# Pulmonary Contusion

A pulmonary contusion is a deep bruise to the lung. It usually happens when there is a chest injury, such as from a car accident. It can also occur due to accidents that crush the chest or ribs.

The lungs bring oxygen into the bloodstream and removes carbon dioxide that the body cannot use. A pulmonary contusion causes the lung tissue to swell and bleed into the surrounding area. This interferes with the lungs' ability to function. The person feels short of breath because he or she is not getting enough oxygen.

## CAUSES

- Car accidents.
- Severe falls (especially from a high height).
- Being near an explosion.
- Sports injuries.
- Job injuries.
- Crush injuries (industrial, farming machinery, etc.)

## SYMPTOMS

- Shortness of breath.
- Fast breathing.
- Fast heart rate.
- Low blood pressure.
- Visible bruising on the chest.
- Chest pain.
- Cough.
- Spitting blood.

When the injury is severe, the symptoms may get worse over the first 24 to 48 hours. More serious symptoms may include:

- Blueness of the lips and/or nail beds.
- Sweating.
- Faintness and/or dizziness.
- Confusion.

## DIAGNOSIS

A pulmonary contusion is suspected when there is any kind of severe blow to the chest, especially when it is followed by difficulty breathing. The caregiver usually observes the person's breathing and checks the chest for bruised or swollen areas. A stethoscope is used to listen to the person's breathing.

Other tests may include:

- Imaging tests – These are tests that create pictures of the lungs and chest cavity. They may reveal broken ribs, a broken chest bone (*sternum*) or active bleeding. Possible imaging tests may include:
  - Chest x-ray. A x-ray might not show evidence of a pulmonary contusion for 1-2 days after the injury, so a chest x-ray may be repeated several times.
  - CT scan.
  - MRI.
- Pulse oximetry. This is a sensor that is put on a finger to measure heart rate and the amount of oxygen in the bloodstream.
- Arterial blood gases. This is a blood test that measures the amount of oxygen, carbon dioxide and acid in the blood.

## TREATMENT

Treatment is often given in an emergency department. Most people with a pulmonary contusion need to be checked over carefully because they may have other injuries.

Treatment may include:

- Pain medicine may be given. People with a pulmonary contusion usually have chest pain. This can make them breathe shallowly, which puts them at risk of developing a lung infection (*pneumonia*). Pain medicine

can help patients breathe more deeply.

- Fluids are usually given through an intravenous line in a blood vessel.
- Patients may be taught special breathing exercises to help them breathe deeply and avoid pneumonia. A device called an *incentive spirometer* can help patients make sure that they are breathing deeply enough.
- Oxygen may be needed if there is difficulty breathing and low blood oxygen may need to breathe oxygen. In severe cases, they may need to have a tube placed in their throat to help them breathe (*ventilator*).
- Surgery may be needed if a blood vessel continues to bleed uncontrollably or if the lung has been punctured.

## HOME CARE INSTRUCTIONS

- Take medication as told by your caregiver.
- Continue to do deep breathing exercises. Use the incentive spirometer if your caregiver tells you to.
- Follow your caregiver's instructions about when it is safe for you to return to your usual level of activity. This includes driving, work, school or sports

## SEEK IMMEDIATE MEDICAL CARE IF:

- You develop difficulty breathing that is getting worse.
- Your chest pain gets worse.
- You begin coughing blood.
- You notice wheezing that is new.
- Your lips or nail beds appear bluish.
- You develop a fever of 102.5° F (39.2º C) or above.
- You feel faint, dizzy or confused.

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