

A case of Malignant Effusion with Anemone cells



Medical Science

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ABSTRACT

The wide morphological spectrum of reactive mesothelial cells is responsible for many 'look-alikes' in effusions cytology. Although the morphological features of various neoplasms are different in effusions from those in other types of specimens, metastatic cancers observed in usual practice may show typical cytological appearance that are recognizable with experience. A 60-year-old woman presented with pelvic mass and ascites. Fluid was hemorrhagic, composed of bimodal population of cells – reactive mesothelial cells and malignant cells. Also seen were cells with tufts of surface hair like projections, arranged in groups and in singles. She underwent total abdominal hysterectomy with bilateral salpingoophorectomy. Histopathological examination showed high grade serous carcinoma of ovary.

Introduction

Identification of cancer cells in effusion fluid is an art. Cell surface configuration is one of the principle morphological differences between malignant and benign cells. Free floating cells in effusion may occasionally have a covering of microvilli. In case of malignant cells, these are generally uneven in length and considerably longer than the microvilli of benign cells. Sometimes they resemble tufts of hair like projections on the surface of malignant cells; such cells are known as Anemone cells. They may be seen in breast or gastric carcinoma, but are most frequently encountered in serous tumours of ovary [1,2].

Case report

A 60-year-old woman presented with pelvic mass and ascites. Ascitic fluid was sent for cytological evaluation. Fluid was hemorrhagic with cell count of 1450 cells/cumm. Microscopic examination showed moderate cellularity, composed of bimodal population of cells – reactive mesothelial cells and malignant cells. Malignant cells were arranged in clusters and discrete with increased n/c ratio, moderate cytoplasm. Also seen were cells with tufts of surface hair like projections, arranged in groups and in singles. Some of the cells showed cytoplasmic vacuolations and intracytoplasmic lumina. Background was hemorrhagic (figure:1). She underwent total abdominal hysterectomy with bilateral salpingoophorectomy. Histopathological examination showed serous cystadenocarcinoma of ovary (figure: 2).

Discussion

Microvilli are short, slender, regular projections on the free surfaces of cells. The term brush border or striated border is applied to cells provided with folded microvilli. Brush borders are most commonly seen in intestinal mucosa, proximal segment of renal tubule and the choroid plexus in the central nervous system. They greatly increase the area of the apical surface and so the number of transport proteins it can contain, enhancing the cells absorptive capacity [2,4]. Microvilli are predominantly made up of actin filaments, attached to the tip of microvilli with the help of protein called Formin [3].

Certain fundamental differences between cell membranes of benign and malignant cells have been discovered by electron microscopy. In general the surface of benign cells, such as squamous cells, lymphocytes, macrophages, or mesothelial cells display uniform villi and are polarized. The surface of most ma-

lignant cells is covered with microvilli of variable sizes and configuration, and covers the entire cell surface. At places they form very long clumps. These clumps are sometimes visible under light microscopy. They are difficult to see in Papanicolaou stained smears, but clearly visible in the Romanowsky stained smears [1,2,3].

Smears composed of malignant cells with microvilli are rarely seen in light microscopy. Springs and Meek were the first to observe tufts of hair like process on the surface of malignant cells in pleural and peritoneal effusions [5]. Ebner and Schneider and few other studies also described the presence of ciliated malignant cells shed from ovarian adenocarcinoma [2]. Sibley and co-workers noticed these cells and introduced the term "anemone cell" [6]. Tumors composed of such cells are called anemone tumors [4]. An anemone tumor does not describe a discrete entity or constitutes a definitive diagnosis. Tumors with anemone cell features can originate from epithelial or mesenchymal origin. The differential diagnosis includes ovarian tumors, gastric carcinoma, breast carcinoma, malignant melanoma, malignant lymphoma, squamous cell carcinoma and mesothelioma [7]. Anemone cells with long complex microvilli are particularly seen in mesothelioma [7,2].

Anemone cells should not be confused with ciliated epithelial cells which mainly occur in the respiratory tract, fallopian tube and endocervix, if encountered in other sites various differential diagnosis can be considered [8]. It is also important not to confuse Anemone cells with ciliocytophthoria, a form of cellular degeneration often associated with viral infections and possibly due to adenovirus or other viral pneumonitis or detached ciliary tufts, which are nothing but tiny ciliated non nucleated cellular fragments of fallopian tube origin [9,10,11].

Most of the case reports describes anemone cells observed under electron microscopy, diagnosis of these tumors were made by immunohistochemistry using various panel of antibodies. Ours is one of the rare cases to document such cells in light microscopy.

Conclusion

Anemone cells are rare, when present gives an important clue for malignancy, especially of ovarian origin

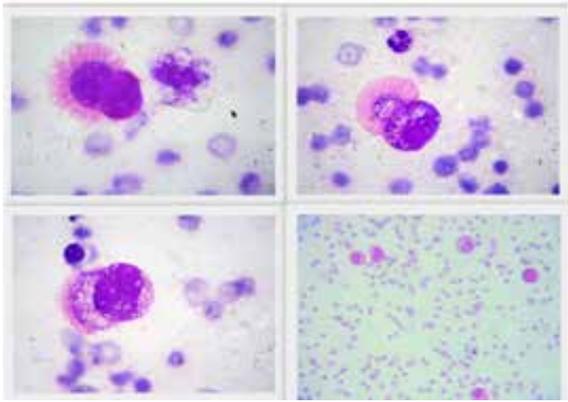


Figure: 1 Cells having tufts of surface hairlike projections (Romanosky Stain, x 400)

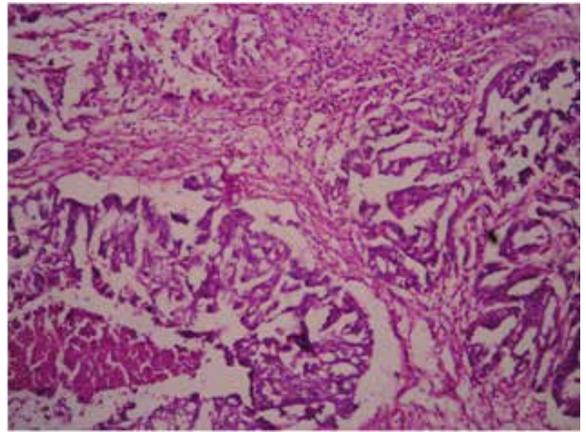


Figure:2 papillary structures lined by stratified malignant cells with necrosis (hematoxyline and eosin, x200)

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