Nursing care of the morbidly obese patient

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As obesity continues to be a growing epidemic in the United States, it's likely you'll be called on to care for a patient who's morbidly obese. Although doing so may be challenging, he still requires quality care. And we'll show you how!

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The author has disclosed that she has no significant relationships with or financial interest in any commercial companies that pertain to this educational activity.

MR. MORGAN, 46, is admitted to your unit during the night for difficulty breathing. His height is 68 inches (170 cm) and he weighs 486 pounds (220.9 kg). He arrives from the emergency department (ED) on a stretcher, and it takes six staff members to transfer him to a hospital bed. When you enter his room, Mr. Morgan is supine, breathing deeply, and crying. He has oxygen at 4 liters/minute and the tubing is tangled in his gown.

After untangling the tubing, you ask him why he's crying. He tells you that he overheard a nurse in the ED say, "He looks like a gorilla and smells like a gorilla." As you try to calm him down, you realize that he must be uncomfortable, but you're not sure how to move him by yourself. You reassure him that you'll get help to reposition him.

When you auscultate Mr. Morgan's lungs, you're unable to hear any breath sounds, normal or adventitious. You attempt to listen to his heart, but his heart sounds are muffled and you can't differentiate between S1 and S2. Although you've made him more comfortable and less upset, you know there's more you can be doing to help Mr. Morgan.

Caring for a morbidly obese patient is a significant challenge for you as a nurse both physically and psychologically. And many of these patients have comorbid conditions, such as diabetes or heart disease, which compound their difficulties.

In this article, I'll detail the issues you may

face while caring for a morbidly obese patient, as well as nursing interventions you can perform to give your patient the compassionate care he deserves.

But before we focus on nursing care, let's take a quick look at the definition and possible causes of morbid obesity.

Defining morbid obesity

According to the American Obesity Association (AOA), about 9 million adult Americans are morbidly obese. Any person whose body mass index (BMI) exceeds 40 kg/m^2 is diagnosed as severely, or morbidly, obese. This equates to being about 100 pounds (45.5 kg) overweight or more than two times the ideal body weight (see *Calculating ideal body weight*). BMI is determined by dividing a person's weight by his height (see *Calculating BMI*). In Mr. Morgan's case, his BMI is 73.9.

Morbid obesity is caused by taking in more calories than expended, such as in overeating. There are numerous reasons why people overeat: genetic, hormonal, behavioral, environmental, and cultural. That's why obesity is a multifaceted issue. Genetics may play a role in predisposing a person to becoming morbidly obese. According to a study conducted by the AOA of patients undergoing bariatric surgery, 55% of the patients had factors in their histories that predisposed them to becoming morbidly obese.

Researchers are studying mechanisms of metabolism, appetite, and satiety and their relation to obesity. Areas of study involve genetic traits in the way the body expends energy, hormones that affect the way calories are processed, and other organ systems in the body that affect appetite. Eating disorders, metabolic syndrome, behavioral issues, and cultural influences about food may also affect the development of obesity.

What can you do to provide the best possible care for these patients? Let's delve into nursing care next.

The team approach

Caring for a morbidly obese patient puts a strain on the nurse physically, so measures must be taken to ensure your safety from injury as well as your patient's comfort. Your facility may have a no-lift or low-lift policy in place, or lifting techniques may be specified. Follow your facility's policy regarding the techniques you may use to assist in lifting a morbidly obese patient, such as a trapeze over the bed that allows the patient to pull himself up or a mechanical lift during linen changes. Assistance from other staff nurses may be required for lifting, as well as during tasks such as skin care, wound care, or other procedures.

Calculating ideal body weight

Women

- Allow 100 pounds for 5 feet of height.
- Add 5 pounds for each additional inch over 5 feet.
- Subtract 10% for small frame; add 10% for large frame.

Men

- Allow 106 pounds for 5 feet of height.
- Add 6 pounds for each additional inch over 5 feet.
- Subtract 10% for small frame; add 10% for large frame.

