Aspiration Therapy for Obesity

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KEYWORDS

• Aspiration therapy • Endoscopic bariatric therapy • AspireAssist

KEY POINTS

- The AspireAssist System was recently approved by the Food and Drug Administration (FDA) to perform aspiration therapy.
- Aspiration therapy removes up to 30% of calories consumed at a meal but also induces a decrease in food intake and improved eating behaviors.
- Percent total body weight loss (%TBWL) across trials in patients completing 52 weeks of therapy is 14.2% to 21.4%.
- Serious adverse event (SAE) rates are low, no deaths have occurred, and no patients have developed binge eating disorder or bulimia as a result of aspiration therapy.

INTRODUCTION

One of the key components in the pathophysiology of obesity is the intake of calories in excess of energy expenditure resulting in storage of energy, mainly in the form of triglycerides. The physiologic control of eating by the adipose tissue–gut–brain axis has been extensively studied.[1] Humans eat for a variety of reasons, however, including hedonic likability of food, social influences, emotional stress, and environmental cues that are less well understood and may over-ride physiologic mechanisms for appetite regulation.[2] Moreover, lifestyle interventions aimed at modifying behaviors related to these psychosocial factors yield only modest weight loss.[3] Aspiration therapy, an endoscopic bariatric therapy (EBT) that removes up to 30% of calories in a meal, may overcome the limitations of lifestyle intervention alone in reducing food intake to level required for greater weight loss. This review details aspiration therapy with the recently FDA-approved AspireAssist System (Aspire Bariatrics, King of Prussia, Pennsylvania).

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ASPIRATION AND THE COMPONENTS OF THE AspireAssist SYSTEM

Aspiration therapy involves the aspiration of gastric contents after a meal to reduce total calorie absorption for weight loss. The therapy requires the use of the AspireAssist System, which is seen in Fig. 1 and described.

Permanent Components

- A-Tube: a 42-cm silicone tube attached to a dilator and metal cable loop used to attach the A-Tube to a flexible guide wire for placement through the abdominal wall with the standard pull percutaneous endoscopic gastrostomy (PEG) tube technique (see Fig. 1A).[4] After implantation, the delivery tube portion of the A-Tube with the dilator and metal loop are cut and discarded. The remaining A-Tube has an intragastric bumper that prevents migration through the gastrocutaneous tract. Unlike a standard PEG tube, the A-Tube also contains a 15-cm intragastric portion lined with fenestrations to facilitate the flow of gastric contents into the A-tube.
- Skin-Port: a 3.5-cm disk with a height of less than 1 cm, which is connected to the external portion of the A-Tube. The Skin-Port contains a valve that can be opened to allow gastric contents to flow out when opened with the Connector (discussed later)

Components Only Attached During Aspiration

- Connector: a disk that attaches to the Skin-Port and opens the valve in the Skin-Port (see Fig. 1B). The Connector also contains a counter that tracks the number of times the Skin-Port is opened. After 115 uses, or the equivalent of 5 weeks to 6 weeks of therapy, the Connector locks and can no longer be used to open the Skin-Port.
- Patient Line: a flexible silicone tube that connects the Connector to the Companion (discussed later)
- Companion: a passive siphon with that allows for flow of water into the Patient Line through the Connector into the A-Tube to facilitate aspiration of gastric contents and flow of gastric contents out of the stomach into the Patient Line and out of the Companion
- Reservoir: a 600-mL soft water bottle that can be filled with tap water and attaches to the Companion to infuse into the stomach to facilitate aspiration of gastric contents
- Drain Tube: silicone tube that attaches to the bottom of the Companion and provides a clean exit of gastric contents into the toilet

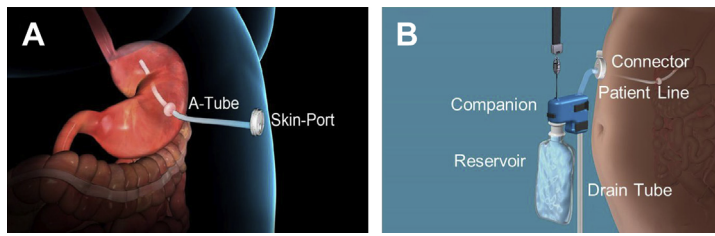

Fig. 1. Components of the AspireAssist System: (*A*) permanent components and (*B*) components only used during aspiration.