

CLINICAL VIGNETTE

## East-West Approach to Postoperative Nausea and Vomiting

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### *Introduction*

Postoperative nausea and vomiting (PONV) is a common surgical complication resulting in frequent medication use, delayed hospital discharge, and unnecessary readmissions. Although challenging to treat, traditional Chinese medicine has been found to be helpful in managing postoperative complications, including nausea, ileus, and pain. Here we describe a case of postoperative nausea and vomiting successfully treated with an integrative East-West approach incorporating acupuncture, self-acupressure, and Chinese nutrition.

### *Case Presentation*

A 73-year-old woman underwent Nissen fundoplication for severe gastroesophageal reflux disease refractory to multiple medications, including famotidine, pantoprazole, and esomeprazole. Her postoperative course was complicated by gastric perforation five days after surgery, which was repaired. Two weeks later, she was hospitalized again with persistent nausea and retching. The patient was given antiemetic medications, including metoclopramide, prochlorperazine, and ondansetron without significant relief. Eventually, she improved enough to be discharged on scopolamine with partial symptomatic control. A referral was made to the UCLA Center for East-West Medicine.

Three days after discharge she presented to the clinic with persistent nausea and intermittent retching on scopolamine. An integrative assessment was performed. The nausea and retching were made worse with oral intake, movement, and stress. She also reported epigastric fullness, decreased appetite, a throat lump, loose stools, chronic cough, and fatigue. She denied any urinary symptoms or any other recent changes to her medications.

On physical examination, vital signs were normal. She appeared pale, and her abdomen was slightly distended with some mild tenderness to palpation in

the epigastric and lower abdominal regions. Her surgical wounds were healing and looked clean, dry, and intact. Otherwise her exam was unremarkable. Computed tomography scan of the abdomen and pelvis confirmed no acute process or evidence of leak status post Nissen fundoplication.

A comprehensive treatment plan combining acupuncture, self-acupressure, Chinese nutritional therapy, and stress management was implemented. Acupuncture centered around the following acupoints: Pericardium 6, Stomach 36, Large Intestine 4, Liver 3, and Gall Bladder 34. She was advised on stress management, self-acupressure of the aforementioned points, avoidance of “damp” foods, and incorporation of ginger and peppermint in her diet.

She returned for follow up three days after her initial visit and reported a decrease in her nausea and retching without the use of additional medications. Resolution of her nausea was achieved after a total of seven weekly treatments. She also stated that her residual gastrointestinal symptoms normalized, chronic cough was eliminated and energy was more sustained. While completely off antiemetic pharmacologic therapy, she has not had any recurrence of either nausea or retching.

### *Discussion*

Postoperative nausea and vomiting frequently complicate anesthesia and delay recovery from surgery. Although better anesthetic techniques and newer anesthetic drugs and antiemetics have reduced the incidence of PONV, up to 80% of high-risk patients are still affected<sup>1</sup>. The mechanisms for nausea and vomiting are complex between the gastrointestinal and central nervous systems. The motor function of the gut involves an intricate interplay between the sympathetic and parasympathetic autonomic nervous systems, enteric nervous system, and the effects of centrally and locally released neurotransmitters that alter the excitability of smooth muscle cells<sup>2</sup>. Abnormalities at these levels may lead to gastric slowing resulting

in a sensation of fullness and reflux of gastrointestinal contents.

The standard treatment protocol for PONV generally involves prophylaxis based upon the Apfel score, and when necessary, use of rescue medications<sup>3</sup>. Pharmacologic agents may include one or any combination of serotonin-receptor antagonists, neurokinin-receptor antagonists, glucocorticoids, prokinetics, and anticholinergics<sup>4</sup>. However, adverse effects of these medications often limit their use and lead to the consideration of alternative therapies.

Well designed studies, including a randomized controlled trial performed at UCLA, have demonstrated that acupuncture may alleviate nausea and vomiting in various conditions, such as postoperative nausea, morning sickness, and nausea associated with cancer and chemotherapy<sup>5-8</sup>. Another randomized controlled trial has shown acupuncture to have similar efficacy as prochlorperazine and 5HT-antagonists in patients with PONV<sup>9</sup>. Akin to acupuncture, a study of acupressure demonstrated its efficacy when applied to Pericardium 6 (P6), the classic point for nausea to prevent PONV<sup>10</sup>. A Cochrane review in 2009, which included 40 trials, concluded that interventions providing stimulation of the P6 acupoint, including acupuncture, electro-acupuncture, acupressure, transcutaneous nerve stimulation, and laser stimulation were effective in preventing PONV<sup>11</sup>.

Although the exact mechanism by which acupuncture and acupressure improve nausea is still unclear, acupuncture may reduce nausea and vomiting via various pathways of the central nervous system mediated by release of endogenous endorphins<sup>8</sup>. This antiemetic effect has been shown to be negated by naloxone<sup>12</sup>. Other possible mechanisms of action include a change in serotonin transmission through activation of serotonergic and noradrenergic fibers as well as a regulatory effect of acupuncture on gastric myoelectric activity<sup>13,14</sup>.

Ginger (*Zingiber officinale*) has traditionally been used in China for gastrointestinal symptoms, including nausea and vomiting. Its effectiveness as an antiemetic for PONV has been well documented in the literature<sup>15,16</sup>. Ginger is thought to alleviate gastrointestinal symptoms by increasing gastric secretions and promoting peristalsis. It has also been demonstrated to accelerate gastric emptying and stimulate antral contractions<sup>17</sup>. Peppermint (*Mentha piperita*) also has evidence supporting its use in patients with dyspepsia and irritable bowel syndrome,

which may be attributed to its function as a muscle relaxant<sup>18</sup>. In a review that pooled data from nine studies, it was determined that peppermint oil had a substantial spasmolytic effect on the smooth muscles of the lower gastrointestinal tract<sup>19</sup>.

Currently, there is little in the literature examining the role of alternative therapies, including acupuncture and nutrition in the treatment of PONV or nausea refractory to antiemetic pharmacologic agents. Here we describe a case of postoperative nausea and vomiting refractory to medications that was treated successfully with a comprehensive, integrative approach incorporating acupuncture, self-acupressure, and dietary therapy. While the exact mechanisms underlying the therapeutic effect of these interventions for nausea need to be further elucidated, clinicians should be aware of their use as potentially efficacious therapies.

The authors declare no conflicts of interest.

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