

Nasogastric tubes 2: risks and guidance on avoiding and dealing with complications

An outline on risks involved with the use of nasogastric tubes, with advice on how to use them safely and avoiding and dealing with complications

AUTHORS Rajaraman Durai, MS, MD, MRCEd, MRCSGlas, is specialist registrar, general surgery, University Hospital Lewisham; Ramya Venkatraman, MRCPCH, DCH, is specialist registrar, paediatrics, Royal London Hospital; Philip C.H. Ng, MD, FRCS, is consultant surgeon, University Hospital Lewisham.

ABSTRACT Durai, R. et al (2009) Nasogastric tubes 2: risks and guidance on avoiding and dealing with complications. *Nursing Times*; 105: 17, 14–16.

This is the second of a two-part unit on nasogastric tube management. Part 1 explored the indications, patient preparation, insertion technique and methods of verifying correct intragastric position. This focuses on complications related to nasogastric tubes.

RISKS AND POSSIBLE COMPLICATIONS

While properly inserted nasogastric (NG) tubes are useful, they can lead to complications if precautions are ignored. These include:

● The tube may enter the lungs

Because of the proximity of the larynx to the oesophagus, the NG tube may enter the larynx and trachea (Lo et al, 2008). This may cause a pneumothorax (Zausig et al, 2008).

When the tube is in the airway, it will cause severe irritation and coughing. Asking patients to hold some water in their mouth and swallowing it while the tube is in the throat may help to pass the tube into the oesophagus.

● The tube may coil up in the throat

This is particularly likely if the patient retches. Refrigerating the tube may help to avoid coiling and keeps it stiff. Alternatively, using a guide wire can help with both these issues.

● Sinusitis

The presence of an NG tube in the nose for an extended period may lead to damage to the ciliary epithelium and cause infection, which may lead to sinusitis.

● The tube enters the brain

There are case reports of NG tubes perforating the base of the skull and reaching the brain (Geissler, 2007). A well-lubricated tube may help to decrease friction during insertion. If the nostrils are of unequal size the wider one should be used. If resistance is felt, the tube should not be forced.

● Perforation of the oesophagus

This is rare (Hutchinson et al, 2008) but may occur in pre-existing oesophageal disease, for example in the presence of an unrecognised diverticulum of the oesophagus.

● Retropharyngeal abscess

This may occur from perforation of a piriform sinus (Makay et al, 2008; Obon Azuara et al, 2007) and will cause swallowing problems.

● Reflux of stomach contents into the oesophagus and risk of aspiration

The intraluminal presence of an NG tube may interfere with the lower oesophageal sphincter and cause reflux of stomach contents, leading to aspiration pneumonia. The risk is increased when patients are fed lying flat.

● Death from feeding into the lung

Feeding through a tube incorrectly placed in the bronchial tree may cause severe sepsis, which can be fatal.

● Parotitis

This can be prevented by good oral hygiene. Oral bacteria enter the parotid duct, causing infection of the gland.

CASE STUDIES

Case studies illustrated right show incorrect and correct positioning for NG tubes.

Tube in the lung

An 84-year-old woman was admitted to hospital after a stroke leading to dysphagia and confusion. An NG tube was inserted for feeding. Attempted aspiration did not yield

LEARNING OBJECTIVES

1. Know about the possible complications that arise from nasogastric tubes.
2. Be aware of guidance on using these tubes in adults and children.

enough fluid for the verification pH test. A chest X-ray was requested. Fig 1 shows the tube in the lung. It was removed and reinserted. Fig 2 shows the tube in the correct position.

Tube in the bronchus

This patient was admitted for an orthopaedic procedure and became unwell. An NG feeding tube had been incorrectly inserted into the bronchus leading to a bronchopleural fistula. When a chest drain was inserted into the pleural cavity for drainage, nasogastric feed was seen coming through it (Fig 3).

AVOIDING COMPLICATIONS

Many hospitals have developed checklists to avoid complications related to NG tubes. Any complications that do occur should be reported on a critical incident form.

Tube position should be checked after coughing or vomiting, as they can migrate.

Auscultation of the epigastric region after insufflation of air through the tube (the 'whoosh' test) is unreliable so a pH strip should be used to confirm the correct intragastric position (Stock et al, 2008). Blue litmus paper cannot distinguish between bronchial and gastric secretions so should not be used to verify the tube's correct position.

Confused and unconscious patients may not show respiratory distress even if the tube is in the respiratory tract.

It may not be easy to differentiate between bronchial secretions and stomach contents without checking the pH. To avoid false negative results, pH strips should be kept clean during storage and the syringe with gastric aspirate should not be put back into the cover (National Patient Safety Agency, 2007a). For guidance on confirming the correct position of NG feeding tubes in infants, children and adults, consult NPSA (2005)

FIG 1. X-RAY SHOWING THE NG TUBE IN THE LUNG

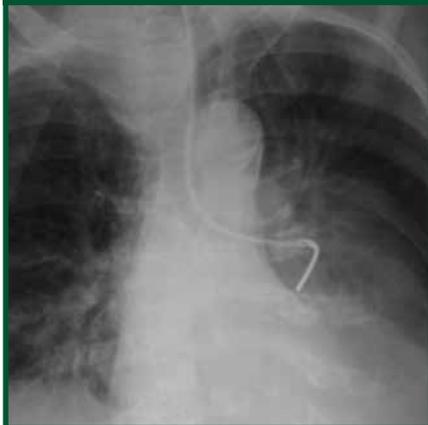


FIG 2. THE SAME PATIENT AS IN FIG 1 – THE TUBE IS NOW IN THE CORRECT INTRAGASTRIC POSITION AFTER RESITING



FIG 3. NG TUBE (OPAQUE TIP) IN PLEURAL CAVITY NEEDING CHEST DRAIN AND INTENSIVE CARE SUPPORT



guidance (see Fig 4, p16, for adults).

