Nasogastric tubes

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Insertion and placement of nasogastric tubes

James talks to Rewa Keegan, General Surgical Fellow and Surgical Superintendent at Royal Prince Alfred Hospital about the insertion of nasogastric tubes.

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About Dr Rewa Keegan

Dr Rewa Keegan completed her intern and resident years at Royal Prince Alfred Hospital and commenced general surgical training in 2010, successfully gaining her fellowship in 2014. Rewa loves clinical teaching from a medical student to registrar level. Particularly in the areas of surgical simulation and working with aspiring surgeons on developing their career plans.

She is very interested in surgical education and has undertaken a number of research projects looking at how registrars perceive their experience in surgical training. Rewa plans to undertake further training in oncoplastic breast surgery. And she and her husband ultimately plan to settle in a regional coastal centre after completing fellowships overseas.

Nasogastric Tubes

With Dr. Rewa Keegan General Surgical Fellow and Surgical Superintendent at Royal Prince Alfred Hospital, New South Wales, Australia.

Introduction

Nasogastric tube insertion/placement can be a daunting task for the inexperienced junior doctor.
Dr Rewa Keegan talks about some tips and tricks for nasogastric tube (NGT) placement and answers common questions that junior doctors may have.

Case

You are covering the wards after hours and one of the inexperienced nursing staff asks you to place a nasogastric tube for a patient with a small bowel obstruction.

1. Common indications

- Drainage:
    - Small bowel obstruction or ileus
    - Relief of nausea, vomiting and abdominal distension
    - Record and replace fluid losses
    - Reduce the risk of aspiration
- Feeding:
    - Short-medium term feeding
    - Nasojejunal (NJ) tubes or PEG tubes (percutaneous endoscopic gastrostomy) are also used for feeding
- Medication administration:
    - Cannot tolerate oral medications e.g. dysphagic patients
- Gastric lavage:
    - Removal of toxic substances – rare practice in modern medicine

2. Common (relative) contraindications

- Oesophageal pathology – strictures or varices
- Coagulopathies – i.e. thrombocytopaenia or high INR on warfarin
- Base of skull fractures – trauma patients – use an oro-gastric tube instead and insert under direct visualisation with a laryngoscope

You then take a history and examine the patient, discuss the case with the surgical registrar and decide it's safe to go ahead.

3. How do you decide which tube to use and which size to insert?

- PVC (polyvinyl chloride), polyurethane and silicone
- 14 or 16 French for drainage
- Salem slump tubes:
    - Has two lumens with the larger lumen connected to a drainage bag or wall suction
    - The smaller lumen is open to the atmosphere and prevents the small side holes within the tube from sticking to the gastrointestinal mucosa

- Smaller single lumen tubes:
    - Used for feeding and are usually longer and placed more distally i.e. NJ tubes
    - Often have weighted ends to help with placement
    - Less irritating and can be left in for longer

4. What tips can you give the junior doctors out there about NGT placement and technique

- Stay calm:
    - Stressful procedure for you and the patient
    - Take your time, organise your equipment and relax
- Exclude any common contraindications
- Measure length:
    - Tip of the nose – top of the ear – xiphoid process
    - Mark the tube
- Get organised:
    - 2 or 3 tubes just in case
    - Lots of lubricant
    - Spigot-tip syringe – aspiration
    - Cup of water and straw for patient
    - Xylocaine spray – more comfortable for the patient
- Ask the patient about any surgery they may have had around their nasal area
- Examine the patient to make sure they do not have a deviated septum and choose the side that looks the easiest to access
- Position the patient:
    - Upright
    - Leaning slightly forward with chin on chest
- Insert the tube parallel to the floor following the conchae of the nose
- At 10-15 cm ask the patient to sip some water to aid the tube passing the oro-pharynx
- Once the tube is in position:
    - Tape immediately
    - Use brown Elastoplast tape
    - Leave a mesentery of tape around the tube that you may pin onto the patient's gown if needs be

5. Is there a difference with the placement of an NJ tube rather than an NGT?

- The process is the same
- Finer bore tubes have a tendency to coil
- Less distressing to the patient
- May take a few more attempts to get the tube in the right position

6. Any final special tips or tricks if you are having difficulty inserting an NGT?

- Try a different size – i.e. it may be too large for patient's nasal cavity
- Use more lubricant and get the patient to drink water
- Get the patient to slightly change the position of their head
- If you are really struggling after 2 or more attempts, have a break and ask for senior help

7. After insertion how do you confirm that the tube is in the right spot?

- Erect chest X-ray
- Aspirate the contents – check appearance and pH (1.0-5.5)
- Flushing air into the tube and auscultating the stomach – old fashioned and less reliable
- Remove the tube immediately if there is any concern that it has gone into the lungs
- Do not let anyone put anything down the tube until it has been radiologically confirmed

8. What do you look for on the chest X-ray to ensure that it is in the right position?

- Ensure that the tip of the tube is past the diaphragm
- Reverse the image viewer if the tube is difficult to visualize on X-ray
- Ensure that the tube descends in the midline of the chest – if not question whether that tube has entered into the pulmonary tree

9. Common complications with the insertion of NGTs

- Major:

    - Aspiration
    - Insertion into the lungs, which may also cause pneumonia
    - Trauma to the GIT and bleeding
    - Perforation – uncommon i.e. oesophageal pouch
    - Pneumothorax – rare but very serious
- Minor:
    - Failure to place tube in the correct spot
    - Tube falling out – common

You are now asked to put the tube on suction for a patient with a small bowel obstruction. How do you do that and what level of suction is required?

Free drainage:

No suction at all – uses gravity and is connected to a drainage bag
Intermittent continuous suction
Low level suction i.e. 20 mmHg is often used

10. Later on in the evening one of the nursing staff rings you and complains that the NGT isn't working. What would be your approach?

- Ask why does this person have a tube?
- Is the tube blocked? Can the tube be aspirated?
- Try flushing the tube
- Occasionally finer bore feeding tubes become blocked, often acidic fluids or coca cola can help dissolve the blockage

11. Sometimes registrars talk about "spigotting" tubes. What does this mean?

- To spigot is to block, which allows us to test whether the gastrointestinal tract is patent and working before taking the NG tube out
- After spigotting the tube, the patient can be trialed on a clear fluid diet and then the tube can be aspirated 4 hours after to test whether those fluids are passing through the stomach
- This essentially saves the patient having NGTs removed and reinserted

12. How do you decide when to remove an NGT post operatively?

- Depending on the indication and surgery but usually:
    - Passing flatus
    - Tolerating clear fluids
    - Past spigot test
    - Feeling well and not distended or nauseous

Take home messages

- Don’t be scared
- Think carefully about the indication
- Be calm and ask for senior help when needed

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