

Clinical Image

Circulating Tumor Cells or Not?

Fenggang Yu^{1*}, Lin Tao¹, Fredrik Petersson², Kwok Seng Loh³

¹Department of Otolaryngology, National University of Singapore, Singapore

²Department of Pathology, National University of Singapore, Singapore

³Head & Neck Tumor group, National Cancer Institute of Singapore, Head & Neck Surgery, Singapore

*Corresponding author: Fenggang Yu, Department of Otolaryngology, Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Received: October 29, 2014; Accepted: November 14, 2014; Published: November 19, 2014

Nasopharyngeal carcinoma (NPC) is one of the most common cancers in South East Asia. The high incidence of lymphatic spread and distant metastases are associated with high mortality. It has been proposed that metastasis is initiated by a subpopulation of circulating tumor cells (CTCs). The aim of this pilot study was to isolate and culture CTCs from peripheral blood buffy coats of one NPC patient (Stage IV, T4N3M0). Many small spheres (Figure 1A and 1A') were formed in culture and immunocytochemistry (ICC) was performed on cytospin cells in order to characterize them. Some unknown cells

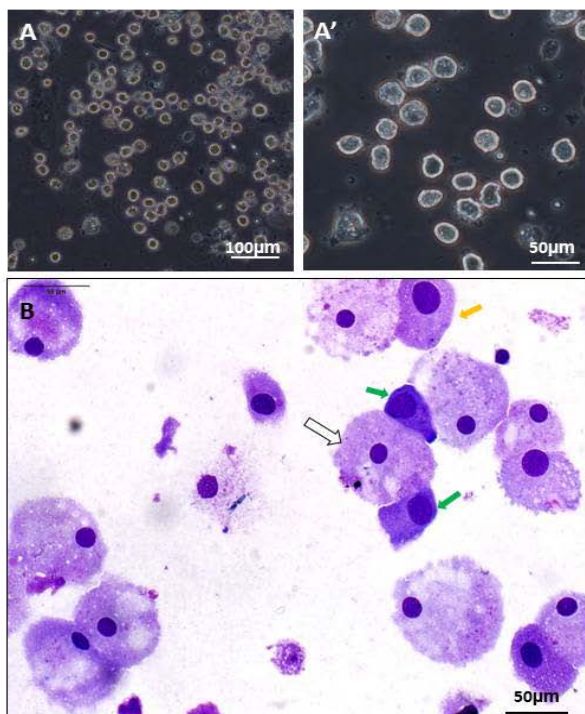


Figure 1: Ex vivo expansion of cells from NPC patient's peripheral blood. Representative images of non-adherent sphere culture. Phase contrast is at 10x (A) and 20x (A') magnifications. Giemsa staining showing three types of morphology in the cell cytospins (B). The majority of them exhibit round nuclei and abundant cytoplasm (white arrow).

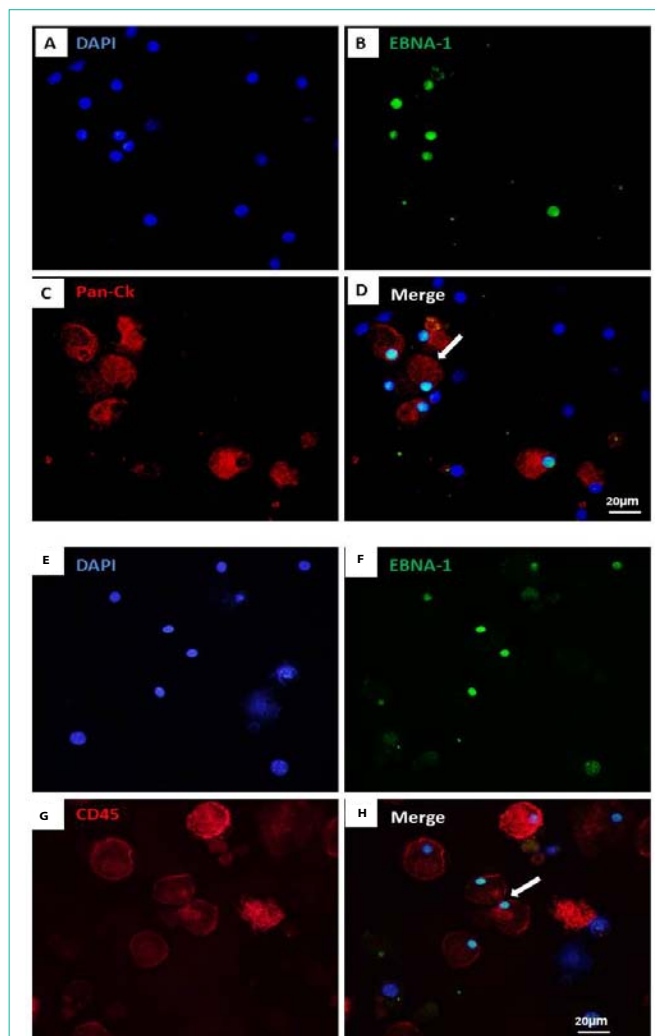


Figure 2: The major cell type expresses Epstein-Barr virus (EBV) marker (EBNA-1, green), epithelial lineage marker (pan-CK, red) and hematopoietic lineage marker (CD45, red).

with small round nuclei and abundant cytoplasm (Figure 1B) were positive for EBNA-1, Cytokeratin (pan-CK, Figure 2A-D) and CD45 (Figure 2E-H). In NPC, EBV (detected by ISH; EBER) is exclusively detected in tumor cells, never in lymphocytes. CTCs are supposed to be positive for CK (epithelial lineage), but not CD45 (hematopoietic lineage). Thus they neither resemble typical blood cells nor CTCs. Their identity needs further investigation.