

# Compression Fractures

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## FACTS ABOUT COMPRESSION FRACTURES

The spinal column consists of separate bones extending from the base of the neck down to the pelvis. The bones are called vertebrae (one is called a vertebra). When the body of one of the vertebrae breaks, it is called a vertebral compression fracture (or simply, compression fracture). In compression fractures, the bone actually cracks and collapses. The fractures occur more frequently in the thoracic, or middle portion of the spine, especially in the lower middle portion. When the bone collapses, the person actually becomes shorter. The front part of the vertebral body forms a wedge and if several vertebrae become fractured, the person may develop a curvature of the spine commonly called a "dowager's hump" or "widow's hump." Compression fractures occur most often in post-menopausal women and it is estimated that 40% of all women will have at least one before age 80.

## CAUSES

There are several different causes for compression fractures. Regardless of the underlying cause, the fracture occurs because more pressure is placed on the vertebral body than it can withstand. Most healthy people can withstand a great deal of pressure on the vertebrae without having a compression fracture.

### **Trauma**

There are several types of accidents that can cause a compression fracture. Falling or jumping from a substantial height can cause the fractures, especially if the person lands on his or her feet. Hyperflexion during an automobile accident can also cause a compression fracture.

### **Cancer or other illnesses**

Cancer in the bone can lead to compression fractures. This is true whether the cancer actually originated in the bone, or spread to the bones from another source. Prostate cancer, breast cancer, and lung cancer may all spread to the bones. Vertebral bone infection (osteomyelitis) can also lead to a compression fracture.

### **Osteoporosis**

Osteoporosis is the most common cause of compression fractures. This condition causes the bones to lose calcium and become thin and porous, sometimes becoming too weak to bear the normal pressure placed on them. As a result, the bone collapses, sometimes during normal activity. Osteoporosis develops over a period of years and is much more common among women than among men.

## SYMPTOMS

If the bone collapse is gradual, as is often the case with osteoporosis, the initial symptoms may be mild. In fact, the fracture may even go unnoticed initially. In most cases, however, the symptoms will be immediately evident. Common symptoms of a compression fracture include:

- **Pain** – Fractures can cause pain that is quite severe in some cases and only relatively mild discomfort in others. The pain may strike suddenly or build more slowly, occurring hours after the fracture. The pain is often in the middle or lower back and is almost always made worse by walking.

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- **Numbness, tingling** – If the fracture creates pressure on the nerves in the spinal column it may cause numbness and tingling of the extremities, especially the legs.
- **Weakness, limitation of movement** – Following a compression fracture the person's legs may feel weak. He or she may not have full range of motion in all extremities, especially in the legs.
- **Swelling** – Occasionally there may be swelling at the site of the fracture. It occurs more frequently in compression fractures caused by trauma than in fractures caused by osteoporosis or disease.
- **Shortened height** – When the vertebral body collapses the person's height is decreased. Multiple compression fractures can result in a loss of several inches in height.
- **Change in posture and balance** – When multiple compression fractures occur, the spine develops a forward hump-like curvature known as kyphosis. The curvature causes the shoulders to slump forward and affects the center of gravity. The abdomen may protrude as the person attempts to compensate for the change in normal balance. The kyphosis and resultant posture changes make walking more difficult and the person may have greater difficulty performing normal activities.
- **Urinary incontinence** – If the compression fracture occurs in the lower back and causes pressure on the spinal cord the person may have difficulty controlling his or her urine. However, most compression fractures are relatively stable and do not affect the nerves.

## TREATMENT

Because compression fractures tend to be stable, treatment focuses on pain control and maintenance of function. While every patient may be treated differently, the following are the most common forms of treatment:

