Sinking skin flap syndrome

Sinking skin flap syndrome, also referred to as the "syndrome of the trephined," is a rare post-operative complication after a large craniectomy(1). Because of the large craniectomy, there is exposure of the intracranial contents to the atmospheric pressure. When the atmospheric pressure exceeds the intra cranial pressure, the skin flap presses on the brain tissue resulting in deranged cerebral blood flow, CSF (cerebrospinal fluid) flow and paradoxical herniation(2). Depending upon the degree of compression, patients might either be asymptomatic or may present with various neurological symptoms such as headache, seizure, altered mental status, hemodynamic instability, and dysautonomias.

Imaging features: Imaging modalities such as the CT and MRI can help not only in the diagnosis of these patients but also in the follow up, hence, preventing the complications associated with the sinking flap syndrome. Typical imaging features are marked inward concavity of the skin flap over the craniectomy site with the meningogaleal complex compressing the underlying brain parenchyma(2). Effacement of the cerebral sulci in the region with buckling of the gray white matter interface can be noted. Mass effect in the form of midline shift towards contralateral side and associated subfalcine brain herniation might be seen(3). Features of ventricular system compression in the form of effaced ventricles might also be seen.

Prognosis, treatment or therapeutic options: The treatment depends upon the severity of the presentation and the imaging features. In mild cases, conservative treatment can be done. Putting the patient in the Trendelenburg position can increase the intracranial pressure correcting the improper balance between the atmospheric and the intracranial pressure(4). Correction of the underlying causes such as manipulating ventriculostomy tubes might be needed. In severe cases with neurosurgical emergency, cranioplasty might be needed to restore the balance between the atmospheric pressure and the intracranial pressure(5).