Nursing Care After Foreign Body Ingestion in an Elderly Bedridden Patient: A Case Report

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Abstract

This article summarizes the nursing experience in a case of foreign body ingestion in an elderly patient with multiple comorbidities who was long-term bedridden and receiving nasogastric feeding. Given that gastrointestinal motility is diminished in the elderly population, the foreign object was localized through diagnostic examinations, and targeted management strategies for gastrointestinal foreign bodies were employed. Concurrently, meticulous nursing care was provided, including monitoring of biochemical indicators, medication management, and prevention of complications, to promote the uneventful passage and elimination of the foreign body.

Full Text

Preamble

Nursing Care of an Elderly Bedridden Patient After Swallowing a Foreign Body

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Abstract

This paper summarizes the nursing management experience for a long-term bedridden elderly patient with nasogastric feeding and multiple comorbidities who accidentally swallowed a foreign body. During daily oral care, the patient inadvertently swallowed the tip of a mouth care suction tube (a silicone foreign

body). Given the patient's advanced age and compromised gastrointestinal function, targeted interventions were implemented following precise localization of the foreign body. Comprehensive nursing measures—including biochemical index monitoring, medication management, and complication prevention—were carried out to ensure successful expulsion of the foreign body.

KEY WORDS: old age; nasogastric feeding; swallowing foreign body; digestive tract; hemorrhage

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Swallowing foreign bodies refers to patients ingesting small items into the stomach [1]. Elderly patients with multiple diseases often experience varying degrees of cognitive, emotional, and behavioral impairments, making them prone to swallowing foreign objects during hospitalization, which can lead to serious consequences such as digestive tract injury and asphyxiation. Fully recognizing the hazards of foreign body ingestion in elderly patients and implementing proactive prevention and emergency management are critical priorities in geriatric nursing specialty. This report describes the case of a patient with aspiration pneumonia admitted to our hospital who accidentally swallowed a silicone foreign body. Through effective nursing interventions, the patient successfully expelled the foreign body, and we herein present our nursing experience.

1. Clinical Data

The patient was an elderly female with dementia, bedridden status, admitted for aspiration pneumonia caused by gastroesophageal reflux. Her medical history included Parkinson's disease, diabetes, sick sinus syndrome, chronic heart failure, and esophageal hiatal hernia. She received anti-inflammatory treatment upon admission and routinely took anti-epileptic, anti-reflux, gastric mucosal protective, anti-arrhythmic, lipid-lowering, and probiotic medications. During hospitalization, the nasogastric feeding volume and rate were adjusted multiple times, eventually settling on Ruidai (a nutritional formula) administered at a rate of mL/h via pump through the gastric tube, which improved her aspiration pneumonia symptoms.

On the afternoon of [date], during routine oral care, the patient suddenly clenched her jaw, biting off the tip of the oral care suction tube, which then fell into her mouth and was swallowed. The tube tip was made of silicone, approximately [size] in dimension, soft and smooth (Figure 1). Immediate bedside laryngoscopy revealed no silicone foreign body in the pharynx or oral cavity. With stable vital signs, airway obstruction was essentially ruled out, and the foreign body was presumed to have entered the esophagus.

2. Observation and Nursing Management After Foreign Body Ingestion

2.1 Management Approaches for Upper Gastrointestinal Foreign Bodies The main management strategies for upper gastrointestinal foreign bodies include natural passage, endoscopic removal, and surgical intervention. In Western countries, the vast majority (80–90%) of foreign bodies pass naturally, approximately 10–20% require endoscopic management, and about 1% necessitate surgical intervention. In China, endoscopic management accounts for a higher proportion of cases. Compared with traditional surgery, endoscopic treatment offers advantages of minimal trauma, fewer complications, and faster recovery. For foreign bodies located in the oropharynx or above the esophageal inlet, laryngoscopic removal should be attempted first. In this case, after the patient swallowed the silicone foreign body, fiberoptic laryngoscopy was initially attempted, which confirmed that the foreign body had entered the esophagus. Although foreign bodies in the middle and upper esophagus can be managed via gastroscopy or rigid esophagoscopy, this patient had absolute contraindications for endoscopic procedures due to concurrent cardiac, cerebral, and pulmonary diseases, making her intolerant of endoscopic diagnosis and treatment [2]. Therefore, the natural passage approach was selected. The patient exhibited no nausea or choking after swallowing the foreign body. Vital signs were closely monitored as per physician orders: blood pressure mmHg, heart rate beats/min (with particular attention to respiratory status), and oxygen saturation via nasal cannula at L/min. The patient showed no cyanosis or dyspnea.

