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MODERN APPROACH TO THE DIAGNOSIS AND TREATMENT OF CYSTIC PREGNANCY (REVIEW)

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Abstract
Gestational trophoblastic disease (GTD) is a group of conditions that occur in pregnant women as a result of abnormal trophoblastic proliferation. It includes benign (complete and partial hydatidiform moles) and malignant (so-called gestational trophoblastic neoplasia) conditions. Geographic heterogeneity in the distribution of GTD has been statistically noted. While these data suggest the importance of ethnicity, the true causes may be directly related to diet, diagnostic quality, population coverage, and differences in statistical data recording.

Keywords: Hydatidiform mole, trophoblastic disease, gestational diseases.

Introduction

The relevance of cystic pregnancy is due to its serious complications, including a high probability of malignant degeneration, massive bleeding, as well as the risk of pulmonary embolism. Despite the fact that cystic pregnancy is a rare condition (from 1 in 100 to 1 in 5000 pregnancies), it poses a direct threat to the life of a woman and requires timely diagnosis and adequate treatment. who have had this disease, as it affects their reproductive health and the possibility of subsequent pregnancies. To date, there is still no clear idea of the causes of the occurrence of forms of cystic pregnancy, which significantly complicates the solution of a number of issues related to the diagnosis, treatment and prevention of this pathology. In this regard, it is necessary to further study various aspects of cystic pregnancy, causes and mechanisms of the development of the disease. The results of numerous studies have reliably established a significant role in the genesis of such factors as early first pregnancy, pregnancy parity, impaired immunity, deficiency of vitamins A and C in food, lack of proteins, inflammatory diseases of the pelvic organs, genetic predisposition (Meshcheryakov J1.A. et al., 2018; Kasenko I.A. et al., 2020; Heffner D., 2019).

Anatomy and Histology

Cystic drifts were first described by Hippocrates (470–410 BC), who explained their formation by the consumption of dirty water by pregnant women, the source of which was swamps. However, the terms "mole" and "bubble drift" were later used by William Smeley (1752). This author describes

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this pathology as a bunch of grapes consisting of berries of different sizes. The moles exhibit diffuse trophoblastic hyperplasia, in which the villi structure is particularly aberrant and hydropic (Figure 1). Such disorganization of the trophoblast leads to limited detection of vascular structures. The problem of vascular maturation in moles may be due to an increased level of apoptosis in the progenitor cells of blood vessels or to a defective set of pericytes around the vessels of the villi stroma. Despite the presence of these vessels, it is not certain that they contain various hematopoietic components. This persistent vascular immaturity of the villous stroma can lead to hydropic villi, mainly in pola vesicular drift (PVD). In the case of PD, these trophoblastic abnormalities are less common and usually contain identifiable embryonic or fetal tissue, which is extremely rare in frequent cystic pregnancy (PCD). Surprisingly, this trophoblastic hyperplasia can continue to form to such an extent that it penetrates the uterine cavity and subsequently goes beyond it (Fig. 1). This observation suggests that these drifts are not rejected by the uterus. Some authors could regard this as a failed abortion. In the Middle Ages, it was believed that each focal swelling corresponds to an egg. Hertig and his colleagues in 1956 proposed a logical sequence between the different types of moles: from PPD to PPP, then to an invasive molar followed by a very aggressive tumor called choriocarcinoma. Today it is known that this is implausible, in part because choriocarcinoma can develop in a woman both after PD and after a normal pregnancy. For PD, it is more correct to talk about preneoplasia (precancerous disease), and for invasive cystic moles and choriocarcinomas – gestational trophoblastic neoplasia (malignant disease).

