Naso-jejunal tube (NJT) insertion

Introduction:
A naso-jejunal tube is a long silastic tube which is inserted via the nostril into the stomach, through the pylorus, past the duodenum and into the proximal part of the jejunum. Once in the correct place, milk feeding can be commenced safely without the risk of reflux as the stomach is effectively bypassed. Gut peristalsis moves the feed along the small bowel where it is digested and absorbed by the child. Feeding can only be given by continuous infusion as there is no capacity for storage in the small bowel. Although some medications can be given by NJT, the majority need to be given directly into the stomach for activation by gastric acid. Advice from a paediatric pharmacist may be useful. A dietician should be involved in the care of babies or children on NJT feeds to ensure adequate nutrition and hydration. Insertion of a NJT should always be carried out in hospital.

Indications:
Severe gastro-oesophageal reflux disease
Life threatening episode of aspiration related to reflux
Rarely, anatomical problems of stomach or oesophagus

Risks:
Small bowel perforation especially duodenal perforation
Gastric bleeding
NJT displacement e.g. back into stomach
Failure of NJT to pass beyond pylorus with resultant coiling in stomach
Radiation exposure from serial X-rays

Equipment:
Tape measure
Silicone NJ tube (for suggested sizing see below)
Standard NG tube
5ml Feeding syringe
5ml Sterile water for injection
Tape or Tegaderm dressing for fixing
Duoderm for protecting face
pH paper

Size of NJT:
Infants < 2kg will usually need size 4 or 5 Fr gastric tube
Infants 2-4 kg will usually need a size 6 Fr gastric tube
Children >4kg will usually need a size 8 Fr gastric tube
Children >10kg will usually need a size 8 or 10 Fr gastric tube
Methods:
1. Select an appropriately sized NJT and ensure you have the correct feeding syringe to fit onto this. 
   **Familiarise yourself with the tube’s markings for length.**
2. Put the NJT in a freezer for approx 30mins before insertion to make it slightly stiff.
3. Measure the distance for insertion of a nasogastric tube, from nose to ear then down to xiphisternum. 
   Record this length as **distance A** (the gastric tube length).
4. Measure the distance for insertion of the naso-jejunal tube, from the bridge of nose down the body to 
   the ankle with legs extended (see picture below). Record this as **distance B** (the jejunal tube length). 
   You can place a tape marker on the NJT at this length if you wish.
5. Lie the infant right side down and insert the NJT through the nostril as you would a gastric tube. 
   When you reach distance A (known to be the stomach), pause and inject 2ml of sterile water through 
   this tube. This promotes peristaltic activity.
6. With the child in the same position, advance the tube slowly until you reach distance B at the nostril 
   (or your marker if you placed one). If you encounter resistance gently flush an extra 0.5-1ml of sterile 
   water as you advance the tube. Peristalsis should carry the NJT through the pylorus and into the 
   small bowel with time. Secure the tube to the cheek. **Do not aspirate the NJT.**
7. Next insert an appropriately sized orogastric/nasogastric tube to distance A and secure to cheek. 
   Both tubes can be inserted via same nostril if there is sufficient space. Aspirate the naso/orogastric 
   tube and confirm presence of acid on pH paper. There is no need to empty the stomach completely.
8. Leave the child in the same right side down lateral position for 3-4 hours to allow peristalsis to carry 
   the NJT through the pylorus into small bowel.
9. Check position of both tubes with a single X-ray of chest and abdomen. A doctor must confirm that 
   the position is satisfactory before feeding via the NJT commences.
10. Document length of NJT insertion clearly on nursing charts. Ensure all staff are clear about which 
    tube is gastric and which jejunal.

**Measurements:**

**Distance A:** Measure from nostril to ear and then down to the xiphisternum. This 
   equals length A, for insertion of a nasogastric tube into the stomach.

**Distance B:** Measure the distance from the bridge of the 
   nose down to an ankle with the leg fully extended. This 
   is length B, for placing a nasojejunal tube into the jejunum.
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**X-ray interpretation:**
The NJT tip should go through the pylorus and around the c-shaped duodenum. The tip should lie either in the midline (over a vertebral body) or to the left of the patients’ midline in the jejunum (Picture 1).

If NJT is too far in e.g. seen to curl in small bowel loops, gently withdraw. You can measure the exact distance to withdraw on the X-ray.

If NJT is through the pylorus but lies short, then loosen the securing tapes and advance further as necessary (Picture 2). Re-X-ray to confirm final position before feeding is commenced.

If NJT tube is coiled in the stomach, without going through the pylorus then remove tube and prepare for another attempt at insertion.

If the NJT has taken an unusual path within the bowel then remove the tube and discuss case with a senior colleague (Picture 3).

**Picture 1:**
NJT loops in stomach and the tip lies in jejunum to the left of midline. Note the c-shaped duodenum. This is the correct position.

**Picture 2:**
NJT is looped in stomach and then passes through the pylorus but lies in 2nd part of duodenum, to the right side of the vertebral body.
Plan: Tube needs advancing further to reach jejunum.

**Picture 3:**
NJT had passed through pylorus into duodenum but then has taken a very abnormal path straight down. This is not the correct position and raises suspicion of duodenal perforation. This tube needs removing immediately.
1. Ensure NJT is at the correct length at nose.
2. Ensure a gastric tube (NGT/OGT) is also present for aspirating and administering medication.
3. Feeds should run by continuous infusion through the NJT via a pump.
4. Draw up 4 hours worth of feeds into a feeding syringe and change with fresh milk every 4 hours. Change the extension set every 12 hours.
5. Aspirate the OGT/NGT every 6 hrs (even if not using it) to ensure no milk is returned from the stomach. If milk is returned this indicates that the NJT has slipped back into the stomach and feeds should be stopped until tip position is confirmed to be satisfactory.
6. In general oral medication should be given by the gastric tube and not the NJT. Please discuss any queries with the pharmacist.

Warnings:
Do not aspirate the NJT – it causes collapse and recoil of the tube.
Do not bolus feed via NJT as jejunum has no capacity for storage.
If baby vomits milk then repeat an X-ray to check for position of NJT tip.
If NJT becomes blocked flush gently with 1-2 ml sterile water – if permanently blocked a new one needs inserting.
If NJT migrates out a few cm, push back down and consider repeating X-ray to check position of tip. If X-ray is not deemed necessary, aspirate gastric tube shortly after restarting feeds via NJT to ensure no milk is returned.
If NJT migrates out by a long distance then stop the feeds and consider either placing a new NJT or pushing the same one back in to the desired length with the baby lying right side down, as for initial insertion. Check tube position with an X-ray after 30-60mins.

Duration of NJT feeding:
Silicone NJTs can stay in place for 4 weeks although in practice they may need replacing sooner. Care should be taken not to accidentally remove the NJT when the NGT is replaced every 7 days.

Discharge home with an NJT:
Children that go home with an NJT will require open access to the paediatric A&E department for tube replacement in the event of displacement. An NJT should not be replaced in the community due to risks of insertion plus the need for X-ray confirmation of final position.

References:
3. Passing a Naso-Jejunal Tube. Guideline from St George’s Hospital Neonatal Unit.