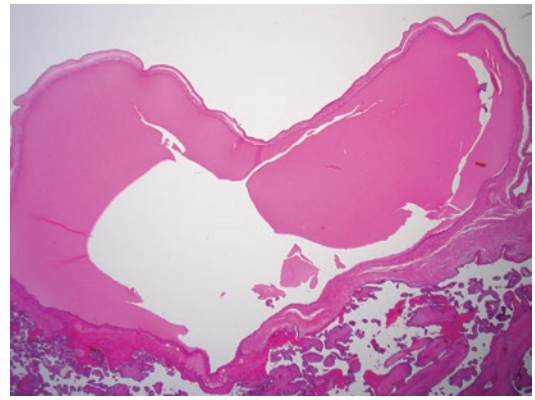

Fig. 11.2 An extravillous cytotrophoblast cyst located in the subchorionic zone and bulging into the amniotic cavity

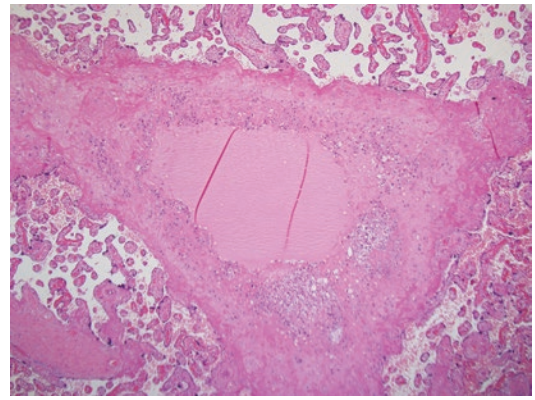

Fig. 11.3 An extravillous cytotrophoblast cyst located within a septum

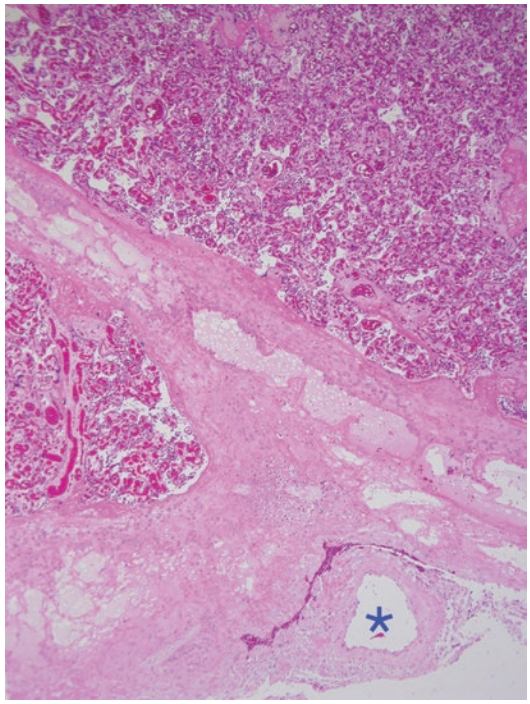

Fig. 11.4 Multiple extravillous cytotrophoblast cysts located within a septum (coursing from the base to upper left) in continuity with similar cysts in the basal plate (right side) and cystic degeneration around the extravillous cytotrophoblastic cells in the basal plate (left side). An uteroplacental artery is present at the base of the septum (starred)

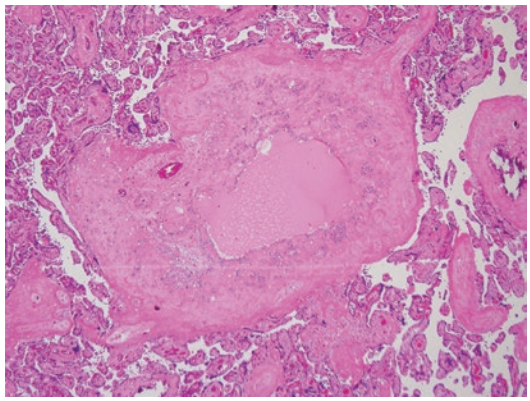

Fig. 11.5 An extravillous cytotrophoblast cyst located within a cell island

11.7 Prognosis and Predictive Factors

None known at this stage.

11.8 Future Research

There does not appear to be agreement about whether these grossly visible cysts should be sampled for histological examination. Some pathologists view these as lesions and sample them while others do not sample them on the heretofore premise that they have no clinical significance. A blinded study involving unselected placentas from non-complicated pregnancies without any clinical indication for placental pathology examination as well as from complicated pregnancies may be informative with regard to their clinical significance. Also noteworthy is that the incidence of the grossly non-apparent microscopic extravillous trophoblast cyst would depend on the number of microscopic sections examined, re-iterating a standardised approach to sampling of the placenta.

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