Hydatidiform mole is an abnormal development of human-placenta often found in Thailand. A unique morphological structure of the abnormal placental tissue is the swelling of chorionic villi which appear as bunches of grape-like vesicles. The vesicle contains fluid which is probably secretory product(s) elaborated by the abnormal trophoblastic cell of the tumor placenta.

Human chorionic gonadotropin (hCG) is one of the secretory products of normal placenta. It is a glyco-protein normally secreted during the first trimester of gestation. Patients with hydatidiform mole has been found to secrete the hormone in the urine and serum higher than in normal pregnancy. Determination of the hormone in vesicular fluid from the patient suggested the accumulation of hormone in the vesicle. Thus, vesicular hCG should be a secretory product from placental trophoblastic cell and it will serve the most appropriate model in vivo to understand the chemical nature of hCG produced by the tumor placenta.

Comparison of electrophoretic mobilities between vesicular and normal hCGs was performed by Tandem-CIE. Slower migration of vesicular hCG than the normal was observed. This suggested less negative charge of the former. However, the two
hormone preparations were immunochemically identical. Therefore, the abnormality of the hormone was possibly due to variation in carbohydrate composition.

The vesicular hormone was purified by classical chromatographies and immunoaffinity chromatography. The final preparation was characterized by CIE with specific antiserum. The results demonstrated that vesicular hCG was heterogeneous and a serum protein was still contaminated in the preparation.

Besides hCG, other protein components in the fluid were also analysed in order to understand their nature and explore potential development of the method for early diagnosis of the disease. Analysis of the fluid on cross-immunoelectrophoresis in the presence of rabbit anti-human serum indicated the existence of more than 21 serum proteins at various quantities in the fluid. Some of the proteins were individually identified, such as albumin, transferrin and Gc-globulin by using specific corresponding homologous antiserum. The absence of some particular serum proteins was also noticed.
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