2.2 Monitoring for Complications Stool occult blood was tested on day [number] post-ingestion and was negative. This index was closely monitored, as a positive result would indicate possible digestive tract injury. Blood routine tests on day [number] showed: red blood cells: 12/L; white blood cells: 9/L; hemoglobin: g/L; neutrophil percentage: . All hematological indices were promptly followed up, with any abnormal fluctuations immediately reported to the physician.

2.3 Medication Observation and Nursing Considerations Once a silicone foreign body enters the stomach, it is released into the intestines with gastric emptying. This 90-year-old patient was long-term bedridden with complex diseases and multiple medications. She received Ruidai via nasogastric tube at mL/h. Although liquid food empties faster than solid food, the patient's advanced age compromised proximal gastric adaptive relaxation function and compliance, leading to abnormal postprandial food distribution. The patient exhibited widening of the gastric mid-band area, with food retention in the distal stomach, accompanied by reduced migrating motor complex (MMC) phase III frequency, weakened antral contractions, and gastroduodenal reflux, resulting in diminished gastric activity, arrhythmia, and delayed gastric emptying [3]. Literature indicates that gastric emptying studies using electrogastrography combined with 13C-acetate breath tests and radionuclide techniques demonstrate

significantly prolonged gastric emptying time in elderly compared with young individuals. The gastric half-emptying time (T1/2) for elderly and young males was ( ) min and ( ) min, respectively. Gastric electrogastrography reveals significantly reduced gastric electrical wave amplitude in elderly compared with young individuals. The ratio of postprandial to preprandial gastric electrical wave amplitude was ( ) in young individuals versus ( ) in elderly individuals. The percentage of basic gastric rhythm disturbance was also significantly higher in elderly: preprandial (%) and postprandial (%) [4].

The enteric nervous system (ENS) is a component of the intrinsic autonomic nervous system of the gastrointestinal tract, primarily regulating gastrointestinal function. With aging, the ENS undergoes changes including loss of enteric neurons and interstitial cells of Cajal (ICCs). Gastric motility is mainly regulated by the parasympathetic nervous system, predominantly cholinergic nerves. Delayed gastric emptying in elderly may be related to age-related autonomic dysfunction. The balance among cholinergic, adrenergic, and serotonergic nerves in the autonomic nervous system changes with age, with cholinergic regulation of gastric motility gradually weakening while serotonergic effects increase to partially compensate [5]. This patient had Parkinson's disease, which is associated with widespread reduction of neurotransmitters including dopamine, 5-hydroxytryptamine, and acetylcholine [6]. Serotonin and its receptors play important roles in promoting gastric motility and intestinal peristaltic reflexes [7]. Therefore, to avoid enhanced peristalsis induced by laxatives that could cause foreign body impaction, long-term laxatives were suspended. Instead, we extended the duration of semi-recumbent positioning and prolonged left and right lateral positioning during bed rest, which necessitated enhanced prevention of pressure injuries at bony prominences.

2.4 CT Localization of the Foreign Body On day 2 post-ingestion, multi-slice spiral CT was performed to assist in localization. Multi-slice spiral CT is a non-invasive examination with high density resolution and powerful post-processing reconstruction capabilities. MPR reconstruction images allow observation of foreign body location from different angles (coronal, sagittal, arbitrary oblique positions) and clearly demonstrate the relationship between the foreign body and the esophagus and adjacent organs. Compared with traditional imaging methods, this technique has a much higher detection rate for small foreign bodies and can identify small radiolucent foreign bodies [8]. To facilitate comparison and identification of the silicone foreign body, another identical silicone tube tip was taped to the patient's right abdominal wall during CT examination, which showed a distinct high-density shadow (Figure 2). The high-density shadow of the silicone foreign body at the ascending colon entrance was similar (Figure 3), confirming that the foreign body had reached the ascending colon entrance.

