Case Report

Mature placental teratoma: A rare case with emphasis on histopathological diagnosis

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ABSTRACT

Mature placental teratoma is an exceptionally rare non-trophoblastic tumor, with fewer than 40 cases reported in the literature. We report a case of an 18-year-old primigravida with Rh-negative pregnancy who presented with intrauterine fetal demise at 38 weeks and 4 days of gestation. Gross examination of the placenta revealed a well-circumscribed, white, lobulated mass measuring 2 × 1.5 × 1 cm within the membranes. Microscopic examination demonstrated a tumor composed of mature derivatives of multiple germ layers, including keratinized stratified squamous epithelium with adnexal structures, mature cartilage, adipose tissue, and nerve bundles. No immature neuroepithelial elements or axial skeletal structures were identified. A diagnosis of mature placental teratoma was established. This case highlights the diagnostic importance of histopathological evaluation in distinguishing placental teratoma from fetus acardius amorphous and other placental masses.

Key words: Mature teratoma, Placenta, Placental teratoma, Placental tumor, Teratoma

Placental tumors are broadly classified as trophoblastic and non-trophoblastic. Placental non-trophoblastic tumors are rare entities that include chorangiomas, placental teratomas, and hemangiomas [1]. Teratoma arising in the placenta is exceptionally rare, with fewer than 40 cases documented since it was first reported by Morivilli in 1925 [2]. Most reported cases represent mature teratomas and are benign, with limited clinical consequence for the mother or fetus. However, due to rarity and potential diagnostic confusion, careful grossing, thorough histopathologic evaluation, and correlation with clinical findings are essential. The primary significance of this tumor lies in differentiating it from fetus acardius amorphous [3].

Given the rarity of this entity and its potential for misdiagnosis, documentation of such cases is important. The present case emphasizes the histopathological features and key differential diagnostic considerations.

CASE REPORT

An 18-year-old G1 woman with Rh-negative pregnancy presented with a complaint of absent fetal movements for one day. Ultrasonography showed absent fetal cardiac activity and confirmed intrauterine fetal demise at 38 weeks and 4 days of gestation, with no gross fetal anomalies. There was no history of maternal hypertension, diabetes, or infections.

Routine antenatal investigations were within normal limits. The patient subsequently delivered vaginally post-intrauterine fetal demise.

A specimen of placenta with membranes and attached umbilical cord was received (Fig. 1a). Gross examination showed a singleton placenta measuring 12 × 7 × 2 cm, weighing 200 g, which was below normal for gestation age, with an eccentrically attached umbilical cord measuring 6 cm in length, having 3 vessels on cut section. Within the membranes, a white lobulated mass measuring 2 × 1.5 × 1cm was seen (Fig. 1b and c). The cut surface was solid and yellowish (Fig. 1d). The fetal and maternal surfaces of the placenta were grossly unremarkable.

Sections examined from the umbilical cord revealed two arteries and one vein, which were unremarkable.

Sections examined from the lobulated mass showed a well-circumscribed tumor composed of mature keratinized stratified squamous epithelial lining, which showed follicular plugging accompanied by adnexal structures (Fig. 2a and b). The subepithelial stroma showed the presence of mature cartilage (Fig. 2c), and lobules of adipose tissue along with nerve bundles (Fig. 2d). No immature neuroepithelial elements, necrosis, or atypical mitosis were seen. No additional umbilical cord connecting this mass to the placenta, and no axial structures were seen. Sections examined

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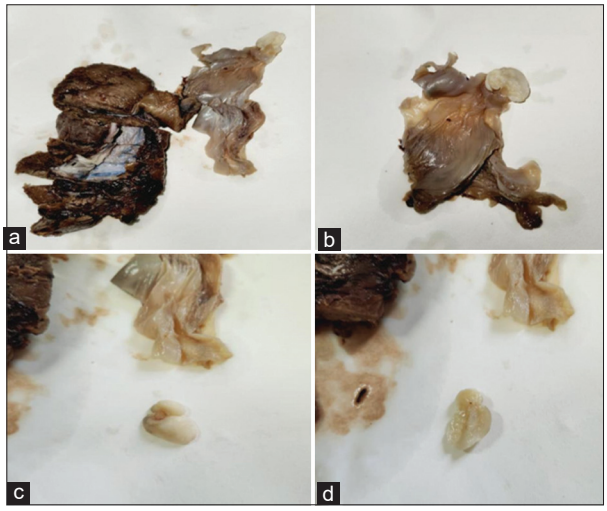

Figure 1: (a) Placenta with membranes; (b) white lobulated mass attached to membrane; (c) lobulated external surface of mass; (d) solid yellowish cut section of the mass

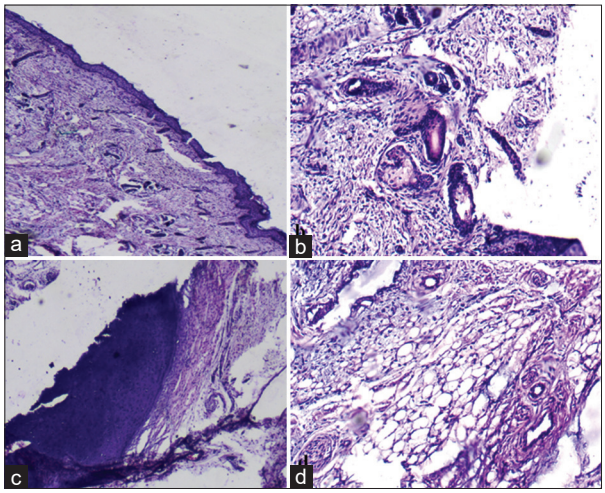

Figure 2: (a) Hematoxylin and eosin (H&E) (×40) showing keratinizing stratified squamous epithelial lining; (b) H&E (×400) showing adnexal structures; (c) H&E (×100) showing mature cartilage in subepithelium; (d) H&E (×400) showing mature adipose tissue

from membranes showed no significant inflammation (Fig. 3a). Sections examined from the placenta showed mature chorionic villi lined by cytotrophoblast and syncytiotrophoblast with focal areas of intervillous fibrin deposition, areas of hemorrhage, and fibrinoid necrosis (Fig. 3b). These findings were consistent with a diagnosis of mature placental teratoma.

