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Presence of atypical extravillous trophoblast foci is an independent predictor of the risk of progression to postmolar neoplasia

Sophie Schoenen¹, Katty Delbecq², Etienne Marbaix³, Jean-Christophe Noel⁴,
Philippe Delvenne², Laurence Seidel⁵, Anne-Sophie Van Rompuy⁶, Els Van Nieuwenhuysen⁷,
Toon Van Gorp⁷, Ignace Vergote⁷, Frédéric Kridelka⁸, Pierre-Adrien Bolze⁹, Frédéric Goffin⁸

Affiliations

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Abstract

Background: Amongst complete hydatidiform moles, 15% to 20% will progress to postmolar neoplasia. Scientists have long searched for routinely applicable prognostic markers that can efficiently predict the risk of postmolar neoplasia.

Objective: To assess the prognostic value of atypical extravillous trophoblast foci within complete hydatidiform moles on the development of postmolar gestational trophoblastic neoplasia.

Study design: Between January 2017 and December 2022, a retrospective multicenter study was conducted in the Belgian Gestational Trophoblastic Diseases Registry (French-speaking center). All complete hydatidiform moles were included after being confirmed by a systematic centralized pathological review in 3 academic units with a high exposure to placental pathology. Postmolar gestational trophoblastic neoplasia was diagnosed according to the International Federation of Gynecology and Obstetrics 2000 criteria. Atypical extravillous trophoblast foci were defined as trophoblastic clusters in the intervillous chamber with a biphasic pattern of mononucleated cytotrophoblasts and multinucleated syncytiotrophoblasts. Their prognostic value for the development of postmolar gestational trophoblastic neoplasia was assessed using univariate analysis, followed by a multivariate model with stepwise selection of variables having a P value below .10 in the univariate analysis. A risk score, the "R-score," was developed based on the most significant variables of the multivariate model. The intercept and coefficients were obtained by fitting a logistic regression model. To facilitate its use in clinical practice, we established a score ranging from 0 to 10.

Results: Of the 216 patients with complete hydatidiform mole, 56 patients subsequently developed postmolar gestational trophoblastic neoplasia (25.9%). Atypical extravillous trophoblast foci were found in 105/216 cases (48.6%). The risk of postmolar neoplasia was significantly associated with the presence of this pathological feature in univariate analysis (odds ratio, 2.93, P=.0010) and in multivariate logistic regression adjusted for confounding variables (odds ratio, 2.34, P=.0152). The R-score is based on the presence of atypical extravillous trophoblast foci, age, and postevacuation human chorionic gonadotropin levels, with an area under the curve of 0.721. A score below 6 indicates a low risk of postmolar neoplasia (15%), while a score of 7 or higher indicates a high risk (42%).

Conclusion: The presence of atypical extravillous trophoblast into complete moles is associated with the risk of developing postmolar gestational trophoblastic neoplasia. These foci may represent a new inexpensive and widely available histological prognostic marker.

Keywords: atypical extravillous trophoblast foci; complete hydatidiform mole; postmolar gestational trophoblastic neoplasia; prognostic histological feature.

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