Intraplacental choriocarcinoma: a report of two cases

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SUMMARY Two examples of intraplacental choriocarcinoma are described. Both were small and had arisen in otherwise normal third trimester placentas. The covering mantle of many of the villi adjacent to the choriocarcinomas was formed, either focally or wholly, of neoplastic trophoblastic tissue: it is only at this stage of the development of a choriocarcinoma that villous structures are present, and a study of these cases adds further evidence for an origin of choriocarcinoma from villous trophoblast. Intraplacental choriocarcinomas can give rise to both maternal and fetal metastases during pregnancy, and it is suggested that such lesions also serve as an origin for those choriocarcinomas which follow a term pregnancy.

In western countries about 20% of gestational choriocarcinomas follow an apparently normal full term pregnancy.1 It has been generally assumed that in such cases the trophoblastic neoplasm arises either from villous tissue which has been retained within the uterus, or from residual extravillous trophoblast in the placental bed. Villi retained in utero after delivery, however, usually undergo coagulative necrosis and would appear to be an unlikely source of neoplasia while neoplasms arising from extravillous trophoblast usually take the form of placental site trophoblastic tumours rather than typical choriocarcinoma. There have, however, been occasional reports of choriocarcinomas arising in otherwise normal full term placentas,2-7 and a lesion of this type could serve as the source for a subsequent intrauterine neoplasm.

The finding of an intraplacental choriocarcinoma is, or least appears to be, a very rare phenomenon and one of which many pathologists are unaware. We therefore report here two examples of intraplacental choriocarcinoma.

Case reports

CASE 1
A 28 year old woman was delivered of a stillborn male infant at the 36th week of an apparently uncomplicated gestation. A necropsy on the infant was not performed but examination of the placenta showed a localised reddish area resembling a fresh infarct within the placental parenchyma; this lesion was reasonably well delineated and measured about 3 cm in diameter. This delivery took place in India and no further information is available about the subsequent fate of the patient.

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Histopathological findings
Sections from the reddish area showed a typical choriocarcinoma (fig 1); in some areas there was a sharp transition from choriocarcinoma to normal villi (fig 2) while elsewhere choriocarcinomatous tissue enveloped normal villi (fig 3). In other areas immediately adjacent to the choriocarcinoma, villi were present in which the trophoblastic mantle was formed, either wholly or in part, by proliferating neoplastic trophoblast (figs 4 and 5). There was no invasion of the villous stroma by the neoplastic trophoblast but choriocarcinomatous tissue was attached to the upper surface of the basal plate and had spread laterally in an extensive manner. Tumour was not seen in the basal plate vessels and did not invade the basal plate.

CASE 2
A 29 year old woman was seen during her third pregnancy, the previous two having been uneventful. She was found to have essential hypertension and developed pre-eclampsia at 38 weeks' gestation. Labour was induced and after normal vaginal delivery of a healthy male child the puerperium was uncomplicated, with post partum uterine involution occurring normally. Subsequent detailed investigation of the mother failed to show any evidence of tumour and her serum human chorionic gonadotrophin (hCG) concentrations were within the normal range. The serum hCG concentrations in the infant were also normal.

Histopathological findings
The placenta, membranes, and umbilical cord were macroscopically normal. Multiple slices of the placenta showed no abnormality apart from the presence, in a single tissue slice, of a well defined red area measuring 1.5 cm in diameter which was thought
pregnancy. The widespread, largely tacit, assumption that in both instances trophoblastic tissue is retained in the uterus after expulsion of the placenta or hydatidiform mole and subsequently, after a period of weeks, months or years, undergoes malignant change is an unconvincing hypothesis, and it is more probable that choriocarcinomas following a normal pregnancy originate from intraplacental neoplasms. There is no doubt that extremely small intraplacental choriocarcinomas can give rise to widespread maternal metastases during pregnancy and it would appear very likely that a somewhat less aggressive neoplasm could result in an intramyometrial metastasis which does not become clinically apparent until after delivery. In support of this concept is the fact that most post term pregnancy choriocarcinomas are diagnosed within four months of delivery, a time scale in accord with a metastasis from an intraplacental choriocarcinoma.

