ESOPHAGEAL MILK CURD IN AN ADULT: A RARE CAUSE OF SUSTAINED PNEUMONIA

Wei-Fan Hsu¹, Chen-Shuan Chung¹, Yeong-Long Hsu¹, Hou-Tai Chang¹,²

Abstract

Nasogastric tubes are commonly used in several medical scenarios. Confirmation of the position of the nasogastric tube is essential. Herein, we report the case of an 81-year-old male who suffered from persistent pneumonia despite administration of antibiotics for four weeks. Esophagogastroduodenoscopy revealed that the entire esophagus was obstructed by milk curd, which was subsequently removed by warm water instillation. Tracing back his chest X-ray, it showed the nasogastric tube was malpositioned in the lower thoracic esophagus. The patient became ventilator dependent, and he was discharged after a full course of antibiotics and correct replacement of the nasogastric tube. This report is the first to find milk curd in the esophagus in an adult, and highlights the infrequent but serious complication of misplaced nasogastric tubes. Special attention should be paid to the proper positioning of an indwelling catheter on chest radiography.

Key Words: Esophagogastroduodenoscopy, Esophagus; Milk curd, Nasogastric tube, Pneumonia

Introduction

Nasogastric tube (NGT) placement is a common procedure in clinical practice. Confirmation of the position of a NGT is essential, since NGT misplacement can result in serious complications. Currently, chest-abdominal radiography is the gold standard to confirm the correct positioning of any newly placed tube or catheter, and this procedure is crucial.¹² Milk curd syndrome, an intestinal obstruction with milk boluses in neonates, was first described in 1969.³ In recent years, milk curd obstruction has also been described in premature low birth-weight infants.⁴ However, to the best of our knowledge no reports have described esophageal milk curd obstruction in an adult. Herein, we report the case of an 81-year-old male who suffered from persistent pneumonia for four weeks without response to antibiotic treatment. The etiology was then found to be due to milk curd with esophageal obstruction resulting in recurrent episodes of aspiration.

Case Presentation

An 81-year-old male initially presented to the...
Persistent pneumonia was noted despite antibiotic treatment for four weeks with vancomycin, ceftazidine, doripenem, metronidazole, and levofloxacin. A sputum culture yielded *Pseudomonas aeruginosa*, which was sensitive to ceftazidine, doripenem, and levofloxacin. No further methicillin-resistant *Staphylococcus aureus* was found after a two-week course of vancomycin. Esophagogastroduodenoscopy (EGD) was performed one month after admission because of difficulty in replacing the NGT and milk dripping from his mouth, which revealed an obstruction of milk curd in the entire esophagus (Fig. 1A). The milk curd obstruction was cleared after continuous warm water instillation. Esophageal erosions were noticed after irrigation (Fig. 1B). A review of his chest X-ray two weeks prior to EGD showed that the NGT was dislodged in the lower thoracic esophagus (Fig. 2, arrow). The patient was later discharged after another course of antibiotics and correct replacement of the NGT, however weaning from the ventilator failed due to easy segmental collapse in the right lower lung, poorly-resolved pneumonia, impaired cough power, and advanced age.

El clinic with fever and chills with purulent productive cough for three days. He had end stage renal disease and was on regular hemodialysis, and lived at home independently. A physical examination revealed a body temperature of 38.1°C, heart rate 96 beats per minute, respiratory rate 22 times per minute, blood pressure 103/48 mmHg, and pulse saturation 91% under a nasal cannula with 3 liters per minute. Auscultation revealed crackles over the right lower lung field. Laboratory data showed leukopenia (white blood cell: 0.48 x 10^9/µl, band form 1%, normal reference 3.80-10.40 x 10^9/µl), and a chest X-ray demonstrated alveolar infiltrates in the right lower lobe. Intubation was performed due to hypoxemic respiratory failure one day after admission. A NGT was correctly inserted for feeding, which was confirmed by a chest X-ray, on the same day of intubation. Casein-based formula with a high fat content (48%) (Nepro®, Abbott, Taiwan) is routinely given to patients with end stage renal disease in our hospital. A total of 1800 kcal of formula milk was instilled each day via the NGT every four hours. Calcium carbonate (1500 mg per day) was used as a phosphate binder for treatment of chronic kidney disease-related hyperphosphatemia.
Discussion

