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Collective cell migration plays an important role in maintaining the cohesion of epithelial cell layers and in wound healing. A recently developed mathematical model of cell layer migration based on an assumption of elastic deformation of the cell layer leads to a generalized Stefan problem. Analysis and numerical results indicate that a large class of constitutive equations for the dependence of proliferation on stretch leads to traveling wave solutions with constant wave speed. (Received July 31, 2012)