LESSON ASSIGNMENT

LESSON 5  
Nasogastric Intubation.

LESSON ASSIGNMENT  
Paragraphs 5-1 through 5-22.

LESSON OBJECTIVES  
After completing this lesson, you should be able to:

5-1. Identify the purposes and indications of nasogastric intubation.

5-2. Identify the indications/contraindications for nasogastric intubation.

5-3. Identify the complications associated with nasogastric intubation.

5-4. Identify different types of nasogastric tubes.

5-5. List the procedural steps for nasogastric intubation in the proper sequence.

SUGGESTION  
After completing the assignment, complete the exercises of this lesson. These exercises will help you to achieve the lesson objectives.
LESSON 5

NASOGASTRIC INTUBATION

Section I. PRELIMINARY STEPS

5-1. INTRODUCTION

According to the latest statistics, gastrointestinal disorders are the most common ailments treated at medical facilities. To deal with this type of disorder, it is sometimes necessary to insert a tube into the patient's stomach or intestine. The term gastrointestinal intubation means that a specified tube is inserted through the patient's nose or throat into his stomach or intestine. Gastrointestinal intubation is a fairly common procedure. The reasons for its use are as follows:

a. To drain the stomach or intestinal tract by means of some kind of suction apparatus. Gastrointestinal intubation is used to prevent postoperative vomiting, to prevent postoperative obstruction of the intestinal tract, and to prevent the stomach or intestine from being stretched by fluid or gas.

b. For diagnosis, to identify a disease or the cause of a pathological condition.

c. To wash out the stomach contents; for example, after taking poison.

d. To provide a route for feeding a person who is unable to take food by mouth.

5-2. INDICATIONS/CONTRAINDICATIONS TO USE NASOGASTRIC INTUBATION

a. Indications to Use Nasogastric Intubation. Use nasogastric intubation--passing the gastric tube through the nose and into the stomach and intestines--when the following conditions exist:

(1) It is known or suspected that the patient has ingested poisonous or caustic (something which can burn or destroy living tissue) substances.

(2) There is a need to increase the patient's nutritional intake.

(3) The individual is a burn patient with more than 30 percent total body surface involved. In such a case, there is high incidence of duodenal stress ulcer and also a high rate of paralytic ileus (obstruction of the intestines caused by paralysis of the intestinal walls).

(4) The patient's abdomen is distended (stretched).
(5) Persistent vomiting is suffered by the patient.

(6) Auscultation reveals decreased or absent bowel sounds.

b. **Contraindications to Use Nasogastric Intubation.** DO NOT use nasogastric intubation in the following circumstances:

(1) Facial fractures with suspected cribriform plate injuries.

(2) Esophageal strictures or a history of alkali ingestion. Intubation would increase the possibility of esophageal perforation.

(3) Comatose patients with unprotected airway. Nasogastric intubation increases the risk of aspiration.

(4) Penetrating cervical wounds in a conscious trauma patient. The gagging efforts could stimulate hemorrhage.

**5-3. COMPLICATIONS DUE TO USE OF NASOGASTRIC INTUBATION**

There are some complications associated with using a nasogastric tube. The nasopharynx and other related upper airway structures may suffer injury or damage. The esophagus and stomach may be injured. The tube may be accidentally inserted through the trachea causing oxygen deficiency. If the tube remains in place for a long time, the following conditions may occur:

a. Nasal erosion--irritation and gradual wearing away of the membranes lining the nose, the condition being caused by the presence and rubbing of the nasogastric tube.

b. Sinusitis--the inflammation of the mucous membrane of a sinus, particularly a paranasal sinus.

c. Esophagitis--inflammation of the esophagus.

d. Gastric ulceration--ulcers of the stomach, usually on or near the smallest curve of the stomach.

e. Pulmonary infection--infection of the lungs.

f. Other respiratory tract infections--pneumonia from the tube being placed into the patient's right lower lobe bronchus; hydropneumothorax (collection of fluid and gas within the pleural cavity) caused by the tube being placed in the bronchial airways.

g. Gastrointestinal bleeding--caused by the tube damaging gastrointestinal lining.
5-4. TYPES OF NASOGASTRIC TUBES