Milk curd syndrome was first described in 1969. The majority of affected patients are premature low birth-weight infants with intestinal obstructions caused by impacted milk from cow milk formula.\(^3,5\) It reached a peak incidence in the 1970s, and the condition has become rare after the formula composition changed to a lower fat content.\(^4,5\)

To the best of our knowledge, this is the first reported case of sustained pneumonia due to esophageal obstruction by milk curd in an adult. In contrast to previously reported cases with milk curd syndrome, our patient was an 81-year-old male, and the obstruction level was in the esophagus. Milk curd obstruction in children can occur secondary to poor absorption of fat and calcium,\(^5\) and analysis of the milk “plugs” has shown increases in fat (about 60%) and calcium (about 5%) content.\(^6\) The cause of the milk curd obstruction in our patient may be similar to that in children due to the high fat content in the feed and calcium supplement. Other possible causes include being bedridden upon admission, and chronic deposition of undigested milk in the esophagus due to misplacement of the NGT which was not timely confirmed by chest roentgenography. Repeated feeding by a NGT and frequent repositioning of a patient may cause the NGT to become dislodged half a month after correct insertion. Warm water instillation via EGD cleared the milk curd in the esophagus without surgical intervention in this patient.

NGTs are frequently used in the clinical setting for assessment, nutritional support, and medical administration.\(^7\) Complications such as pneumothorax,\(^8\) hydrothorax, pneumonia, pleural effusion with the possibility of empyema,\(^9,10\) intracranial malposition,\(^11\) esophageal perforation,\(^12\) and death\(^13\) may result from misplaced NGTs. According to James et al, pulmonary complications usually result from misplaced NGTs in the tracheobronchial tree,\(^14\) and the incidence of NGT misplacement in the tracheobronchial tree has been reported to range from 0.3% to 15%.\(^15,16\)

Sustained pneumonia resulting from milk curd obstruction in the esophagus in an adult has not previously been reported. Several clinical “confirmatory” signs can be used to detect the misplacement of a NGT, and chest radiography is regarded as the gold standard to identify the correct placement.\(^1,2\)

In summary, this is the first report of milk curd obstruction in the esophagus in an adult. The causes of the obstruction may have been due to the malpositioned NGT, high fat content of the feed, calcium supplement, and being bedridden after admission. Confirmation of the position of a NGT is essential to prevent milk curd formation. Radiography is the standard method to determine the correct placement of a NGT. The milk curd was removed successfully with continuous warm water instillation via EGD in our patient. Despite the low incidence of feeding tube misplacement, attention should be paid to this complication, as a resulting infection or sepsis can lead to death.\(^10\)
References

成人食道凝乳：罕見的持續肺炎病因

許偉帆¹，鍾承軒¹，許永隆¹，張厚台¹,²

摘要

鼻胃管在臨床上經常使用，確定鼻胃管的位置在臨床上是基本而重要的步驟。我們報告一位81歲男性患者，經過4週住院的抗生素治療後仍反覆肺炎發作。因爲鼻胃管放置困難而安排胃鏡檢查，胃鏡顯示整個食道被凝乳阻塞，經內視鏡反覆溫水沖洗後凝乳被沖洗乾淨；回溯患者胸部X光片，顯示於胃鏡檢查兩週前鼻胃管已經滑脫至下段食道。患者於正確的置換新的鼻胃管與另一個抗生素療程後出院，但需要長期使用呼吸器。本篇文章提到成人食道乳凝的可能原因並強調錯誤放置鼻胃管可能導致的嚴重副作用，臨床醫師對於管路放置的正確與否需特別注意。

關鍵詞：胃鏡，食道，乳凝，鼻胃管，肺炎