NEURAL INVASION SPREADS MACROPHAGE-RELATED ALLODYNYA VIA NEURAL ROOT IN PANCREATIC CANCER

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Neural invasion (N-inv) induces the neural damage and pain in pancreatic cancer (PCa). Allodynia from benign nerve injury is spread via the activated neural root. The pathophysiology of benign neuropathic pain can play the important role in pain of PCa. The aim of this study is to represent the change of skin sensation from N-inv of PCa through neural root and to characterize allodynia-related feature including macrophage accumulation on neural root in N-inv animal model (N-inv-model).

The perception threshold on epigastric skin and pain score in patients with PCa were evaluated by the degree of radiological N-inv. In the N-inv-model, which was previously established using the inoculation of the human PCa cell line into the left sciatic nerve of mice, the change of sensation was measured at right hind paw and the expressions of mRNA and protein were investigated on neural root and tumor.

Patients with severe N-inv decreased the threshold of epigastric skin and rated high pain score. The N-inv-model decreased the threshold of right hind paw at 6-week and increased macrophages in the left dorsal root ganglia (DRG). Macrophage depletion using liposome-encapsulated clodronate increased the threshold in right hind paw and decreased macrophage accumulation in the left DRG.

The present study firstly showed that the N-inv-induced allodynia was spread through neural root in PCa patients and in the N-inv-model. Allodynia was related to the amount of
macrophages at DRG in the N-inv-model. The N-inv-model may be useful for researching the N-inv-induced pain mechanism and testing novel analgesics.

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**Specialty and Present Interest:**  
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