The first nasogastric tubes were made of soft rubber. Recently, tubes have been made of silastic and polyethylene compounds. These tubes can be inserted more easily and also cause fewer medical problems for the patient. There are fewer instances of inflamed tissues. With the exception of this change, nasogastric tubes are very much the same today as they have been for the last three decades. The most commonly used nasogastric tube is the Levin tube. Other nasogastric tubes include the Salem-sump tube, the Miller-Abbott tube, and the Cantor tube.

a. The Levin Tube. The actual tubing is referred to as lumen. The Levin tube is a one-lumen nasogastric tube. The Salem-sump nasogastric tube is a two-lumen piece of equipment; that is, it has two tubes. The Levin tube is usually made of plastic with several drainage holes near the gastric end of the tube. There are graduated markings on the lumen so that you can see how far you have inserted the tube into the patient. This nasogastric tube is useful in instilling material into the stomach or suctioning material out of the stomach.

b. The Salem-Sump Tube. This nasogastric tube is a two-lumen piece of equipment. It has a drainage lumen and a smaller secondary tube that is open to the atmosphere. The major advantage of this two-lumen tube is that it can be used for continuous suction. The continuous airflow reduces the frequency of stomach contents being drawn up into the whole of the lumen which is in the patient's stomach.

c. The Miller-Abbott Tube. This tube is also a two-lumen nasogastric tube. There is a rubber balloon at the tip of one tube; the other tube has holes near its tip. After one tube has passed through the pylorus (the opening between the stomach and the duodenum), the balloon is inflated with air. The balloon is then moved along the intestinal tract by peristalsis (movement by alternate contraction and relaxation, in the case, of the intestinal walls. The rest of the tube is propelled along with the balloon. The contents of the intestines are sucked back through the holes in the tube. The Miller-Abbott nasogastric tube has two separate openings. The end of the tube which is outside the patient's body has a metal adapter with two openings. One opening is for suction and is marked "suction." The other opening is used by a doctor to inflate the balloon. Be sure this last opening is marked so that no one becomes confused and connects the opening to a suction device or instills irrigating solutions through that opening.

d. The Cantor Tube. This nasogastric tube has one lumen and a bag on the end. Mercury is inserted into the bag, and the mercury helps move the tube along the intestinal tract. Before the tube is inserted into the patient, mercury is injected directly into the bag with needle and syringe. The needle makes an opening large enough for the mercury to go through but not large enough for the mercury to leak out. When the tube is inserted into the patient, the bag holding the mercury becomes long. The Cantor tube is very effective when used for intestinal decompression (relief of stretching of the intestine through suctioning out intestinal contents).
Section II. PROCEDURE FOR INSERTING THE NASOGASTRIC TUBE

5-5. CHECK THE DOCTOR'S ORDER

Before performing a nasogastric intubation, check the doctor’s order to be certain the doctor has ordered this procedure. Inserting a nasogastric tube is NOT a routine procedure.

5-6. GATHER THE EQUIPMENT

To perform a nasogastric intubation, you will need the following equipment:

a. Nasogastric tube. The Levin tube is usually selected. Remember, the larger the number of the tube, the larger the size of the tube.

b. Water-soluble lubricant.

c. 500 cc bulb syringe.

d. Emesis basin; glass of water.

e. Suctioning apparatus.

f. Clean towel; sterile gloves; table.

g. Mayo stand and tray; adhesive tape.

h. Container for contaminated waste.

5-7. EXPLAIN THE PROCEDURE TO THE PATIENT

a. General Information. Explain the procedure to the patient to help relieve his fears and aid him in relaxing. The patient may be in pain or frightened. You need to explain the purpose of passing the tube into his body: to relieve distention of the stomach caused by gas, bleeding, or lack of peristalsis; to prepare for gastric studies; or as a means of feeding. Explain that the passage of the tube is painless but that it may cause gagging as it passes down the back of the throat. The gagging impulse passes quickly as the patient swallows. Swallowing helps to advance the tube.