- » **Pain medications** are often used to reduce pain. They do not help to heal the fracture; they simply help with pain control.
- » **Back braces** are commonly used to support the back and restrict movement. The braces are designed to keep the person from bending forward. The type of brace used takes pressure off the fractured area and allows it to heal. Braces for compression fractures are rather large and may be difficult for the patient to put on by himself or herself. The brace is worn whenever the patient is up and is usually worn for several weeks or longer.
- » **Physical therapy** is usually begun very soon after the fracture in order to facilitate ambulation and activity. The therapist will develop a home exercise program for the patient to increase strength and endurance. He or she will also teach the patient how to use any assistive devices that may be needed.
- » **Ice or heat** may be used for pain relief. Ice is usually used during the first week following the injury and heat may be used later. The ice packs or heat will be used on a scheduled, intermittent basis.
- » **Lifting and straining restrictions** may be in place to help prevent additional strain on the fractured vertebra. Patients should not lift heavy objects and should avoid straining during bowel movements.
- » **Surgery** may be required in selected cases of compression fracture, although it is not usually needed.
- » **Medication regimen for osteoporosis** may be undertaken if the fracture is due to osteoporosis. There

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are several types of injectable and oral medications that can help build bone tissue and delay the progress of osteoporosis. Some of the injections may be taken daily for a 2-year period. Medicare usually pays for the injections for post-menopausal women who have had a fracture due to osteoporosis.

## CARING FOR THE PATIENT WITH COMPRESSION FRACTURE

Care of the patient with a compression fracture will depend to a great extent on the cause of the fracture as well as the number of fractures the patient may have. The aide assignment sheet will outline the cares needed for the patient and should be followed carefully. The most common components of care include:

### ■ Assist with personal care

Most patients with compression fractures are not independent with activities of daily living (ADLs). This may be due in part to the pain associated with the fracture and is especially difficult if the patient is wearing a back brace. Home health aides should encourage the patient to participate as much as possible and assist as indicated on the assignment sheet.

### ■ Assist with application or removal of the back brace

Either the therapist or nurse will teach the aide how to apply and remove the back brace properly. If any questions arise, the aide should notify the supervisor before proceeding.

### ■ Carefully observe the skin

Patients with compression fractures may not be moving around as much as they did before the fracture. In addition, they may have more difficulty cleaning themselves after toileting. The home health aide should carefully observe the skin and report any opened areas or redness to the supervisor. If the patient is wearing a brace, it is especially important to check the skin at areas where the brace is making contact since there is increased risk of irritation at those points.

### ■ Encourage the patient to be as active as possible

Home health aides should find out exactly what activities are permitted and encourage patients to do as much as possible. Many patients are reluctant to move about because they fear another fracture. Others fear moving around will cause more pain. Still others are fearful of being off balance and falling. Home health aides can provide significant encouragement to such patients. Activity is especially important in patients with kyphosis. The abnormal curvature of the spine reduces the amount of space available for the lungs to fully expand so the patients are at risk of respiratory problems. Actively moving around can help reduce the breathing problems.

### ■ Assist with therapeutic exercises as assigned

For maximum benefit, exercises for strengthening must be completed consistently and correctly. The aides should carefully review the assignment sheet and follow the instructions carefully. If the patient refuses the exercises, the aide should contact the supervisor.

### ■ Assist with medications as assigned

Some of the oral medications should be taken 30 minutes before meals and only when the patient will be able to sit upright for at least 30 minutes following the medication. Some patients may self-inject daily medications, although

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sometimes the nurse must administer them. When home health aides are assigned to assist with any medications, they must follow the instructions carefully.

## ■ Be an empathetic listener

Many patients with compression fractures are depressed and anxious. They may be afraid of losing their independence and may fear what will happen to them in the future. They may have low self-esteem because of the kyphosis or balance problems. If they have osteoporosis, they may feel guilty because they didn't drink milk, or because they smoked cigarettes, or because they didn't exercise regularly and feel they are to blame for the osteoporosis. It is important to be a good listener and allow the patient to talk about his or her concerns.

## KEY POINTS TO KEEP IN MIND

- ✓ Compression fractures can be caused by trauma, cancer, or other illnesses, but the most common cause is osteoporosis.
- ✓ It is the collapsing of the vertebral bodies that causes the curvature of the spine called the "dowager's hump."
- ✓ The degree of pain associated with compression fractures can vary a great deal from patient to patient. Some patients may have only mild discomfort while others will have severe pain.
- ✓ Home health aides should never assist with application or removal of a back brace unless they have been trained and instructed to do so by the nurse or therapist.
- ✓ An appropriate exercise regimen is an important component in the treatment of compression fractures.
- ✓ Patients with compression fractures will almost certainly have lifting restrictions to which they should carefully adhere.

