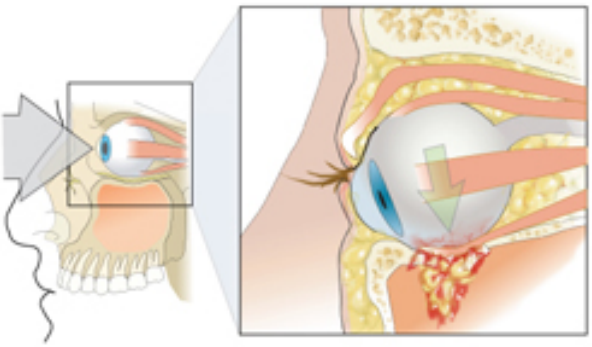
Orbital Floor Fracture
(Blow Out Fracture)

The eye sits in the boney structure of the skull called the orbit. The upper and outside walls of the orbit are very thick and strong. These walls protect the eye if the head is struck from the top or side of the eye. However, the inside wall near the nose and the orbit floor are very thin and weak. The boney floor of the orbit also acts as the roof of the air-filled space (*sinus*) below the orbit.

If the eye receives a direct blow from the front, all the tissues around the eye are briefly pressed together. This makes the orbital wall pressure very high. Since the weakest walls tend to give way first, the inside wall or the orbit floor may break. If the floor fractures, the tissues around the eye, including the muscle that is used to make the eye look down, may become trapped within the fracture as the floor of the orbit "blows out" into the sinus below.



© SEIF & ASSOCIATES, INC., 2009

CAUSES
Orbital floor fractures are caused by direct (*blunt*) trauma to the region of the eye.

SYMPTOMS
Assuming that there has been no injury to the eye itself, symptoms can include:

- Puffiness (*swelling*) and bruising around the eye area (black eye).
- A gurgling sound when pressure is placed on the eye area. This sound comes from air that has escaped from the sinus into the space around the eye (*orbital emphysema*).
- Seeing two of everything – one object being higher than the other (*vertical diplopia*). This is the result of the muscle that moves the eye down being trapped within the fracture. Since it cannot relax, the eye is being held in a downward position relative to the other eye and cannot look up. Vertical diplopia from an orbital floor fracture is worse when looking up.
- Pain around the eye when looking up.
- One eye looks sunken compared to the other eye (*enophthalmos*).
- Numbness of the cheek and upper gum on the same side of the face with the floor fracture. This is a result of nerve injury to these areas. This nerve runs in a groove along the bone of the orbital floor on its way to the cheek and upper gums.

DIAGNOSIS
The diagnosis of an orbital floor fracture is suspected during an eye exam by an ophthalmologist. It is confirmed by X-rays or CT scan of the eye region.

TREATMENT
- Orbital floor fractures are not usually treated until all of the swelling around the eye has gone away. This may take 1 or 2 weeks. Once the swelling has gone down, an ophthalmologist will see if if the muscle below the eye is still trapped within the fracture.
- If there is no sign of a trapped muscle or vertical diplopia, treatment is not necessary
- If there is double vision only when looking up, a decision may be made to not do anything since most people do not spend a lot of time looking up. This may depend on the person's profession. For instance, a plumber or electrician may spend a large part of their day looking up and would therefore need treatment.
- If there is persistent vertical double vision even when looking straight ahead, the ophthalmologist may try to free the muscle in the office. If this is unsuccessful, surgery is often needed.

SEEK IMMEDIATE MEDICAL CARE IF:

You have had a blow to the region of your eyes and have:

- A drop in vision in either eye.
- Swelling and bruising around either eye.
- One eye seems to be “sunken” compared to the other.
- You see two of everything with both eyes open when looking in any direction.
- The two images get further apart when looking in a certain direction – especially up.
- You have numbness of the cheek and upper gums on the side of the injury.
- You develop an unexplained oral temperature over 102° F (38.9° C), or as your caregiver suggests.

Document Released: 04/07/2004 Document Re-Released: 04/18/2009

ExitCare® Patient Information ©2011 ExitCare, LLC.