Risk of asphyxiation from Vernagel ingestion

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ABSTRACT

Vernagel (sodium polyacrylate) is a powder commonly used in hospitals worldwide for the management and disposal of body fluids. It reacts with fluids to form a semisolid gel. Its main use is to reduce spillages. If ingested, this substance presents significant risk of asphyxiation. There have been 15 reported cases of Vernagel ingestion in 6 years and 1 death from asphyxiation. We present the case of an elderly patient who was admitted following a fall. He accidentally ingested a sachet of Vernagel during the early hours of the morning. An urgent rigid panendoscopy was performed and the material was evacuated using suction aspiration. Patients should be supervised when using Vernagel on the ward, to avoid ingestion. Ear, nose and throat doctors should be aware of Vernagel and its properties. Owing to the risk of airway obstruction, excellent coordination between the anaesthetist and surgeon is crucial, and prompt management is required.

KEYWORDS

Vernagel – Sodium polyacrylate – Foreign body ingestion – Pharyngoscopy – Laryngoscopy – Oesophagoscopy – Adults – Confusion – Safety

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Sodium polyacrylate is an extremely absorbent polymer and comes as a powder (Vernagel; Vernacare, Bolton, UK).¹ It is used to prevent spillages by solidifying liquids (Fig 1). It has been designed specifically to deal with body fluids by trapping them in a dry, semisolid gel, making disposal easier. It can also be used in the management of spillages and in suction bottles. The intended benefits of Vernagel further include saving on laundry costs (by preventing spills), less embarrassment for patients, and reducing trips and slips for healthcare professionals.

Although the granules are non-toxic through the oral route, they will expand on contact with saliva.² Consequently, if ingested, Vernagel does present a significant risk owing to the potential to cause airway obstruction. If inhaled in small quantities (not significant enough to cause obstruction), Vernagel is a respiratory irritant¹ and can result in chemical pneumonitis because of the drying properties of sodium polyacrylate. We present the case of an elderly patient who accidentally ingested a sachet of Vernagel.

Case history

An elderly patient with a background of type 2 diabetes, chronic kidney disease, congestive cardiac failure and a previous myocardial infarction was admitted to hospital following a fall. Computed tomography of the head was normal; however, the patient suffered a seizure and was admitted under the care of the geriatricians. During the admission, the patient became confused and ingested a sachet of Vernagel in the early hours of the morning.

The ear, nose and throat (ENT) team was contacted when ward staff recognised that Vernagel had been ingested. On examination, the patient was confused but not showing any signs of respiratory distress. Fine nasendoscopy revealed Vernagel in the pharynx, and the patient was taken to theatre for an emergency pharyngoscopy and upper oesophagoscopy to remove the foreign body. Intubation for general anaesthesia was difficult because of the foreign body in the pharynx. The material was evacuated using suction

Figure 1 One sachet of Vernagel on its own and with 70ml of water

aspiration and an oesophagoscopy to 20cm revealed no further foreign bodies. Postoperatively, the patient developed pneumonitis and was managed on the ward.

Discussion

Vernagel has an important role in the management of body fluids for hospital inpatients; often, this group of patients are elderly, unwell and have poor mobility. It is common practice in some UK hospitals to empty sachets of Vernagel into a urine bottle, ready for use,² and to leave this by the patient's bedside. Our case illustrates the potential dangers when there is no direct staff supervision of its use. Elderly, confused patients are at increased risk of ingesting the powder, especially if it is by their bedside. Vernagel rapidly absorbs liquids and forms a solid gel structure. If ingested, patients are at risk of death by asphyxiation. A patient safety alert in 2017 identified 15 similar non-fatal cases and 1 case of death by asphyxiation.²

While Vernagel use is becoming widespread in medical and geriatric wards, there is little knowledge of it among ENT surgeons. Prior to this case, the ENT doctors at our trust had not heard of Vernagel and were not aware of the risks if ingested. Vernagel should be widely recognised among the ENT community because of the need for prompt management following ingestion. Furthermore, direct staff supervision should be provided for the patient when using Vernagel.

References

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