b. Specific Information. Tell the patient that you will insert the tube along his nasal passage. Next, you will give him a cup of water with a straw. He is to drink through the straw when asked to do so, continuing to drink until asked to stop. Ask the patient if he has any history of nasal injury or deviated septum. Tell the patient that the tube must be placed about 20 inches down the nasogastric passage.
5-8. POSITION THE PATIENT

a. **Responsive Patient.** If the patient is responsive and needs to be positioned in the semi-Fowler's position, you should elevate the head of the bed to about a 45 degree angle. Then raise the knee latch or the foot of the bed so that the patient's knees are flexed at about a 15 degree angle.

b. **Unresponsive Patient/Lateral Position.** The patient is unresponsive and needs to be placed in the lateral position. Turn him onto his side. See that the head, neck, and back are in a straight line. Be sure the patient's legs are parallel with his knees slightly flexed. You may place his arm in a flexed position across his abdomen or so that it is supported on his body and hip.

c. **Ambulatory Patient.** Seat this patient on a chair. Have him tilt his head backward with his chin upward at about a five degree angle. Ask the patient to breathe through his mouth.

5-9. WASH YOUR HANDS

As with other medical procedures, wash your hands before you actually begin inserting the tube. Wash your hands according to local unit procedure.

5-10. PREPARE THE TAPE AND TUBING

Follow this procedure:

a. Cut four or five pieces of tape three to four inches long. Attach one end of each piece of tape to a surface where the tapes will be easily accessible.

b. Unwrap the tube from the plastic container. Peel open the wrapper and throw it away in the contaminated waste.

5-11. MEASURE THE TUBE PRIOR TO INSERTION

Use the tube to determine how far to insert the tube in the patient. Using the tube, measure the distance from the patient's earlobe to the tip of his nose. Then, measure and add the distance between the earlobe and the tip of the xiphoid process. This is roughly the distance from the patient's mouth to his stomach. Mark this distance on the tube with tape.

5-12. LUBRICATE THE TUBE WITH WATER-SOLUBLE LUBRICANT

After you have measured and marked the tube, lubricate three to four inches of the tube's end with a water-soluble lubricant. To do this, hold the tube tip with the thumb and fore-finger of your dominant hand. Bring the tip to the opening of the selected nostril. This lubrication permits the tube to be inserted easily.
5-13. TELL THE PATIENT TO DRINK WATER

Place the emesis basin under the patient's chin if the patient begins to gag. Keep a towel readily available to clean and dry the patient if he spills the water.

Figure 5-1. Determine the distance to insert the tube.

5-14. INSERT THE TUBE

Follow this procedure:

a. Slide the tube into the selected nostril when the patient swallows. Do this using the thumb and forefinger of each hand consecutively or concurrently, as you prefer.

b. Move the tube one to two inches forward into the nasogastric passageway each time the patient swallows. **DO NOT FORCE the advancement of the tube because it would cause the patient to gag, choke, or vomit.**

c. Discontinue the insertion if the patient chokes or coughs by removing the tube completely and/or allowing the patient to rest two to three minutes. Begin the procedure again.
Figure 5-2. Inserting the nasogastric tube.

Figure 5-3. Nasogastric tube in place.
d. Look inside the patient's mouth with a flashlight to see if the tube is coiled in the throat. If it is, withdraw the tube until it is straight. Reassure the patient and allow him to rest a few moments before you continue.

e. Discontinue the procedure completely and refer the case to the doctor if the patient chokes, coughs a second time, or gags excessively.

f. Insert the tube to the tape mark. About 20 to 30 inches of the tube will be in the patient.

5-15. CHECK TUBE PLACEMENT

It is important to be sure that the nasogastric tube is in the correct place—the patient's stomach. There are three methods by which you can verify that the tube has actually reached the patient's stomach: check by aspiration; check by the patient's vocal response; and check by auscultation.

a. Check by Aspiration. Squeeze the bulb of a large syringe to get rid of all the air in the syringe, then fit the syringe into the near end of the nasogastric tube. Squeeze the bulb, release the bulb, and check the barrel of the syringe for gastric content. If the gastric contents are found in the barrel of the syringe, it indicates that the nasogastric tube is properly inserted and is in the patient's stomach.

b. Check by Patient's Vocal Response. Ask the patient to talk or hum. If he is unable to do so, remove the tube and try again. The tube is probably between the vocal cords and the trachea. If the patient can talk or hum, you know that the nasogastric tube is not in the larynx.