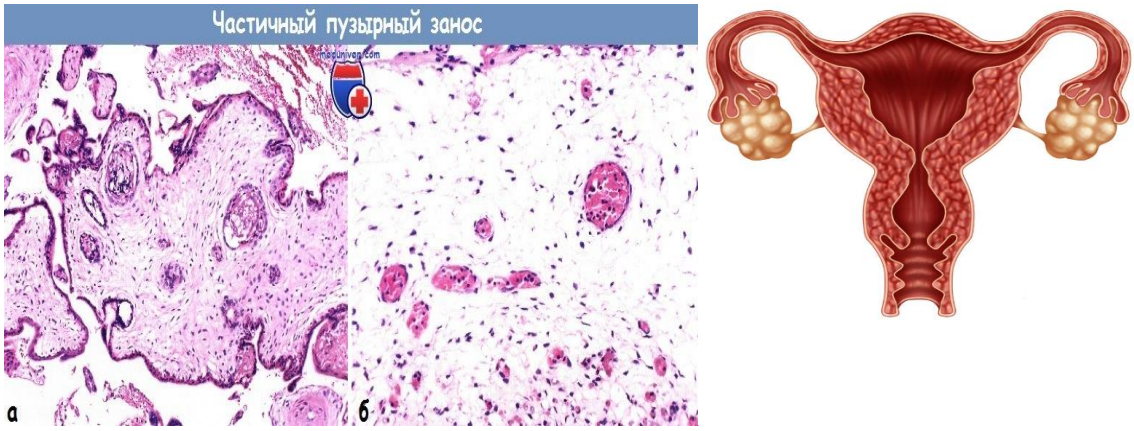

Fig.1 - Macroscopic and histological aspects of PD.

Differentiation

Cytotrophoblast cells actively proliferate immediately after implantation and penetrate the endometrium and spiral arteries in a regulated manner, ensuring occlusion of these vessels (Fig. 2). On the surface of the villi, cytotrophoblast cells form multinucleated syncytiotrophoblasts (MCTs) by asymmetric division (Fig. 2). These MCTs lose any pre-existing mitotic activity and are very sensitive to the presence of oxygen. Cytotrophoblasts secrete a variety of hormones, such as human chorionic gonadotropin (hCG). The proliferation of cytotrophoblast cells is responsible for the

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formation of two types of mature villi: floating and anchor (Fig. 3). Proliferation occurs faster in the center of the placenta compared to the periphery. Quote 14. Occlusion of trophoblastic cells avoids the teratogenic effect of too high oxygen pressure (pO2) in the embryo. During the first 10-12 weeks of pregnancy, MCTs do not secrete antioxidant enzymes. In contrast, this hypoxia supports placental angiogenesis and cytotrophoblast cell proliferation. Around 10 weeks of pregnancy, the trophoblastic plugs dissolve and the advanced maternal spiral arteries are remodeled into large-diameter vessels (uteroplacental arteries), which are responsible for increased blood flow (Figure 3). Maternal blood can now easily circulate between the villi, deliver essential nutrients from the mother to the fetus, and remove toxic elements from the fetus. These changes occur in parallel with significant fetal growth. During pregnancy, cytotrophoblasts decrease in thickness by term, the MCT is in close contact with the placental vessels, which allows the fetus to effectively absorb nutrients.

There are several theories of the occurrence of GTB, the main of which are the theory of viral transformation of the trophoblast, as well as the immunological theory. The first involves the appearance of a mutation that leads to the rapid development of chorionepithelioma already at the stage of a unicellular embryo, the death of the embryo and the proliferation of plasma cells and Langhans cells. immunological changes as the cause of the disease, scientists put forward a decrease in the protective properties of the body and a metabolic predisposition to the development of a tumor during pregnancy. The action of hormones such as hCG, progesterone and estrogen, as well as increased production of cortisol, cause hypoplasia of the thymus and germinal centers in the lymph nodes, lymphocytopenia and a decrease in the tension of cellular immunity, which ultimately leads to immunosuppression characteristic of the tumor process. Since the fetus and the fertilized egg have antigens that are different from the mother's, they are considered transplants, and an immune response occurs in the woman's body. With the predominance of the immunological reaction in relation to the proliferation of trophoblastic elements, pregnancy ends in miscarriage. If the reaction caused by fetal antigens is weaker than the proliferative changes in the trophoblast, then PD develops. In addition, scientists put forward theories of an increase in the enzymatic activity of hyaluronidase (7.2 times higher than normal in PZ, 15.6 times higher than normal in chorionepithelioma) and protein deficiency [12].