Example

The ideal body weight for a 5-foot, 6-inch adult is:

Female:

- 5 feet of height: 100 pounds
- Per additional inch: 6 inches multiplied by 5 pounds/inch = 30 pounds
- Ideal body weight: 130 pounds plus/minus 13 pounds depending on frame size

Male:

- 5 feet of height: 106 pounds
- Per additional inch: 6 inches multiplied by 6 pounds/inch = 36 pounds
- Ideal body weight: 142 pounds plus/minus 14 pounds depending on frame size

Critical care and ED challenges

Nurses who take care of morbidly obese patients in the intensive care unit and emergency department (ED) need to consider the following.

- Intubation may be difficult if the patient has a short, thick neck.
- Two people may be required to perform ventilation by mask: one person holding the mask in place and the other managing the device.
- Performing an emergency tracheotomy may take longer due to increased neck thickness and skin folds.
- Intravenous access may be difficult due to an increased amount of subcutaneous fatty tissue, which makes it difficult to see or feel deep veins; central line placement may be required.
- Cardiopulmonary resuscitation may also be a challenge because visualization of the larynx may be obstructed due to increased neck thickness.

Follow your facility's policies and procedures outlining the standard of care for the management of morbidly obese patients. Don't let lack of staff deter care of your patient.

Care of the morbidly obese patient in an intensive care unit or ED may also pose a challenge. Staff should proactively discuss how obesity affects the effectiveness of life-saving measures, and alternative courses of action should be addressed and a plan put in place (see *Critical care and ED challenges*).

One system at a time

Each system of a morbidly obese patient may be affected, so it's important that you perform a thorough physical exam. However, performing a physical assessment on a morbidly obese patient may be difficult due to the inability to hear sounds or feel pulses. Let's take a closer look at the problems you may encounter by system and nursing interventions you can perform for each system during your assessment.

Cardiovascular

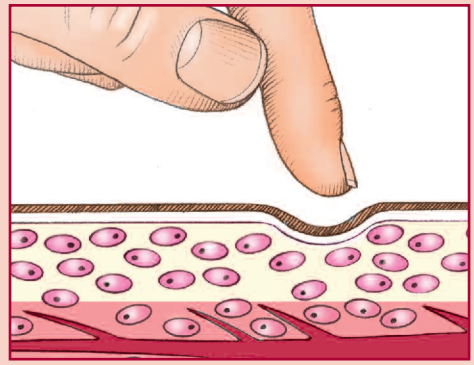
Morbidly obese patients are prone to coronary artery disease, systemic hypertension, and hyperlipidemia, all of which may lead to heart disease and increase the risk of atherosclerosis, deep vein thrombosis (DVT), and peripheral vascular disease. Fluid volume overload secondary to impaired pumping action of the heart is another problem to watch out for. Fluid backs up into the lungs, heart, and venous system because of the strain on the heart.

Obtaining accurate vital signs, especially pulses and blood pressure, may be difficult. Here are some tips to follow:

- Assess your patient's heart sounds by having him lie on his left side if possible. This position places the heart closer to the chest wall. Also ensure a quiet environment.
- Use a blood pressure cuff that's large enough for your patient; otherwise, you may get a false high reading. Use a thigh cuff or place a regular-sized cuff on his forearm.
- Obtain a baseline weight, then weigh your patient daily at the same time each day to monitor for fluid imbalance. Keep in mind that a standard standing scale may not be able to accommodate a morbidly obese patient.
- Monitor his calves each day for signs of DVT, such as redness, tenderness, and heat.
- Assess for signs of edema. Note if the edema is pitting or nonpitting and determine the grade if pitting (see *Grading edema*).
- Note the capillary refill time of his fingers and toes.
- Monitor his hematocrit and hemoglobin levels because a decrease in these values may indicate anemia.