When NG tubes are used for feeding, care should be taken when administering medications. Nasogastric medications can be administered intravenously in error (Stock et al, 2008). The NPSA (2007b) recommended using specifically designed NG syringes, which are incompatible with IV equipment.

CONCLUSION

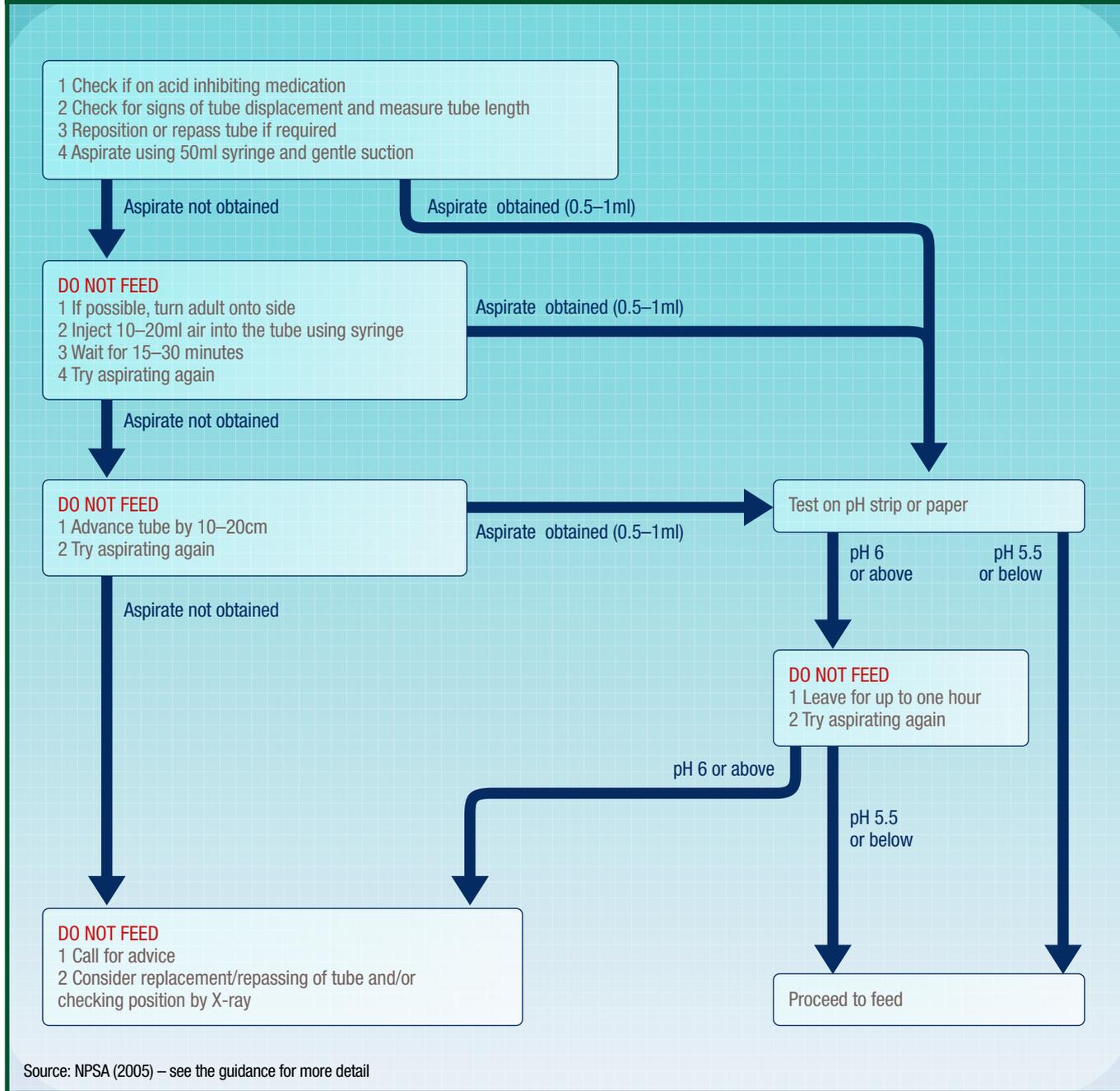
The correct intragastric position of an NG tube should be verified by checking the aspirate for acidic pH of 5.5 or below (NPSA, 2005), and by an X-ray if necessary. Any complication related to these tubes should be reported. The whoosh test and litmus papers should not be used to verify position. ●

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Practice guided learning

FIG 4. CONFIRMING THE CORRECT POSITION OF NASOGASTRIC FEEDING TUBES IN ADULTS



Al Grant

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