Cystic pregnancy - a cystic pregnancy occurs when the villi cytotrophoblast and syncytiotrophoblast proliferate, as a result of which damage to the decidual membrane occurs. A single cystic pregnancy is distinguished, which can be complete or partial, and invasive cystic pregnancy. In complete cystic moles, uniform swelling of the villi and diffuse hyperplasia of the trophoblast, as well as atypicality of its structure, are revealed. diploid set of chromosomes (karyotype 46, XX), inherited exclusively from the father (the haploid set of chromosomes of the father is duplicated in the fertilized egg); The egg itself is non-nucleated. The remaining 10% of complete PDs have a karyotype of 46.XY or 46.XX; In this case, disperm fertilization of the non-nuclear egg occurs. Partial cystic pregnancy (synonym – incomplete PD) contains embryonic tissue, while uneven swelling and enlargement of chorionic villi of various localization, predominant hyperplasia of syncytiotrophoblast, serration of the surface, increased blood flow and protrusion of stromal inclusions of villi are determined. As in complete PD, the trophoblast is hyperplastic, but there is a slight atypia [13]. Most of the incomplete PDs are triploid, more often 69,XXY with two

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paternal sets of chromosomes due to disperse fertilization of a normal egg or duplication of chromosomes of one sperm after fertilization of a healthy egg [14]. Studies have shown that there is no non-triploid incomplete PD [15]. Invasive cystic pregnancy is a pathology in which edematous chorionic villi with trophoblastic proliferation are identified, growing directly into the myometrium. Such villi can be found in the serous membrane of the uterus, outside the uterus, in the fallopian tubes and ovaries. In invasive PD, swelling is much less, and trophoblastic proliferation is easier to detect. (Fig. 2.)

Fig.2 - Clinical and morphological characteristics of gestational trophoblastic disease

Chorionepithelioma

About 2% of women with complete PD may develop chorionepithelioma (synonymous with chorionic carcinoma). It is characterized by hyperplasia of the cytotrophoblast and syncytiotrophoblast, hemorrhages and necrosis, and chorionic villi are absent [16]. It is also possible to disseminate trophoblast villi in the vascular bed, which contributes to the development of the neoplastic process in the lungs, brain, liver, pelvis, vagina, kidneys, intestines and spleen. Immunohistochemical markers can confirm the diagnosis of chorionepithelioma by β-hCG syncytiotrophoblast, inhibin-α intermediate trophoblast, and cytokeratin found in all trophoblastic cells. The Ki-67 antigen is expressed in about 50% of tumor cells [17]. Trophoblastic tumor of the placental bed of the TOPL is relatively rare, characterized by the absence of villi and proliferation of mainly intermediate trophoblast and a small number of syncytial cells. Compared to chorionepithelioma, TOPL has less bleeding, necrosis, and invasions [18]. Epithelioid trophoblastic tumor ETO is a rare malignant tumor that arises from neoplastic transformation of an intermediate chorionic trophoblast. To date, no more than 150 cases of ETO are known worldwide. These formations are nodes of the mononuclear intermediate trophoblast surrounded by hyalinized

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extracellular matrix within a section of necrotic tissue with the preserved structure of the vascular bed.

Treatment. After establishing the diagnosis of cystic pregnancy, the cystic pregnancy is removed from the uterine cavity, for this purpose, curettage of the uterine cavity with a curette, vacuum aspiration is used. If bleeding appears that threatens the life of a woman, an operation to remove the uterus is performed. After receiving the results of the histological examination, the woman is referred to an oncologist for a consultation to decide on the need for chemotherapy. Careful observation is necessary in the antenatal clinic for 2 years with a systematic study of the reaction to the presence of chorionic gonadotropin (every 3-4 months) [3,4]

If the negative reaction becomes positive, then urgent hospitalization is indicated to exclude chorionepithelioma, a malignant tumor that often develops after a cystic pregnancy (in the initial stages, it grows slowly and can be treated). This tumor grows rapidly and gives massive metastasis (primarily to the lungs). Therefore, all patients with cystic pregnancy undergo an X-ray examination of the chest organs to diagnose possible complications. [8,12]

Conclusion

Gestational trophoblastic disease is a spectrum of different conditions that develop from trophoblastic tissue. Known for a long time, TBM has not yet been fully studied due to the rarity of some of its forms, the complexity of the pathogenesis, the not always unambiguous response to the therapy, and the lack of a universal system for recording data on the diagnosis, treatment, and follow-up of patients.