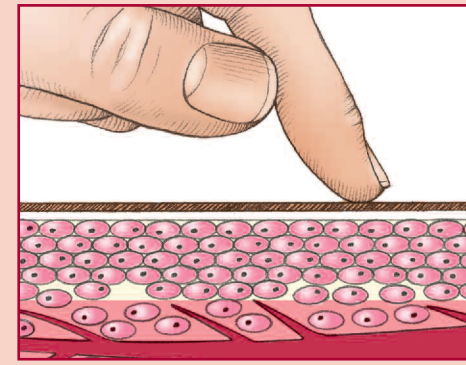
Grading edema

Edema may be pitting or nonpitting. To differentiate between the two, press your finger against the swollen area for 5 seconds, then quickly remove it.



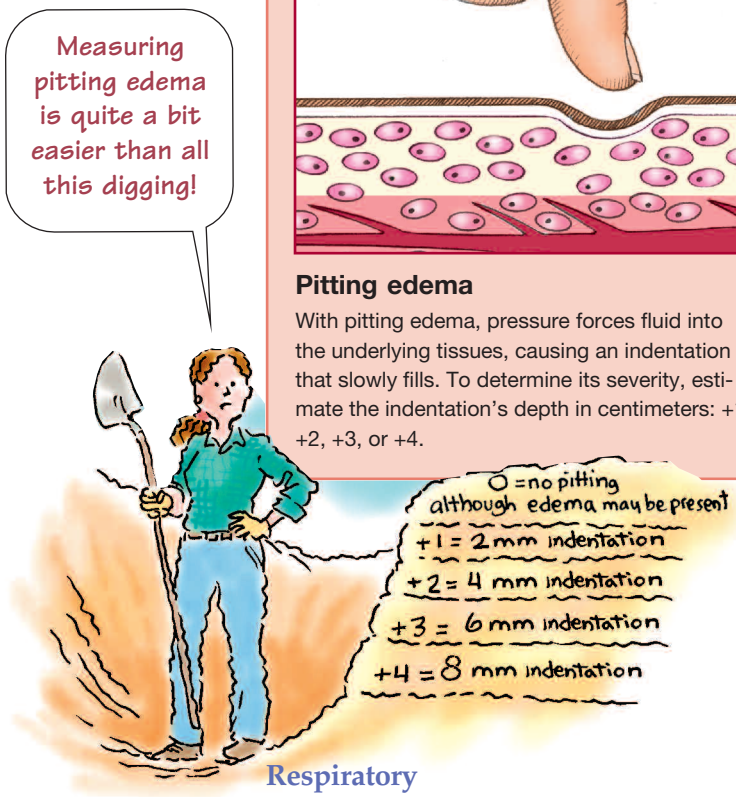
Pitting edema

With pitting edema, pressure forces fluid into the underlying tissues, causing an indentation that slowly fills. To determine its severity, estimate the indentation's depth in centimeters: +1, +2, +3, or +4.



Nonpitting edema

With nonpitting edema, pressure leaves no indentation because fluid has coagulated in the tissues. Typically, the skin feels unusually tight and firm.



Respiratory

Respiratory failure is common in morbidly obese patients. The chest wall's ability to expand is severely limited due to its enlarged size and the enlarged size of the abdomen. Fat deposits in the diaphragm and intercostal muscles further impair breathing. Pneumonia or atelectasis may occur secondary to hypoventilation. Sleep apnea is also common in morbidly obese patients. Obesity hypoventilation syndrome (OHS), or pickwickian syndrome, is another sleep disorder associated with respiratory insufficiency. The patient becomes hypoxic and his respiratory drive decreases, impairing compensation mechanisms. A combination of OHS and sleep apnea is common in morbidly obese patients (see *A closer look at pickwickian syndrome*). For more information about sleep apnea, see "A tale of sleep apnea" from our May/June 2007 issue.

Here's what you need to do when monitoring your patient's respiratory status:

- Assess your patient's respiratory rate and depth and monitor for signs of accessory muscle use.
- Auscultate his lung sounds at least once per shift or according to your facility's policy. Crackles may indicate pneumonia or heart failure; wheezes and rhonchi may indicate asthma or chronic obstructive pulmonary disease. Your patient may require rest periods between auscultation of the various areas.
- Obtain oxygen saturation levels and look for signs of hypoxia, such as restlessness and a decreasing level of consciousness (LOC).
- Monitor his arterial blood gas values, if ordered.