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## CASE STUDY

Lisa and Denise are home health aides who are attending an in-service program on compression fractures. Because they arrived early, they are chatting before the meeting.

Denise tells Lisa, "Heck, I don't need any program on compression fractures. I just had a patient with one and she was a royal pain. I learned all I need to know from her, thank you very much. She looked like a wicked ol' humpbacked witch and acted like one, too."

"Did she really have a hump on her back?" asked Lisa. "She sure did," Denise went on. "The nurse said it was because the bones in her spine collapsed. That's what compression fractures are, you know, the bones collapsing."

"Wow! I never knew that!" exclaimed Lisa. "Tell me more." Denise told her, "Listen, I'll tell you all about compression fractures and you can sleep through the in-service. The first thing is that they only happen to old women. Men don't get these fractures for some reason. And they're all cranky and don't want to do nothing for themselves. They just want to use you for a maid to wait on them hand and foot. They don't want to do their exercises, just want to sit around feeling sorry for themselves. When you take care of them, you have to learn how to put on this awful brace and it takes half the morning to get it adjusted just right. And when you help them out of bed, they talk about how tall they used to be. Can you imagine that? Just like they have shrunk or something."

The in-service instructor arrives at that moment, so Denise and Lisa turn their attention to the meeting.

## THINK ABOUT IT

Review Denise's comments.

- » Can you identify some statements she made that were accurate about patients with compression fractures?
- » Which of Denise's statements do you believe are wrong? How could you change them to make them correct?
- » Name several reasons you think Denise might benefit from an in-service program on compression fractures.
- » Think about some of your conversations with other home health aides. Do you tend to believe everything the other home health aide tells you about certain types of patients? Where is the best place for a home health aide to obtain information about a patient?

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DIRECTIONS: READ EACH QUESTION CAREFULLY. THEN, DETERMINE THE BEST ANSWER. CHECK THE CORRESPONDING BOX ON YOUR ANSWER SHEET. DO NOT WRITE ON THIS POST-TEST.

1. In which bones do compression fractures occur?
  - a. Pelvis
  - b. Metacarpals
  - c. Ankle
  - d. Spinal column
  
2. Which accidents are more likely to cause trauma-related compression fractures?
  - a. Gunshot wounds
  - b. Falls
  - c. Stabbings
  - d. Electrocution
  
3. Which of the following is not likely a symptom of compression fractures?
  - a. Pain, usually made worse by walking
  - b. Numbness and tingling of the extremities, especially the legs
  - c. Confusion and inability to recall recent occurrences
  - d. Changes in posture and balance
  
4. What is the most common cause of compression fracture?
  - a. Osteoporosis
  - b. Rheumatoid arthritis
  - c. Multiple sclerosis
  - d. Diabetes
  
5. Osteoporosis develops over a period of years and is much more common among women than among men.
  - a. True
  - b. False
  
6. Which of the following is not typically a part of the treatment for a patient with a compression fracture?
  - a. Pain medications
  - b. Daily insulin injections
  - c. Physical therapy
  - d. Back bracing

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7. What causes the "dowager's hump" often seen in patients with compression fractures?
  - a. Spending too many hours on a soft mattress after the fractures
  - b. Walking around with stooped shoulders because they are depressed
  - c. Collapsing of the vertebrae forming wedges
  - d. Sitting in a soft armchair all day long
  
8. Compression fractures are never caused by cancer.
  - a. True
  - b. False
  
9. Why is skin care such an important component of caring for patients with compression fractures?
  - a. They may have difficulty cleaning themselves.
  - b. They may not be as active as they were before the fractures.
  - c. They may have irritation from the back brace if one is used.
  - d. All of the above
  
10. Which of the following best describes the type of fracture that occurs in a patient with compression fracture?
  - a. Greenstick
  - b. Compound
  - c. Spiral
  - d. Collapse

— END —



# MONTHLY INSERVICE ANSWER SHEET

In-service Month \_\_\_\_\_ Year \_\_\_\_\_

Name \_\_\_\_\_ Date \_\_\_\_\_

1. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

2. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

3. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

4. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

5. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

6. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

7. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

8. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

9. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

10. a. \_\_\_ b. \_\_\_ c. \_\_\_ d. \_\_\_