DISCUSSION

Teratomas are germ cell tumors composed of tissues derived from more than one germ layer [4], most commonly encountered in gonadal and midline extragonadal locations. Placental teratoma is a rare benign form of extragonadal teratoma and is usually identified incidentally [5]. These lesions are typically located on the fetal surface of the placenta, often between the amniotic and chorionic membranes.

Histologically, they exhibit well-differentiated tissues derived predominantly from ectodermal and mesodermal layers. Common components include keratinizing

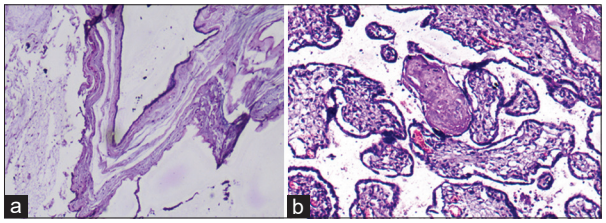

Figure 3: (a) Hematoxylin and eosin (H&E) (×100) showing membranes which are unremarkable; (b) H&E (×400) showing mature chorionic villi

squamous epithelium, adnexal structures, cartilage, adipose tissue, and neural elements [6]. The absence of immature neuroepithelium, atypical mitosis, or malignant features confirms its mature and benign nature, similar to findings reported in earlier studies [1,2,6,7]. However, recently an immature placental teratoma has been described exhibiting areas of necrosis along with neuroepithelial structures admixed with mature and immature derivatives of ectodermal and mesodermal lineages [8].

The principal differential diagnosis is fetus acardius amorphous, which represents a severely malformed twin. Unlike placental teratoma, it demonstrates some degree of axial organization, including skeletal elements, and is often associated with a rudimentary umbilical cord. The absence of these features in the present case supports the diagnosis of placental teratoma [9].

The origin of placental teratoma remains unresolved. Several theories have been proposed, including the included-twin hypothesis and the fused germ cell hypothesis. However, the most widely supported explanation is aberrant migration of primordial germ cells. According to this model, primordial germ cells migrating along the dorsal mesentery may deviate, enter the umbilical cord connective tissue during early gut evagination, and subsequently reach the fetal surface of the placenta or membranes, where they proliferate and differentiate into a teratoma. This mechanism is consistent with the typical location of placental teratomas between the amniotic and chorionic membranes [6].

Recent literature describes similar incidentally detected cases of mature placental teratoma with characteristic histological features. Tania *et al*. [2] and Khormoji *et al*. [7] have reported comparable findings with predominant mature ectodermal and mesodermal elements, reinforcing the benign nature of this lesion and the importance of histopathological evaluation in excluding mimics. Verma *et al*. reported a fetiform variant of placental teratoma that closely mimicked fetus acardius amorphous, underscoring the critical role of histopathological evaluation in confirming the absence of axial organization and umbilical cord attachment for accurate diagnosis [6]. The findings in the present case are in concordance with previously reported cases.

CONCLUSION

Placental teratoma is a benign non-trophoblastic tumor of the placenta. It occurs in women of reproductive age

and is clinically insignificant in most cases, isolated reports have described its occurrence in pregnancies complicated by intrauterine fetal demise, although a direct causal relationship remains uncertain. From a pathological perspective, its main importance lies in recognizing it among the differential diagnoses of benign placental nodules, which helps improve understanding of this rare lesion.

REFERENCES

1. Ben Thayer M, Bel Hadj Kacem L, Blel A, Ajouli W, Ksentini M, Rammeh S. Unexpected placental tumor: A case report. Int J Surg Case Rep 2024;121:110007.
2. Tania DG, Sara CA, Gómez PA, Rodríguez T, Vilar M. Placental teratoma Case report and review of the literature. Gynecol Obstet Case Rep 2024;10:31.
3. Kudva R, Monappa V, Rai L. Placental teratoma: A diagnostic dilemma with fetus acardius amorphous. Indian J Pathol Microbiol 2010;53:378-9.
4. Khedr S, Jazaerly T, Kostadinov S. Placental teratoma, omphalomesenteric duct remnant, or intestinal organoid (Enteroid) differentiation: A diagnostic dilemma. J Pediatr Genet 2017;6:252-7.
5. Barisik N, Barisik C, Keser S, Gul A. Mature placental teratoma: Case report. Open J Pathol 2013;3:131-2.
6. Verma T, Seema, Kaur M, Burman K. Mature placental teratoma, fetiform type: A rare case report. Int J Reprod Contracept Obstet Gynecol 2026;15:1056-9.
7. Khormoji NN, Soleimani V, Sheikhhasani S. Mature placental teratoma: A case report. Biomed Res Ther 2022;9:4818-21.
8. Shahzadi S. Immature placental teratoma. J Postgrad Med Inst 2014;28:324-7.
9. Gaffar BA, Hotait HY, Gamlouch SF, Swalaha NJ. Placental teratoma or fetus acardius amorphous? Hematol Oncol Stem Cell Ther 2008;1:57-61.

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