c. Check by Auscultation. Auscultation is the act of listening for sounds within the body with the use of a stethoscope. For this check, squeeze the bulb to void air from the syringe and prevent air from being injected into the stomach. Fit the syringe into the near end of the nasogastric tube. Place the diaphragm end of the stethoscope to the patient's stomach about two inches below the sternum. Squeeze the bulb of the syringe to inject air into the nasogastric tube. Listen for gurgling sounds; these sounds indicate that the nasogastric tube is properly placed. Move the diaphragm of the stethoscope to the front part of the lung area. Squeeze the syringe bulb again and listen for gurgling sounds. If you hear gurgling sounds in the lung area, withdraw the nasogastric tube immediately. Sounds in that area indicate that the tube is not in the correct position. Begin again to place the nasogastric tube properly.

CAUTION: If the patient becomes cyanotic or has difficulty breathing, REMOVE THE TUBE IMMEDIATELY. The tube is probably in the trachea.
5-16. TAPE THE TUBE TO THE PATIENT'S NOSE

Center the length of the tape under the nasogastric tube; the adhesive side of the tape should be up. Cross the ends of the adhesive over the top of the tube. Press down to secure the tape to the skin. Finally, connect the tube to the suction apparatus, if ordered. (The doctor may order continuous or intermittent (off-and-on) suction.)

5-17. PROVIDE FOR THE PATIENT'S COMFORT

A patient who requires nasogastric intubation is often quite ill and apprehensive. For that reason, the patient's environment must be kept quite, clean, tidy, and well-ventilated. Remove any soiled linen or equipment. Adjust the patient's pillows and bedding for comfort and neatness. Place the bed in a low position. Raise the siderails if used and place the call bell in easy reach.

5-18. REPORT AND RECORD THE PROCEDURE

Note the completion of the treatment with a description of the stomach contents. Record other information as necessary in accordance with local unit procedure.

5-19. PROVIDE HYGIENE CARE

Help the patient maintain good personal hygiene. The teeth should be brushed three or four times a day to stimulate the flow of saliva, to keep the mouth moist and clean, and to prevent parotitis (inflammation of the parotid gland). Change the position of the nasogastric tube from one side of the nose to the other and be sure to lubricate the intubated nostril. Changing tube placement and lubricating the nostrils help prevent either side of the nose from becoming sore, tender, and/or cracked. Change the adhesive tape whenever necessary. Finally, provide reassurance to the patient.

Section III. PROCEDURE FOR REMOVING THE NASOGASTRIC TUBE

5-20. PEEL OFF THE TAPE FROM THE NOSE AND NOSTRIL

This is the procedure to follow:

a. Approach and identify the patient. Explain what you are going to do. For example, "The tube is being disconnected because you are doing so well."

b. Wash your hands.

c. Turn the patient's head away from you in case the patient vomits. Be prepared by having an emesis basin near to give to the patient. Place the basin under his chin to catch vomitus, if necessary.
d. Untape the tube from the patient. Take care not to cause injury or discomfort to the patient. Place the adhesive strips in the container for contaminated waste.

5-21. REMOVE THE NASOGASTRIC TUBE

Follow this procedure:

a. Don sterile gloves.

b. Pull the tube horizontally out of the nostril until the tube is completely out. Use a slow, gradual, continuous motion and talk quietly to the patient as you pull the tube out. If the patient vomits, stop the removal of the nasogastric tube immediately. Hand the patient an emesis basin or place the basin under the patient's chin. Hand the patient a clean towel or wipe his chin and face with the towel. Continue the procedure of removing the tube when the patient is ready.

c. Place the soiled equipment (the tube) in the container for contaminated waste.

d. Clean the Mayo stand and tray with a germicidal agent before this equipment is reused.

e. Remove the gloves you are wearing and discard them in a container for contaminated waste.

f. Place the disposable towel into a container for contaminated waste. Place the cloth towel in a container for contaminated linen.

5-22. CLOSING

The more you practice this procedure, the easier it becomes. Consider your patient's comfort while performing nasogastric intubation. Remember, even the most skilled health care providers will have difficulty if a patient has an anatomical abnormality.

Continue with Exercises

Return to Table of Contents
EXERCISES, LESSON 5

INSTRUCTIONS. Answer the following exercises by writing the answer in the space provided.

