Effect of acupuncture on postoperative adhesive intestinal obstruction

Adhesive intestinal obstruction (AIO) is a common complication following abdominal or pelvic surgery. However, surgical adhesiolysis to treat AIO is associated with a high rate of recurrence, and thus the clinical management of AIO is challenging. Here we describe the successful treatment of a woman with AIO using acupuncture.

CASE HISTORY
A 49-year-old housewife arrived at our clinic in January 2006 complaining of nausea, vomiting, cramping abdominal pain and obstipation. Initial examination showed a distended abdomen that was tender and tympanic on percussion. Hyperactive and high-pitched bowel sounds were audible on auscultation. A midline laparotomy scar and gridiron scar were present on her abdomen (figure 1).

The patient had undergone an open appendicectomy for acute appendicitis in 1995 and had experienced intermittent diffuse abdominal pain, nausea, vomiting and constipation after the operation, requiring several attendances at the emergency department. In March 1999 she was readmitted to the hospital to undergo surgical adhesiolysis after an episode of AIO. Between March 2003 and September 2004, she experienced five more episodes of AIO and was given intravenous fluid treatment and nasogastric tube decompression at the hospital.

In December 2005 she was readmitted after presenting with vomiting and severe abdominal pain. A small bowel X-ray series showed marked dilatation of the jejunum with partial obstruction of barium flow. CT showed disproportional dilatation of the small intestine with fluid retention at the gastric level, suggesting intestinal obstruction from postoperative adhesions, for which surgical intervention was required. Unfortunately, she continued to experience nausea, constipation, bloating and abdominal pain after discharge from the hospital. Her pain persisted throughout the night, affecting her sleep and overall quality of life.

Further treatment with laxatives, prokinetics, barbiturates, antidepressants and analgesics only led to temporary relief of the patient’s symptoms so she decided to pursue alternative treatments.

ACUPUNCTURE TREATMENT
Acupuncture needles (0.30×25 mm) were inserted at ST36 (Zusanli) and ST25 (Tianshu) to the depth required for the production of the de qi sensation. The acupuncture needles were stimulated by rotation bidirectionally for 1 min. During needleling at ST36 the patient experienced a strong warm sensation propagating from her lower leg to above her abdomen. The needles were then left in place for 20 min.

The patient underwent 12 sessions of treatment, three times a week for 4 weeks. During each session, changes in pain intensity were measured using an 11-point numeric rating Visual Analogue Scale (VAS). At the first session her VAS score for abdominal pain was 9 out of 11. Immediately after the first session the patient noted a significant improvement of her abdominal pain. At the second session, 1 day later, her abdominal pain rating was 3 out of 11 on the VAS scale. Because she had experienced no adverse effects, she decided to continue with the treatment. On the third visit she reported that she no longer felt nauseous. She was able to sleep undisturbed and had normal bowel movements.

As the treatments continued her condition steadily improved. After 4 weeks of treatment she appeared to be symptom free and had been able to return to a normal diet. In a follow-up session 8 years after the final acupuncture treatment in February 2006 she reported that the symptoms had never returned.

DISCUSSION
Although there are several nonsurgical treatments for AIO, including gastric decompression, bowel rest and anti-inflammatory agents, they are not always effective. On the other hand, surgical adhesiolysis is invasive, costly and may cause new adhesions to develop, leading to recurrent episodes of AIO.

The acupuncture points we selected for treatment have previously been used for the treatment of gastrointestinal diseases. For example, in a randomised controlled trial ST36 has been shown to accelerate the recovery of gastrointestinal motility after colorectal surgery. Acupuncture at ST36 may also attenuate the inflammatory response and regulate gastrointestinal function.
Furthermore, ST25 is known to share its segmental innervation with the small intestine. Studies show that AIO is mediated by the overproduction of cytokines in the bowel, which interferes with gastrointestinal motility. Experimental evidence demonstrated that cholinergic nerves regulates cytokine response and thereby inhibits inflammation. Hence vagus nerve stimulation may stimulate motility and modulate cytokine production in the treatment of AIO. As acupuncture is associated with altered vagus nerve activity, it is possible that acupuncture might reduce AIO by inhibiting inflammation via a cholinergic pathway.

To our knowledge, few studies have investigated the clinical effect of acupuncture on AIO. We believe that this is the first report showing that acupuncture treatment can result in complete symptomatic relief from recurrent AIO at long-term follow-up (8 years), although the possibility of spontaneous resolution cannot be ruled out. This suggests that acupuncture may offer an alternative approach to the treatment of AIO in patients who do not respond well to conventional treatments. However, long-term, randomised controlled trials (ideally double-blind) are needed.

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