2.5 Colonic Physiology and Expulsion Process Food and foreign bodies pass slowly through the colon, particularly the ascending colon. There are

two types of colonic electrical activity: short spike bursts and long spike bursts. The former generates segmental propulsive contractions, while the latter spreads more widely with stronger propulsive force. The postprandial gastrocolic reflex represents strong propulsive contractions that can trigger the urge to defecate, typically occurring within 30–60 minutes after meals and lasting 30–60 minutes. The intensity of the contractile response relates to food volume and quality and can be partially regulated by cholinergic nerves [9]. Colonic motility mainly includes haustral shuttling, segmental propulsive movements, and peristalsis, with segmental movements typically being low-amplitude single or clustered contractions. Elderly individuals have prolonged colonic transit time, averaging 30–40 hours in young people but reaching 60–70 hours in elderly, primarily related to reduced segmental movements during and after meals. Like gastric ICCs, colonic muscularis ICCs quantity and volume also decrease with age. The ratio of enteric neurons to glial cells decreases with age [10]. This patient had minimal daily intake: Ruidai via nasogastric tube, mL per dose, administered at mL/h per dose.

To promote formed stool and enhance defecation stimulation, glycerin enema was administered as per physician orders, once daily, with stool content closely monitored. On day 5 post-ingestion, following glycerin enema administration, the foreign body was expelled with stool.

3. Discussion

Although the silicone foreign body was successfully expelled in this case, the process was lengthy, taking 5 days from ingestion to expulsion. Esophageal motility in elderly individuals is characterized by decreased upper esophageal sphincter (UES) and lower esophageal sphincter (LES) pressures, reduced esophageal wall compliance, and diminished conductive peristaltic contraction capacity in the esophageal body. Non-swallow-related transient UES relaxation is the primary mechanism of esophageal reflux. The resting pressure of UES in elderly is significantly lower than in young individuals [( ) mmHg vs. ( ) mmHg], with smaller anteroposterior opening amplitude after swallowing and less hyoid and thyroid cartilage anterior edge displacement, changes closely related to increased intrabolus pressure, suggesting increased pharyngeal outflow resistance in elderly. The LES is a high-pressure zone approximately 2–4 cm above the gastric cardia and serves as the main barrier preventing gastric content reflux into the esophagus. LES resting pressure decreases with age (mmHg in individuals <60 years vs. mmHg in those >70 years), and LES length progressively shortens with age (shortening by % after age 60), with length shortening closely related to abnormal or ineffective esophageal peristalsis (ineffective peristalsis is % in those <40 years vs. % in those >70 years). Research on the mechanisms of esophageal motility disorders in elderly is limited, but age-related loss of myenteric plexus neurons is hypothesized to play a role [11]. This 90-year-old patient had multiple admissions for gastroesophageal reflux-induced aspiration pneumonia, indicating abnormal or ineffective esophageal peristalsis. Combined with long-term

bed rest and indwelling gastric tube, the time for foreign body transit to the stomach via esophageal peristalsis was much longer than in normal adults. Influenced by advanced age and Parkinson's disease, postprandial gastric peristalsis and contractility were reduced, with delayed gastric emptying particularly pronounced in those with low physical activity [12]. With diminished gastric motility, weakened gastric electrical activity, and reduced neurotransmitters, foreign body transit through the gastrointestinal tract was delayed.

Elderly patients with multiple diseases undergo a series of degenerative changes in the digestive tract, forming the basis for gastrointestinal motility disorders. Abnormal esophageal motility can cause esophageal-pharyngeal reflux, slowed gastric peristalsis, delayed emptying, reduced small intestinal motility, decreased colonic contractility, and prolonged transit time. Although effective nursing measures can facilitate foreign body expulsion, complex comorbidities may lead to complications such as gastrointestinal obstruction, perforation, and hemorrhage. Therefore, meticulous intervention and attention to detail are essential in clinical practice to prevent adverse events.

Conflict of Interest Statement: The authors declare no conflict of interest.

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Note: Figure translations are in progress. See original paper for figures.