- Assess the color of your patient's skin and nail beds for pallor or cyanosis.
- Assess the characteristics of his sputum (color, quantity, and amount); send a specimen to the lab if required.
- Encourage deep breathing and coughing hourly while your patient is awake or according to your facility's policy and teach him how to use an incentive spirometer to prevent pneumonia and expand his lungs.
- Maintain the head of the bed at 30 degrees to facilitate lung expansion and offset symptoms of gastroesophageal reflux disease (GERD).
- If your patient has OHS or sleep apnea and requires treatment with a bilevel positive airway pressure or continuous positive airway pressure machine, make sure he uses it.

Genitourinary

Morbidly obese patients may experience urinary incontinence or have a comorbidity of renal disease. Incontinence is related to several factors: the difficulty in sitting on a standard-sized bedpan, bedside commode, or toilet; the time it takes to move the patient onto the bedpan or commode; pressure on the bladder from an enlarged abdomen; and skin folds in the perineal area that tend to impede the voiding process. You'll need to assess the characteristics of his urine (color, clarity, amount, and odor) and monitor his intake and output, if ordered.

Here's how to help your patient with toileting:

- Offer frequent toileting.
- Make sure the bedside commode is accessible. If possible, provide an over-the-toilet commode, which may be easier than a bedside commode for your patient to sit on.
- It may be easier for some obese men to sit at the edge of the bed or stand when using a urinal.
- If catheterization is required, monitor for signs or symptoms of urinary tract infection.

A closer look at pickwickian syndrome

Pickwickian syndrome is a group of symptoms that primarily affects patients with extreme obesity. The major health problem associated with this syndrome is sleep apnea, which is caused by excessive fatty tissue surrounding the chest muscles. This strains the heart, lungs, and diaphragm and contributes to breathing difficulties.

Besides sleep apnea, symptoms of pickwickian syndrome include:

- excessive daytime sleepiness
- shortness of breath
- disturbed nighttime sleep
- flushed face or bluish tint to the face
- hypertension
- enlarged liver
- elevated red blood cell count.

Gastrointestinal

Gallbladder disease and GERD are conditions associated with the morbidly obese patient. Fecal incontinence is also common due to the pressure of an enlarged abdomen on the bowel placing pressure on the sphincter, which can cause stool leakage. Also, a morbidly obese patient may tend to lie on his back, which places additional pressure on an already weakened sphincter. Ascites, or fluid in the abdomen, may also be a problem because many morbidly obese patients experience portal hypertension due to pressure on the blood vessels in the abdomen.

Here's what you need to do:

- Auscultate your patient's bowel sounds at least once per shift or according to your facility's policy.
- Monitor his bowel status (how often and amount and characteristics of stool).
- Listen to patient complaints of signs and symptoms of GERD such as a burning feeling in the esophagus. Administer medications as ordered and consult the dietitian to assist your patient with foods that won't ex-

acerbate his reflux disease.

- Monitor for signs of constipation and administer medications as ordered. A daily stool softener may be needed.

Endocrine

According to the Centers for Disease Control and Prevention, the incidence of type 2 diabetes has tripled in the last 30 years, primarily due to an epidemic of obesity; 97% of type 2 diabetes cases are caused by extreme weight gain. Because morbidly obese patients have a high incidence of type 2 diabetes, you'll need to monitor for signs of hypoglycemia (drowsiness, dizziness, pallor, diaphoresis, and decreasing LOC) and hyperglycemia (polyphagia, polyuria, polydipsia, dry mouth, fatigue, and dry, itchy skin). A morbidly obese patient can experience an extreme drop in his blood glucose level despite having a large amount of adipose tissue.

That's why it's important to check your patient's blood glucose level at least four times a day or according to your facility's policy. Dietary management is also imperative. Teach your patient to eat small meals at regular intervals to help maintain his blood glucose level. Make sure he understands how to substitute sugars and carbohydrates with other foods. A consult with a dietitian can also assist your patient in trying to change his eating habits. But remember to be sensitive and understanding—eating habits are often difficult to change.

