Cartoid Blow out syndrome

- This is an extremely high risk condition associated with significant degrees of morbidity and mortality.
- This condition commonly results from invasion and destruction of cervical carotid vasculature from head and neck squamous cell carcinomas.
- Prompt diagnosis of this condition and active intervention is required

**CAUSES OF CAROTID BLOW OUT SYNDROME:**

1. **Aneurysms**
2. **Infections** – cause vasovasorum thrombosis leading on to necrosis of carotid walls.
3. **Secondary carcinomatous deposits** in cervical lymph nodes
4. **Following irradiation** for secondary carcinomatous deposits in the neck

- Free radicals caused during irradiation causes thrombosis of vasovasorum leading on to breakdown of carotid artery wall. Patients develop fibrosis and thinning of the carotid arterial wall leading on to blow out.

**TYPES OF CAROTID BLOW OUT SYNDROME**

- **Type I** : Is **THREATENED CAROTID BLOW OUT**. This condition occurs in patients who have their carotid arteries exposed due to soft tissue breakdown.
- **Type II** : Is **IMPENDING CAROTID ARTERY RUPTURE**. This type presents usually with history of sentinel bleeds from neck. This sentinel bleeding may precede ultimate blow out. This period is highly variable and can range from moments to months
- **Type III** : This type is characterized by **TORRENTIAL BLEEDING** due to rupture of carotid artery. This type carries the maximum mortality since the death is nearly instantaneous if not handled properly.

**MANAGEMENT**

- This entirely depends on the type of rupture.
- Threatened rupture or **Type I** blow out occurs due to exposure of the carotid artery. This stage can easily be identified on imaging. Imaging will reveal air surrounding the vessel, presence of adjacent abscess or tumor. CT and MRI will be of immense help in diagnosing this condition. Imaging will also reveal endoluminal irregularities.
- **A grading system has been proposed** to assess the severity of the lesion on imaging. It also helps in evaluating the vascular damage and also in deciding the optimal treatment modality.

- Grade 0: No evidence of vascular disruption as seen in imaging
- Grade 1: There is focal weakening / irregularity of the vascular wall
- Grade 2: In this grade there is pseudo aneurysm
- Grade 3: In this grade there is evidence of extravasation from the ruptured artery
- Carotid angiogram is virtually diagnostic of this condition.
MANAGEMENT

ARTERIAL LIGATION (type III carotid blow out)

ENDOVASCULAR THERAPY

There are two types of endovascular therapy available.

- Vessel occlusion or deconstruction
- Stent graft placement or reconstruction

Advantages of endovascular treatment:

- It requires lesser time
- It avoids unnecessary manipulation of previously irradiated neck
- General anesthesia is not necessary
- Before deciding on the type of endovascular therapy it is mandatory to perform a Baloon occlusion test to look out for risk of cerebrovascular accident if the internal carotid artery is temporarily occluded. If this test is negative then permanent occlusion may be contemplated without risking cerebrovascular accident. For lesions involving the external carotid artery this test is not mandatory as the risk of CVA following its occlusion is negligible.

EMBOLISATION

- Use of material for embolisation is decided depending on the site that needs to be occluded. Liquid embolisation material is not used to occlude the internal carotid / common carotid vessels because of the risk of migration of these materials into cerebral vessels predisposing to CVA.
- For embolising external carotid artery a combination of detachable coils and liquid embolising materials. These coils act as nidus and entraps the liquid embolising materials.
- The embolisation material should ideally cover the proximal and distal segments of the affected area of artery thus effectively excluding the affected segment from circulating blood.
- Type I carotid blow out syndrome can be best managed conservatively. Emphasis should be on to provide adequate cover to the exposed artery, and treatment of wound infections that may aggravate blow out.
- Maintenance of normal blood pressure should be a priority in these patients