It could be argued that the relative frequency of post term pregnancy choriocarcinoma contrasts with the

Fig 1 Case 1: focus of intraplacental choriocarcinoma. (Haematoxylin and eosin).

to be an infarct. Histological examination showed that the apparent infarct was a focus of choriocarcinoma: the neoplastic lesion was surrounded by fibrotic villi many of which were covered by a surrounding mantle of malignant cytotrophoblast and syncytiotrophoblast. The neoplastic villous trophoblast showed many foci of necrosis but there was no invasion of the villous stroma. Elsewhere the placental villi were normal.

The syncytial component of the focus of choriocarcinoma stained positively for hCG but gave a negative reaction for human placental lactogen and Schwangerschaftprotein 1 (SP1). Normal villi well away from the neoplastic focus stained positively for all three substances, the syncytiotrophoblast staining most strongly for hCG.

Discussion

There is a considerable, albeit often unacknowledged, hiatus in our knowledge of the development of choriocarcinoma, whether following a normal or a
examples of metastatic choriocarcinoma in the fetus or neonate.9 The assumption must be that in such cases the fetal or infantile metastases had arisen from an intraplacental choriocarcinoma but, unfortunately, in all these cases the placenta had either not been studied or had been inadequately examined.

The origin of gestational choriocarcinoma from villous trophoblast is widely accepted, largely on the relatively circumstantial evidence of immunocytochemical staining characteristics.2 More direct proof of this has come from the study of cases such as we have reported here, in which the choriocarcinoma appeared to be arising from, rather than enveloping, otherwise normal placental villi. The finding of villi in a choriocarcinomatous lesion does, of course, conflict with the dogma that villous structures are not found in a choriocarcinoma and that their presence negates a diagnosis of choriocarcinoma.1 We would not wish to detract from the general truth of this dictum but it is nevertheless clear that at this particular stage of

Fig 3 Case 1: normal villus enveloped by choriocarcinomatous tissue. (Haematoxylin and eosin).

extreme rarity of intraplacental choriocarcinoma. It must be emphasised, however, that all the reported intraplacental choriocarcinomas, even those associated with widespread maternal metastatic disease during pregnancy, have been extremely small and discovered only on very careful examination of the placenta. In fact, there has been only one other example, apart from our two cases, in which the tumour has been an incidental finding:6 in all other instances the placenta had been examined with meticulous care because of metastatic disease during pregnancy. The great rarity of intraplacental choriocarcinoma may therefore be more apparent than real, and the true incidence of this lesion will not be known until careful placental examination is practised more widely than is currently the case.

Metastases from an intraplacental choriocarcinoma usually occur in the mother, and in our two cases there was a striking lack of invasion of the villous stroma by neoplastic tissue. Nevertheless, villous stroma invasion by intraplacental choriocarcinoma has been reported3 and there have been seven documented

Fig 4 Case 1: villi lying adjacent to the focus of intraplacental choriocarcinoma. Their trophoblastic mantle is formed by proliferating choriocarcinomatous tissue. (Haematoxylin and eosin).
development of a choriocarcinoma the presence of villi does not invalidate such a diagnosis. It is necessary, however, to differentiate between villi showing neoplastic change in their surrounding mantle of trophoblast and the entity which has sometimes been classed as "villous choriocarcinoma". This latter is, in reality, an invasive mole and to class it as a choriocarcinoma is both incorrect and confusing.

A final point of interest is whether a post molar choriocarcinoma arises in the same way as a post term pregnancy lesion: in other words, is there such an entity as an intramolar choriocarcinoma? Such a neoplasm has not yet been reported but this may reflect the difficulty of finding a small lesion, possibly less than 0·5 cm in diameter, within the considerable bulk of a hydatidiform mole. It is obviously hazardous to predict that an as yet unrecorded lesion will eventually be described but it is certainly possible that a post molar pregnancy arises in the same way as a post term pregnancy neoplasm and that an intramolar choriocarcinoma will eventually be found.

References


