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THE MALIGNANT POTENTIAL OF ENDOMETRIOSIS

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The significance of the study is to tell about the endometriosis that is leading to the risk of ovarian cancer through a complex process of malignant transformation by chronic inflammation, genetic mutation, and hormonal imbalances. According to many researchers, the people with endometriosis are having the high risk of ovarian cancer.

The inflammatory microenvironment, which are rich in pro-inflammatory cytokines like IL-6, IL-8 and TNF- α , promotes cell survival and abnormal proliferation. Oxidative DNA damage leads to accumulation of free haem and iron and leads to production of reactive oxygen species that cause mutations in tumour suppressor gene. The genetic alterations through PI3K/AKT/mTOR pathway activation it is a second hit, such activating mutation in PIK3CA or the inactivation of PTEN, often occurs with the loss of ARID1A loss. This synergy constantly activates the PI3K/AKT/mTOR pathway, driving to cell survival, growth, and invasion. The pathway is typically triggered at cell membrane by growth factors like insulin or EGF and binding to receptor tyrosine kinase (RTKs). Activating mutation in PIK3CA gene in 40-51% of clear cell carcinomas and often exist in the adjacent precursor endometriotic tissue. The PIK3CA mutations were found in 30% of atypical endometriosis.

The shift of cells toward uncontrollable proliferation, genomic instability, and invasion. So the progression from endometriosis to cancer involves the genetic drivers like PIK3CA, ARID1A, KRAS that convert pathway activation from survival capability into malignant state. The stage of endometriosis is also very important to determine the malignant state. Severe the stage, more the chance to become endometrial cysts.

The endometroid carcinoma, frequently arise from the ectopic endometrium which are present in the ovaries mostly. In fact, cancer associated alteration may appear in normal uterine epithelium, through the intermediary stage of endometriosis. So we would like to summarize that, the endometriosis when it appears, it is benign and a non-malignant one. However, as the microenvironment condition in the surrounding of endometriosis changes and the genetic mutations would likely occur and leads to change of endometriosis to endometrial cysts and endometrial cysts into an ovarian cell carcinoma.

Women with endometriosis had a more than fourfold higher risk of developing ovarian cancer than women without endometriosis.

It can be concluded that it is crucial to pay attention to every gynecological symptom in women and disseminate information about how chronic inflammation or hormonal imbalance can lead to endometriosis, which increases the risk of developing malignancies by approximately 3 times.