References

1. Seckl M.J., Sebire N.J., Berkowitz R.S. Gestational trophoblastic disease. Lancet. 2010; 376 (9742): 717-29.
2. Mangili G., Lorusso D., Brown J. et al. Trophoblastic disease review for diagnosis and management: a joint report from the International Society for the Study of Trophoblastic Disease, European Organisation for the Treatment of Trophoblastic Disease, and the Gynecologic Cancer Inter Group. Int J Gynecol Cancer. 2014; 24 (9 Suppl 3): 109-16.
3. Lurain J.R. Advances in management of high-risk gestational trophoblastic tumors. J Reprod Med. 2002; 47 (6): 451-9.
4. Seckl M.J., Sebire N.J., Fisher R.A. et al. Gestational trophoblastic disease: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up. Ann Oncol. 2013; 24 (Suppl 6): vi39-50.
5. Lurain J.R. Gestational trophoblastic disease I: epidemiology, pathology, clinical presentation and diagnosis of gestational trophoblastic disease, and management of hydatidiform mole. Am J Obstet Gynecol. 2010; 203 (6): 531-9. DOI: 10.1016/j.ajog.2010.06.073. PMID 20728069.
6. Brown J., Naumann R.W., Seckl M.J., Schink J. et al. 15 years of progress in gestational trophoblastic disease: Scoring, standardization, and salvage. Gynecol Oncol. 2016; 144 (1): 2007.
7. Berkowitz R.S., Goldstein D.P. Clinical practice. Molar pregnancy. N Engl J Med. 2009; 360 (16): 1639-45.

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webofjournals.com/index.php/5

8. Smith H.O., Hilgers R.D., Bedrick E.J. et al. Ethnic differences at risk for gestational trophoblastic disease in New Mexico: a 25-year population-based study. Am J Obstet Gynecol. 2003; 188 (2): 357-66.
9. Braga A., Uberti E.M., Fajardo Mdo C. et al. Epidemiological report on the treatment of patients with gestational trophoblastic disease in 10 Brazilian referral centers: results after 12 years since International FIGO 2000 Consensus. J Reprod Med. 2014; 59 (5-6): 241-7.
10. Papadopoulos A.J., Foskett M., Seckl M.J. et al. Twenty-five years' clinical experience with placental site trophoblastic tumors. J Reprod Med. 2002; 47 (6): 460-4.
11. Schmid P., Foskett M., Seckl M.J. et al. Prognostic markers and long-term outcome of placental-site trophoblastic tumors: a retrospective observational study. Lancet. 2009; 374 (9683): 48-55.
12. Sidorova I.S., Kulakov V.I., Makarov I.O. Rukovodstvo po obstetricstvu [A guide to obstetrics]. Moscow: Meditsina. 2006: 1030 c.
13. Szulman A.E., Surti U. The syndromes of hydatidiform mole: I. Cytogenetiic and morphologic correlations. Am J Obstet Gynecol. 1997; 131 (6): 665-71.
14. Lawler S.D., Fisher R.A., Dent J. A prospective genetic study of complete and partial hydatidiform moles. Am J Obstet Gynecol. 1991; 164: 1270-7.
15. Genest D.R., Ruiz R.E., Weremowicz S. et al. Do nontriploid partial hydatidiform moles exist? J Reprod Med. 2002; 47 (5): 363-8.
16. Lage J.M. Gestational trophoblastic diseases. In: Pathology of the Female Reproductive Tract [Eds. S.J. Robboy, M.C. Anderson, P. Russell]. Edinburgh, UK: Churchill Livingstone. 2001: 759-81.
17. Shih I.M., Kurman R.J. Ki-67 labeling index in the differential diagnosis of exaggerated placental site, placental site trophoblastic tumor, and choriocarcinoma: a double immunohistochemical staining technique using Ki-67 and Mel-CAM antibodies. Hum Pathol. 1998; 29 (1): 27-33.
18. Hyman D.M., Bakios L., Gualtiere G. et al. Placental site trophoblastic tumor: analysis of presentation, treatment, and outcome. Gynecol Oncol. 2013; 129 (1): 58-62.

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