Immune

Morbid obesity can lead to effects on the immune system. If your patient has a weakened immune system, he may experience prolonged healing of wounds and incisions. Monitor his white blood cell count, erythrocyte sedimentation rate, and C-reactive protein level for indications of infection and inflammation. Assess any wounds for drainage, odor, redness, and edema.

Musculoskeletal

For the morbidly obese patient, even walking short distances may lead to respiratory difficulty and fatigue. Simple acts such as bending and lifting may be cumbersome. The disuse of muscles can lead to atrophy and muscle weakness; bones may become brittle, making the patient prone to fractures.

If your patient is ambulatory, do these things:

- Encourage him to perform as many activities of daily living as possible.
- Encourage active range-of-motion (ROM) exercises at least three times per shift while your patient is awake or according to your facility's policy.
- Assist with ambulation. Watch for signs of fatigue and respiratory distress.

If your patient is on bed rest, do the following:

- Perform passive ROM exercises according to your facility's policy to maintain circulation and prevent joint stiffness.
- If needed, request a physical therapy or occupational therapy consult.

Dermatologic

Skin care is a challenge for the morbidly obese patient because of a large amount of skin folds that trap perspiration. The risk is high for skin breakdown, irritation, and odor. Fungal infections may occur due to irritation and moisture under the skin folds. Morbidly obese patients are also prone to cellulitis (a bacterial infection of the dermis and subcutaneous tissue) due to decreased circulation and comorbidities such as diabetes and a compromised immune system.

To prevent skin breakdown, do the following:

- If possible, place your patient in a bed designed specifically for obese patients. These beds are usually padded to prevent pressure ulcers and have a larger width.
- With the help of additional staff members, turn him every 2 hours or according to your facility's policy.

- Assess under skin folds, particularly under the neck, breasts, abdomen, groin, and perineal area, for fungal infection.
- Avoid using tape if possible. Bandage rolls are just as secure and don't precipitate skin breakdown.

Keep in mind...

Other areas of concern when caring for a morbidly obese patient include medication administration and psychological issues. Let's take a closer look.

Obesity can affect the way a drug is absorbed, metabolized, and excreted. Severe obesity, high blood pressure, and diabetes all affect kidney function and drug elimination patterns, which may lead to the effect of the drug being lessened. And because of a large kidney mass, the rate of renal elimination in the morbidly obese patient increases if he's taking several drugs at once.

Morbidly obese patients are associated with many negative attributes, including laziness, poor hygiene, low intelligence, and poor social skills. Many of these patients face insulting comments from health care workers, leading to feelings of embarrassment, guilt, and humiliation. A low self-esteem is the result of continued negative comments. Always remember to treat your patient with respect and dignity and encourage and praise him as needed. (In some states, rude, hurtful comments that cause undue stress on a patient are reportable to the board of nursing.) If your patient is experiencing emotional issues, request a consult with a social ser-

Calculating BMI

The body mass index (BMI) is used to determine who's overweight. The BMI score is at the intersection of height and weight. A score of 25 or more is considered overweight; 30 or more, obese; and 40 or more, morbidly obese.

$$\text{BMI} \quad \frac{703 \quad \text{weight in pounds}}{(\text{height in inches})^2} \quad \text{OR} \quad \frac{\text{weight in kilograms}}{(\text{height in meters})^2}$$

25 Overweight Limit Overweight

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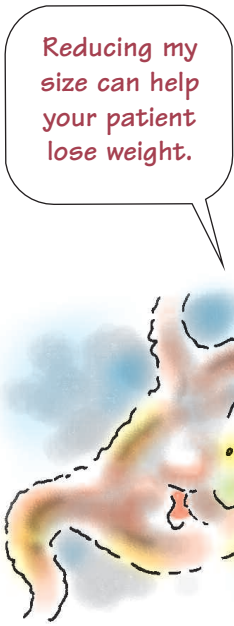


vice worker, nurse practitioner, or clinical nurse specialist who's certified in the care of these patients.

