Wound healing response promotes breast cancer metastasis in postpartum mice

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Within the first 5 years after the birth of a child, women are at an increased risk of developing metastatic breast cancer. Women diagnosed with postpartum breast cancer have a decreased disease free survival time compared to women that have never given birth. The aggressive tendency of postpartum breast cancer suggests that the post-birth breast environment promotes tumor metastasis.

A new study in the *Journal of Clinical Investigation*, suggests that dying tumor cells in postpartum breast tissue promote metastatic disease. Rachel Cook and colleagues at Vanderbilt University found that postpartum mice rapidly develop metastatic disease. Breast tissue is extensively remodeled upon completion of lactation, and macrophages play a role in removing dying breast cells during this process. Cook and colleagues found that tumor cell death was also widespread in postpartum mice.

Dying tumor cells triggered secretion of anti-inflammatory cytokines that promote wound healing. Importantly, mice lacking a receptor on macrophages that is required for the clearance of dying cells did not develop metastatic disease. In addition, inhibition of the wound-healing cytokine TGF-β also prevented tumor metastasis in postpartum animals. This study provides potential targets to be further investigated for limiting the severity of postpartum breast cancer.

More information: Efferocytosis produces a prometastatic landscape during postpartum mammary gland involution, *J Clin Invest*. DOI:

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