

Cytochemical characterization of Ascitic Fluid from a patient with Ovarian Cancer- a Case Report

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Epithelial ovarian cancer is the most lethal gynecological malignancy and peritoneal metastases are the leading cause of morbidity and mortality. Malignant cells shed from primary tumor and float in ascitic fluid, as single cells or multicellular spheroids, and later implant on the peritoneal lining.

Aggregation of cancer cell in spheroids is particularly beneficial for the success of the

transcoelomic spread and is associated with disease progression and chemotherapy resistance.

The accumulation of ascitic fluid containing malignant cells has been described as a prerequisite for the peritoneal spread by facilitating the dissemination of cancer cell spheroids and acting as a growth-promoting medium. The study of ascites components allows a better understanding of the tumor dissemination process as well new therapeutic strategies design.

The present study aims to cytochemical characterize an ascitic fluid sample from a patient with high-grade serous ovarian carcinoma. The sample contained multiple mucoid fragments, that were formalin-fixed and paraffin-embedded. Serial cuts were made to evaluate extracellular matrix components present in these mucoid fragments where 3D spheroids are trapped, using Masson's Trichrome, Orcein, Gordon and Sweet's Silver, Periodic Acid Schiff and Alcian Blue stains.

Cytochemical stains showed that the matrix surrounding the spheroids is rich in glycogen and acid mucins, and didn't contain collagen neither elastin fibers. Our Gordon and Sweet's Silver staining showed tumor cells are surrounded by an argentic component, which are more prominent on the surfaces of spheroids.

This extracellular matrix coating on spheroids surface may play a decisive role in survival of these floating cells.

Keywords: ascites, extracellular matrix, neoplasm metastasis, ovarian neoplasms