Upper extremity exercise increases blood flow to the arm by reducing arterial resistance and can precipitate lateralizing symptoms of vertebrobasilar insufficiency among persons without sufficient collateral flow. This can help evaluate the 'steal' phenomenon during Doppler evaluation of the neck (Hennerici and Klemm, 1988).

Aggressive management of risk factors, such as hypertension, diabetes and tobacco use, is also essential for successful treatment of subclavian steal syndrome (Hennerici et al, 1988), percutaneous intervention is reserved for disabling symptoms. In one trial (Chimowitz and Lynn, 2005) warfarin was associated with significantly higher rates of adverse events and provided no benefit over aspirin. BJHM

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LEARNING POINTS

- Subclavian steal syndrome is caused by retrograde blood flow from the vertebrobasilar artery circulation to supply the stenosed subclavian artery territory causing vertebrobasilar insufficiency symptoms.
- Subclavian stenosis identifies a population that will benefit from aggressive secondary prevention. Percutaneous angioplasty and stenting is the favoured approach if conservative management fails.
- Duplex ultrasonography of the neck vessels and transcranial Doppler is more sensitive than conventional angiography for detecting flow reversal.
- In patients with neurological symptoms, other factors must be considered, most commonly concurrent carotid stenosis and neurovascular instability.
- Patients with arm numbness, claudication and isolated neurological symptoms should be examined for subclavian steal syndrome and followed up in order to prevent other neurological deficits.

Facial emphysema following nasal fracture

A young man presented with slowly progressive facial swelling of 5 days' duration, following a physical altercation. Examination revealed bruising and crepitation over the swollen area (*Figure 1a*). His vision was not compromised.

Computed tomography demonstrated facial subcutaneous free air associated with nasal bone fracture (*Figure 1b*). The patient was managed with antibiotics, advised to avoid nose blowing and to sneeze with his mouth open. The facial swelling resolved spontaneously over the following 48 hours.

Air entrapment in the soft tissues following cervicofacial injury is generally a benign condition. However, severe complications may arise following such injury. Potential complications include respiratory obstruction, pneumocephalus secondary to airflow into the anterior cranial fossa with subsequent meningitis, ophthalmic compromise, pneumomediastinum as a result of air penetration of the parapharyngeal space and localized necrotizing fasciitis. Management consists of prophylactic antibiotics, observation, early fracture fixation where necessary and appropriate management of the complications. BJHM

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Figure 1. a. Facial image showing left maxillary and periorbital swelling. b. Computed tomographic coronal image showing left facial emphysema and disruption fracture of the left nasal bone.