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Why do we get leaky blood vessels?

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Why do we get leaky blood vessels?

Sepsis is a life-threatening human disease with no specific treatment. Sepsis is caused by out-of-control inflammation in response to an infection leading to organ failure. This organ failure is due to damage to the cells that line our smallest blood vessels, called microvascular endothelial cells, which causes the blood vessels to leak. One potential cause of microvascular endothelial cell damage is a family of enzymes called metalloproteinases. My research work has found that the activity of these enzymes is increased during sepsis. Importantly, the enzymes appear to be cutting proteins that hold the endothelial cells to each other, and when these proteins are cut, the cells cannot form the barrier and the blood vessels leak. Treatment of the endothelial cells with a synthetic inhibitor of the metalloproteinases allows the proteins to stay attached and the barrier to stay intact, thereby reducing leaky blood vessels during sepsis.