

GASTROSTOMY TUBE

TECHNICAL FIELD

The present invention relates generally to a feeding tube, and more particularly, to an improved replacement gastrostomy tube which can accommodate internal passage of a secondary jejunal feeding tube.

BACKGROUND OF THE INVENTION

Most patients in health care facilities are able to achieve sufficient caloric intake through eating prepared meals. However, a sizable number of such patients are unable to ingest enough food to meet their body's needs. Examples of these individuals would include burn patients, whose daily caloric needs are often in excess of 5,000 calories; critically ill, weak or comatose patients, who may be unable to chew their food; and patients suffering from cancer of the esophagus, who may be unable to swallow their food. For these patients, parenteral caloric supplementation, also known as intravenous feeding, is not a viable alternative.

In response to this problem, liquid foods have been developed for enteral feeding. Enteral feeding often utilizes a nasogastric tube to transport the liquid nutritional products from a container through the patient's nasal cavity and thence into the stomach. However, an increasing number of ambulatory patients utilize and prefer direct enteral feeding through gastrostomy devices.

While it is possible to place a primary gastrostomy device by means of a surgical procedure utilizing a general anesthetic, the preferred method for placement of these devices is through a percutaneous endoscopic gastrostomy (PEG) which involves the non-invasive, non-surgical creation of an artificial opening or stoma into the stomach through the abdominal wall using only local anesthetic. In a representative PEG procedure, an endoscope is passed down the throat until its terminus contacts the interior of the stomach wall. A needle, with stylet in place, is then inserted through the various tissue layers until it enters the stomach at a predetermined point. The stylet of the needle is retracted and a guidewire is then inserted through the cannula of the needle. The terminal end of the guidewire (now inside the stomach) is grasped using an endoscopic appliance and retracted up the throat. A primary gastrostomy tube is then inserted with the assistance of the guidewire so as to provide a direct enteral feeding conduit to the patient's gastric system.

To better understand the advantages associated with the instant invention, it is necessary to appreciate the distinctions between primary and secondary gastrostomy tubes. A primary gastrostomy tube, is the device used for the initial placement in the patient of a gastric enteral feeding tube. With a length of approximately 1 meter the primary tube has as its principle focus, the forming of a healthy stoma tract. In contrast, the approximately 225 mm secondary gastrostomy tube, assumes the presence of a healthy stoma tract and, in fact, is able to be physically pushed into position through an open stoma, following removal of the primary gastrostomy tube. Reasons why the primary gastrostomy tube may have to be removed include clogging due to the viscous character of enteral nutritional food product, the perforation of the mucosa wall, or just deterioration due to age. Primary gastrostomy tubes usually only last

on average from three to twelve months. Additionally, the patient may accidentally or intentionally pull the primary tube out, thus requiring the insertion of a replacement tube. The prior art replacement gastrostomy devices comprise a catheter shaft enclosing a non-circular feeding lumen and a fluid flow channel with the fluid flow channel permitting the filling of an expandable component member so as to provide for the securing of the device with respect to the stomach wall.

In both primary and secondary gastrostomy tubes, a main feeding port permits the introduction of enteral nutritional product into the feeding lumen and thence into the stomach. The main feeding port is connected to a supply of nutritional product via an adapter set which accommodates various sizes of tubing. The devices according to the prior art provide only one access to the feeding lumen. As a result, these devices cannot be used for other than feeding purposes without disconnecting the pump set.

One aspect of the present invention resides in the "Y-port" connector which provides access to the feeding lumen for non-feeding purposes. Possible reasons for non-feeding access include gastric suction, decompression, the introduction of medication in the form of crushed pills or liquid, and maintenance associated with the gastrostomy tube. In gastric suction, the gastric contents of the stomach or small bowel are retrieved. Examples of such gastric contents could include mucous, air, bile, gastric juices or feeding residue. The retrieval of gastric residual content is extremely important for numerous reasons, including the determination of the proper rate of feeding. Health care professionals would find this feature extremely beneficial, since the prior art devices do not possess such a feature.

Individuals who utilize primary or secondary gastrostomy devices may encounter problems with a condition known as reflux. In reflux, the gastric residual is refluxed or vomited up the esophagus. In a weak or bedridden patient, or one who has no ability to swallow normally, reflux may result in the gastric residual being inhaled into the lungs and death from aspiration pneumonia can result. In order to provide gastric suction or introduce medication into the feeding lumen using prior art devices, it is necessary to disconnect the pump set or provide multiple hookups and thereby risk the problem of contamination.

For individuals who frequently encounter or are prone to problems with reflux, feeding can be accomplished by the use of a jejunal feeding tube which passes through the stomach, the pylorus and then enters the small bowel, the duodenum and the jejunum. However, a problem is encountered by patients attempting to use jejunal tubes with prior art replacement gastrostomy tubes in that the prior art failed to appreciate the problem of retraumatization.

Retraumatization, in addition to causing discomfort, also has the danger of infection and the potential for bleeding occurring due to the sensitive tissue present at the stoma. As a result of not appreciating the problem of retraumatization, replacement gastrostomy tubes have been designed with a circular outer cross-section and a non-circular cross-section for the feeding lumen and therefore Jejunal tubes can not be inserted there-through.

Consequently, in cases where it becomes necessary for a patient with a secondary gastrostomy tube to be fed by the use of a jejunal feeding tube, the health care