fractures. They usually result from intense impact. These types of fractures often result from repeated blows against an object or ejection from a car at a high rate of speed. They may suggest child abuse.

Basilar fractures involve the bones at the base of the skull in either the posterior or anterior region. The bones involved are the ethmoid, sphenoid, temporal, or occipital bones and usually result in a dural tear. Because of the proximity of the fracture line to structures surrounding the brainstem, a basal skull fracture is a serious head injury. Approximately 80% of the cases may include clinical features such as subcutaneous bleeding over the mastoid process (battle sign), bleeding around the orbit (raccoon eyes), bleeding behind the tympanic membrane (hemotympanum), or CSF leakage from the nose or ear (Perheentupa, Kinnunen, Grénman, et al, 2010).

Open fractures result in a communication between the skull and the scalp or the mucosa of the upper respiratory tract. The risk of CNS infection is increased with open fractures. Open fractures that involve the paranasal sinuses or middle ear may lead to CSF leakage. They may have a skin laceration overlying the bone fracture called a *compound fracture.* Antibiotics are recommended to prevent osteomyelitis.

Growing fractures result from a skull fracture with an underlying dura tear that fails to heal properly. The enlargement may be caused by a leptomeningeal cyst, dilated ventricles, or a herniated brain. The majority of growing skull fractures occur before the age of 3 years old (Liu, You, and Lu, 2012). Physical examination reveals a pulsatile mass or enlarging and sunken skull defect.

Complications

The major complications of trauma to the head are hemorrhage, infection, edema, and herniation through the brainstem. Infection is always a hazard in open injuries, and edema is related to tissue trauma. Vascular rupture may occur even in minor head injuries, causing hemorrhage between the skull and cerebral surfaces.