

DISCLAIMER: These guidelines were prepared by the Department of Surgical Education, Orlando Regional Medical Center. They are intended to serve as a general statement regarding appropriate patient care practices based upon the available medical literature and clinical expertise at the time of development. They should not be considered to be accepted protocol or policy, nor are intended to replace clinical judgment or dictate care of individual patients.

PREMATURE GASTROSTOMY / JEJUNOSTOMY REMOVAL

SUMMARY

Premature removal of either a gastrostomy or jejunostomy tube can lead to significant complications if not promptly recognized and appropriately treated. Following reinsertion of any percutaneously placed endoscopic tube, a radiologic contrast study should be strongly considered to confirm appropriate positioning.

RECOMMENDATIONS

- **Level 1**
 - **None**
- **Level 2**
 - **None**
- **Level 3**
 - **Following premature (within 4 weeks of insertion) removal of a gastrostomy or jejunostomy tube, the physician who inserted the tube (or his/her designee), should be immediately notified.**
 - **If deemed appropriate by the physician, an appropriate replacement tube should be reinserted through the existing tract.**
 - **Following tube replacement, either a water-soluble contrast (i.e., Gastrografin) or air insufflation radiologic study should be performed to ensure appropriate positioning of the tube before it is used clinically.**
 - **Appropriate measures (external suture, hand mitts, abdominal binder) should be instituted to decrease the risk of recurrent tube removal.**

INTRODUCTION

With increasing recognition of the physiologic and immunologic benefits of enteral nutrition, gastrostomy and jejunostomy tubes have been increasingly utilized to facilitate nutritional support (1,2). These tubes are frequently inserted percutaneously due to the ease, decreased cost, and decreased morbidity and mortality associated with this method of placement (1). Premature removal of these tubes by either the patient or healthcare staff occurs in 2% of patients and can lead to significant complications if not promptly recognized and appropriately treated (2-5). The stoma through which these tubes enter the skin begins to contract within hours of removal, rapidly decreasing the chances of successful tube reinsertion.

Gastrostomy or jejunostomy replacement may be performed by one of four techniques: 1) bedside replacement through the existing fistula tract, 2) fluoroscopic replacement by an interventional radiologist, 3) endoscopic replacement, or 4) operative replacement (open laparotomy or laparoscopy). Bedside replacement is the easiest and most cost effective method, especially for tubes that have been in place for several weeks or more. Any attempt at such replacement, however, should be followed by either a

EVIDENCE DEFINITIONS

- **Class I:** Prospective randomized controlled trial.
- **Class II:** Prospective clinical study or retrospective analysis of reliable data. Includes observational, cohort, prevalence, or case control studies.
- **Class III:** Retrospective study. Includes database or registry reviews, large series of case reports, expert opinion.
- **Technology assessment:** A technology study which does not lend itself to classification in the above-mentioned format. Devices are evaluated in terms of their accuracy, reliability, therapeutic potential, or cost effectiveness.

LEVEL OF RECOMMENDATION DEFINITIONS

- **Level 1:** Convincingly justifiable based on available scientific information alone. Usually based on Class I data or strong Class II evidence if randomized testing is inappropriate. Conversely, low quality or contradictory Class I data may be insufficient to support a Level I recommendation.
- **Level 2:** Reasonably justifiable based on available scientific evidence and strongly supported by expert opinion. Usually supported by Class II data or a preponderance of Class III evidence.
- **Level 3:** Supported by available data, but scientific evidence is lacking. Generally supported by Class III data. Useful for educational purposes and in guiding future clinical research.

water-soluble contrast or air insufflation study to confirm appropriate positioning as inadvertent intraperitoneal placement has been reported (3-9). Fluoroscopic, endoscopic, and operative replacement are all more time-consuming and costly methods for tube replacement, but should be considered in any patient whose tube has been in place for less than 4 weeks or who is at risk for recurrent tube removal (i.e., agitated or head injured patients) (3-7). Although 4 weeks may seem excessive, as a mature tract may be present in 7-10 days in some patients, this period of time was chosen to err on the side of safety considering the potentially catastrophic effects of unrecognized intraperitoneal tube placement (3).

LITERATURE REVIEW

There are no prospective, randomized, controlled trials to support either Level I or Level II recommendations on this subject. Multiple case reports exist in the literature detailing the morbidity and mortality associated with premature gastrostomy tube removal and incorrect replacement (2-7). The recommendations of these guidelines are therefore based primarily upon these Grade III evidentiary documents and clinical experience in this institution.

Burke et al. have evaluated the use of an air contrast insufflation study through a recently replaced gastrostomy tube as a cost-effective method for confirming appropriate positioning (8,9). Following an initial case report, the authors subsequently retrospectively reported their experience with gastrostomy tube confirmation using 240 mL of room air instilled into the stomach via a 60-mL syringe. Twenty-nine gastrostomy tubes were replaced using air insufflation and 19 tubes using water-soluble contrast followed by fluoroscopy. At two weeks post-procedure, the authors found no difference between the two techniques in terms of complications or mis-positioned tubes.

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