

Case Report

Self knotting of Naso gastric tube in paediatric Burns patient

Suhas Abhyankar, Ankita Agarwal, Manpreet Juneja, Arvind Vartak

Eric Kharas Memorial Burns & Research Centre, Masina Hospital & Research Centre, Byculla, Mumbai

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Abstract: Nasogastric tube feeding is one of the most accepted modes of enteral feeding in adult as well in the paediatric patients who require prolonged hospitalization due to various conditions. Enteral feeding is one of the most commonly used method for feeding in Burns patients. As per our protocol for feeding in all Burns patients, including adults and children are kept on Ryles tube enteral feeds every hourly. We routinely take check X-rays after insertion of Ryles tube and central lines. In majority of cases we never come across any complications arising from insertion of Ryles tube but in our experience at Eric Kharas memorial Burns center, Masina hospital we had two cases in which complications were encountered from inserting long Ryles tube. The aim of this paper is to emphasize on the role of proper calculation of exact length of Ryles tube prior to insertion and routine X ray examination, which can prevent complications arising from long and coiled Ryles tube.

Keywords: Nasogastric tube, Ryles tube, knotting

Introduction

The insertion of Ryles tube is commonly done in patients undergoing abdominal surgeries or for the decompression of upper gastrointestinal tract. Prolonged presence of Ryles tube have shown complications like necrosis of nasal ala, ulceration and infection of the posterior cricoids region with subsequent dysfunction of vocal cord abduction, the so called nasogastric tube syndrome [1]. There are reports of complications arising due to extra long Ryles tube insertion and repetitive advancement of the tube, in the form of self Knotting [2, 3]. If monitored carefully the complication arising from it can be treated or can be prevented completely.

In Eric Kharas memorial Burns Unit, Masina hospital, Ryles tube insertion is routinely done as part of the treatment protocol for the purpose of feeding. The X ray examination is done to locate the position of the Ryles tube. If X ray examination reveals long and coiled Ryles tube in the stomach, it is immediately removed with gentle traction retrieved in the oral cavity and cut distal to the knot. The knotted part removed

orally and rest through the nasal cavity and the new Ryles tube having correct length is inserted.

In this short paper we would like to highlight complications related to excessive long Ryles tube insertion in paediatric patients and how the exact length of Ryles tube can be determined in these patients.

Case reports

Case No 1-8 years old patient underwent Ryles tube insertion as our standard feeding protocol. We usually remove and replace the tube after three week or if tube becomes hard. In adult patients also we prefer to insert no 10 french Ryles tube. Change of Ryles tubes or urinary catheters are done during the Burns wound dressings in the dressing theater with all aseptic precautions. During the replacement procedure, the Ryles tube got stuck in the nasopharynx and the patient had difficulty in breathing. Initially it was difficult to diagnose the problem, since in this case Authors were not aware of such complication of excessive long and coiled Ryles tube. However the coiled Ryles tube was

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Figure 1. The knotted Ryles tube after removal.



Figure 2. The cut ends of the retrieved ryles tube.

negotiated and brought through the oral cavity and was cut and then gently removed as shown in **Figures 1** and **2**.

Case No 2-10 years old 30% burn patient was admitted with Ryles tube in Eric Kharas memorial Burns unit. The routine X ray examination revealed presence of long and coiled Ryles tube in the stomach as shown in **Figure 3**, hence it was removed gently with proper care and replaced with adequate length Ryles tube.

Discussion

Ryles tubes are commonly used in daily practice for stomach decompression and for feeding purposes. Complications like lung aspiration, pneumothorax and coiling have been reported [2, 5]. Most of these complications can be avoided by placing the tube with care and proper management of the tube on day to day basis. Feeding through Ryles tube is commonly preferred way of enteral feeding in Burns



Figure 3. Xray showing coiled Ryles tube.

patients. As their calorific requirement is more it becomes very easy to feed them and also to prevent stress ulcerations. Enteral feeding also ensures the motility of the gastrointestinal tract and bacterial colonization. Dasani and sahdev reported knotting of Ryles tube in 1991, risk factor appears to include smaller diameter tubes inserted deep into the stomach [4]. Once knotted, the traction during removal tightens the knot. Agarwal et al suggested that pushing or pulling of Ryles tube after it has been placed, either by an operator or due to coughing or neck movements, may lead to the formation of a loop [3, 7]. Hence repositioning of Ryles tube after placement should be done with proper precaution. Ryles tube knotting is more common with small tubes or in patients with small stomachs. Insertion of extra long tube, endotracheal intubation and repeated advancement of tube are other risk factors associated with Ryles tube knotting [5, 6]. The intragastric part of the tube that formed the knot, may have become rigid as a result of the action of hydrochloric acid or the alkaline content entering the patients stomach from the duodenum [8].

Since we encountered two such cases of knotting in the past, we calculate the size and the length before inserting the Ryles tube in paedi-

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Figure 4. Method to determine length of Ryles tube to be inserted.

atric age group. The exact size and length of Ryles tube to be inserted can be calculated by a simple method. The distance between the alae of Nose, going around the pinna and then straight away down upto the umbilicus is determined by using the used Ryles tube. The Ryles tube to be passed is chosen by these measurements and then it is passed so that only adequate amount of Ryles tube remains in the stomach without causing any undue coiling or knotting due to excess of its length.

Position of the Ryles tube is checked by Auscultation, stethoscope is placed over the epigastric area and blowing air with the help of syringe. Radiographs also can be taken to see the positioning of it. Visual assessment of the aspirate and verbal communication with patient will indicate the position of the Ryles tube.

Conclusion

With this experience in our stride in Eric Kharas memorial Burns unit, Masina hospital whenever Ryles tube is passed in paediatric patients the length of the tube is determined by above method as shown in **Figure 4** and then only it is passed in the patient. This method of choosing an appropriate size of Ryles tube prevents the undue complication arising from excessive long Ryles tube. After insertion placement is checked by auscultation, patients verbal response and assessment of the aspirate.

Disclosure of conflict of interest

None.

Address correspondence to: Ankita Agarwal, Eric Kharas memorial Burns & Research Centre, Masina Hospital & Research Centre, Byculla, Mumbai. E-mail: ankitaagarwal0989@gmail.com

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