After you have completed all of these exercises, turn to "Solutions to Exercises" at the end of the lesson and check your answers. For each exercise answered incorrectly, reread the material referenced with the solution.

1. List three reasons why nasogastric intubation would be prescribed for a patient.
   a. ____________________________
   b. ____________________________
   c. ____________________________

2. Nasogastric intubation is used when the patient has a/an ______________ stomach, ________________ vomiting, or is suspected of ingesting poisonous or ________________ substances.

3. List three complications that can be caused by prolonged nasogastric intubation.
   a. ____________________________
   b. ____________________________
   c. ____________________________

4. Before performing a nasogastric intubation, check __________________ to be sure the procedures should be performed.
5. List five pieces of equipment that you should gather before you begin intubating the patient.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.
   d. ________________________________.
   e. ________________________________.

6. Write three statements you should tell the patient before you begin nasogastric intubation.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.

7. The patient is ambulatory; therefore, begin positioning him correctly for nasogastric intubation by __________________________. Have the patient tilt his head __________________________ with the chin upward at approximately five degrees. Ask the patient to breathe through his __________________.

8. List the three steps necessary to measure the nasogastric tube before inserting the tube.
   a. ____________________________________________________________.
   b. ____________________________________________________________.
   c. ____________________________________________________________.
9. If the patient chokes or coughs when you are inserting the nasogastric tube, you should _______________________________.

10. When intubating the patient, how far do you insert the tube? Insert the tube _______________________________.

11. List three ways to check for correct placement of the nasogastric tube.
   a. ________________________________.
   b. ________________________________.
   c. ________________________________.

12. When you are removing the nasogastric tube, pull the tube out of the nostril ______________________, using a slow, gradual, and continuous motion.

13. Be sure to put contaminated waste such as used adhesive strips ________________ _______________________________.

14. When you have finished removing the nasogastric tube from the patient, remove the gloves you are wearing and _______________________________.

Check Your Answers on Next Page
SOLUTIONS TO EXERCISES, LESSON 5

1. You are correct if you listed any three of the following:

   Known or suspected that person has ingested poisonous or caustic substance(s).
   Need to increase person's nutritional intake.
   Burn patient with more than 30 percent of total body surface involved.
   Person's abdomen is stretched.
   Person suffering from persistent vomiting.
   Auscultation reveals decreased or absent bowel sounds. (para 5-2a)

2. Distended.
   Persistent.
   Caustic. (para 5-2a(1), (5), and (6)).

3. You are correct if you listed any three of the following:

   Nasal erosion.
   Sinusitis.
   Esophagitis.
   Gastric ulceration.
   Pulmonary infection.
   Other respiratory tract infections such as pneumonia.
   Gastrointestinal bleeding. (para 5-3a thru g)

4. The doctor's orders. (para 5-5)

5. You are correct if you listed any five of the following:

   Nasogastric tube.
   Water soluble lubricant.
   500 cc bulb syringe.
   Emesis basin.
   Adhesive tape.
   Glass of water.
   Suctioning apparatus.
   Clean towel.
   Sterile gloves.
   Table.
   Mayo stand and tray.
   Container for contaminated waste. (para 5-6)
6. You are correct if you listed any three of the following statements which you could tell the person:

   You will insert the tube along his nasal passage.
   You will give him a cup of water with a straw.
   He is to drink through the straw when asked to do so and continue until told to stop.
   The tube will be placed about 20 inches down his gasogastric passage.  
   (para 5-7b)

7. Seating him on a chair.
   Backward.
   Mouth.  (para 5-8c)

8. Measure the distance between the patient's earlobe and the tip of his nose.
   Add the distance between the earlobe and the tip of the xiphoid process.
   Mark the total distance on the tube with tape.  (para 5-11)

9. Remove the tube completely; allow the patient to rest two to three minutes; then, begin the procedure again.  (para 5-14)

10. To the tape mark.  (para 5-14)

11. Check by aspiration.
    Check by the patient's vocal response.
    Check by auscultation.  (para 5-15)

12. Horizontally.  (para 5-21)

13. In the container for contaminated waste.  (para 5-21)

14. Discard them in the container for contaminated waste.  (para 5-21)

Return to Table of Contents