

Nasogastric tube self-knotting

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Complications associated with nasogastric tube (NGT) are rare. We report one of these rare complications, NGT knotting, in the pediatric population. Our patient was a 7-year-old boy, a known case of β -thalassemia, who underwent laparoscopic splenectomy. He experienced NGT knotting. NGT knotting detection needs a high index of suspicion; if not detected and managed in a proper way, it may lead to serious complications. Recommended techniques to avoid this complication are discussed in this article. *Ann Pediatr Surg* 12:162–163 © 2016 Annals of Pediatric Surgery.

Introduction

Nasogastric tube (NGT) use is an integral part in the management of different medical and surgical pediatric conditions. Complications associated with NGT are usually either during NGT insertion or on removal [1]. We report a rare complication of NGT knotting in a pediatric patient.

Case report

Our patient was a 7-year-old boy with a known case of β -thalassemia. He was admitted to the Pediatric Surgery Services at King Fahad Specialist Hospital, Dammam for laparoscopic splenectomy.

After induction of anesthesia, a size 12F NGT was inserted uneventfully by the anesthesiologist. The operation proceeded smoothly, and he was stable postoperatively.

On the first postoperative day, he was stable with soft, lax abdomen, and his NGT drained 100 ml of bilious fluid over 24 h. The impression was that the tube must have seated distally and therefore should be removed.

During removal, the catheter was withdrawn smoothly, but eventually some resistance was felt, which was overcome with gentle traction. Once again it was stuck and could not be removed even with further traction. A portable chest radiography was performed, which showed a NGT knotting at the middle of the esophagus (Fig. 1).

The patient was shifted to the operating room, and under general anesthesia the tube was easily withdrawn until the oropharynx. The knotted part of the tube (Fig. 2) was retrieved through the mouth using a Magill forceps and cut, and the remainder of the tube was pulled through the nose.

Upper gastrointestinal endoscopies were performed and revealed no injury or any anatomical abnormalities. Patient recovery was uneventful, and he was discharged home the next day after full oral intake.

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Discussion

Using NGT in the pediatric population is very common for both medical and surgical purposes and has special importance in abdominal surgery. It is usually inserted by the anesthesiologist after induction of anesthesia and removed postoperatively at the bed side by the nurse or one of the members of the surgical team. Insertion and removal of the tube are both straightforward procedures, but can carry a high risk of complication if it is not performed carefully [1].

In our case, the tube was removed within 24 h after insertion (short duration), but drained 100 ml, mainly bile, in clinically stable patient, indicating deeply seated tube. This supports the observation that the length of the tube is the main risk factor predisposing to self-tube knotting [2,3].

Fig. 1



A portable chest radiograph showing a knotting nasogastric tube at the middle of the esophagus.

Fig. 2



The knotted part of the tube retrieved through the mouth using a Magill forceps and cut.

Some authors argue that excessive manipulation during and after insertion, and small caliber tubes are considered to be other predisposing factors in the adult population [4]. In our patient the NGT size was optimum for the patient age (12 F). This was not manipulated during or after insertion and therefore we believe that it did not contribute to knotting in our patient.

It is reported that knotting of the tube occurs during insertion and tightens during removal; our case supports this theory because the tube continues to function while it is *in situ*. The resistance experienced during the removal of the tube increases progressively as the catheter passes through the narrowest part of the esophagus [3–5].

NGT self-knotting detection needs a high index of suspicion, and if it is not properly managed it may lead to serious complications [1–8] such as ulceration and bleeding

from the stomach, esophagus, larynx, and nose [2], respiratory distress, laryngeal injury, and tracheoesophageal perforation [3]. In addition, knotting or looping of NGT around the nasotracheal or endotracheal tube can lead to considerable life-threatening events [7,8].

To avoid this complication we recommend the following: (a) selection of the appropriate size of the tube according to the age of the child. (b) Measuring and marking the appropriate length of the tube before insertion. (c) Following standard care and recommended maneuver in placing the NGT. (d) Treating the removal with the same amount of care as insertion. (e) Suspecting the possibility of knotting if unusual resistance is experienced during removal of the tube.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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