Plans for the future

Is there anything you can do to help your patient lose weight? A combination of diet and exercise or surgery are options. Here's what you need to know.

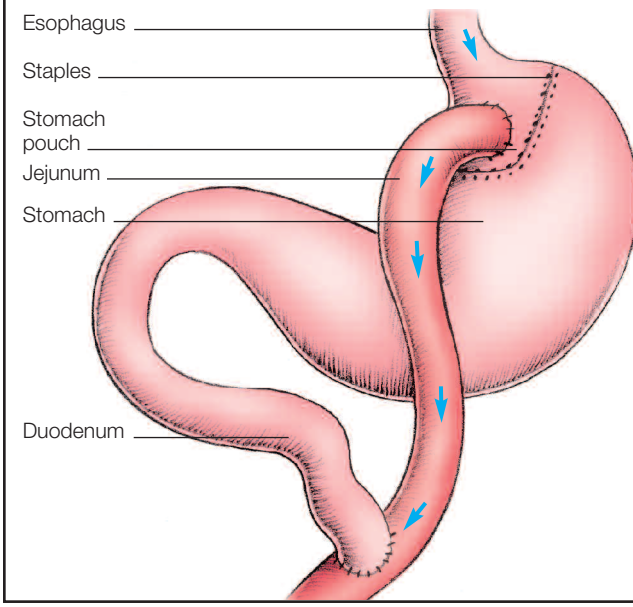
Dietary considerations for the morbidly obese patient focus on cutting down the amount of fats and carbohydrates he consumes. The dietary regimen must include an exercise program. If your patient has difficulty adhering to a diet plan or has trouble exercising due to fatigue, a medication, such as orlistat (decreases intestinal fat) or sibutramine (decreases appetite), may be prescribed to assist with weight loss.

If your patient is still having difficulty losing weight, then gastric bypass surgery or gastric banding may be his only option (see *Picturing bariatric surgery*). During gastric bypass surgery, which may be performed by laparoscopy or laparotomy, a small stomach pouch is created and connected to the upper portion of the small intestine. During the laparoscopic gastric banding procedure, a silicone band, known as a lap band, is placed around the stomach, creating a smaller pouch. The band is adjustable and can be removed if needed. Adverse effects of these surgeries include dumping syndrome (diarrhea during and right after meals), infection, leaking at the surgical site, and incisional hernias.

Picturing bariatric surgery

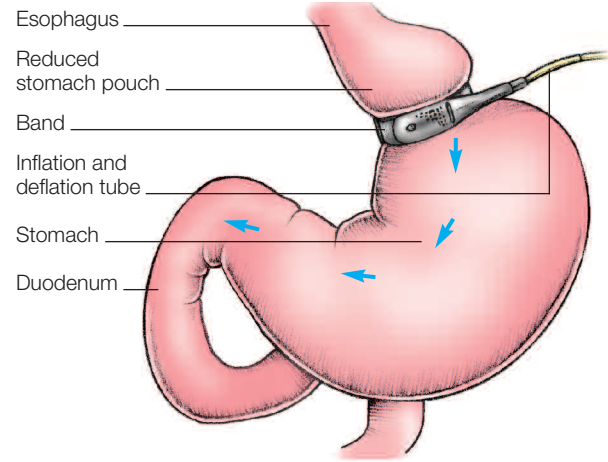
Gastric bypass

In gastric bypass, the surgeon uses sutures and staples with anastomosis to the jejunum to create the reduced stomach pouch.



Adjustable gastric banding

In gastric banding, the surgeon places a band around the top of the stomach to create the reduced pouch; the tube attached to the band is then inflated 4 weeks postoperatively.



All sizes welcome

Caring for a morbidly obese patient is often difficult due to the complexity of performing a thorough head-to-toe exam and the need for implementing proactive measures to prevent complications with repositioning and lifting. These patients often have multiple comorbidities, including depression from low self-esteem. But with your forward thinking, compassion, and respect, you can ensure that patients like Mr. Morgan receive the care they need. ■

Learn more about it

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