

## 5 Case Report

### Beauty Parlor Stroke Syndrome: Report of Five Cases

To the Editor. Concern for iatrogenic arterial injury was recently raised by the observation of stroke symptoms in two elderly women after shampoo treatment in a beauty parlor.' The hazard of sustained hyperextension and rotation on vertebral artery flow has not been previously addressed in the elderly population who are disproportionately at risk for cerebrovascular disease. The following five cases suggest that every adult should be made aware of the potential dangers of extreme and sustained neck posture during activities of daily living.

Report of Cases. CASE 1.-A 79-year-old woman developed vertigo during shampooing, followed by nystagmus and ataxia. Magnetic resonance imaging result was normal but magnetic resonance angiography with dynamic positioning demonstrated marked flow reduction at the atlanto-occipital junction of the right vertebral artery by left rotation and hyperextension . After this procedure, the patient's symptoms temporarily intensified and returned to baseline after 12 hours.

CASE 2. An 84-year-old woman developed slurred speech, weakness on the left side of her face, and strange behavior after shampoo treatment. Examination demonstrated a Wernicke's aphasia and right Babinski. Computed tomographic scan demonstrated left parietal infarction.

CASE 3. A 76-year-old woman developed nausea, vomiting, ataxia, and vertigo after shampoo treatment. Magnetic resonance imaging scan demonstrated microvascular infarcts and a prior magnetic resonance imaging scan identified left peduncle infarction. Her symptoms persisted in mild form and were intensified by rapid movements.

CASE 4. An 80-year-old woman developed dizziness, ataxia, and numbness on the left side of her face after shampooing. She performed daily neck exercises and was undergoing lengthy dental work. Magnetic resonance imaging scan demonstrated microvascular infarctions and brain-stem atrophy. Evidence of residual ataxia and hypalgesia persisted.

CASE 6. A 54-year-old woman developed dysarthria, dysphagia, and right-hand incoordination after protracted shampooing. Computed tomographic scan demonstrated right cerebellar infarction. Her symptoms improved slightly, but a

fixed deficit remained.

Comment. Mechanical impingement by neck rotation and hyperextension can produce vertebral artery flow reduction and hypoperfusion defects at the atlanto-occipital-distal vertebral artery junction. The compression has been hypothesized as being secondary to a downward shift of the contralateral atlas while the vertebral artery segment is fixed. Functional and morphological changes of stretching, occlusion, and dissection have been reported. Ref 2 Aside from the direct effect of mechanical occlusion, the role of intimal injury and stasis has been implicated in development of small thrombi and subsequent emboli with or without symptoms. Ref 3' Similarly, intra-arterial embolism has been reported with atherosclerotic disease of the vertebral artery origin. Ref 4. Thus, the provocation of neuronal ischemia (dizziness, vertigo, and ataxia) will depend on numerous factors, including the duration and force of movement, collateral circulation, atherosclerosis, hypoplasia, and cervical spondylosis. Detrimental effects of sustained positions and neck manipulation have also been reported in young subjects. Ref 5. By using dynamic magnetic resonance angiography, confirmation of unexpected sites of hemodynamic weakness can be identified.

This study suggests that the hanging head-hyperextended position may be an important independent risk factor for transient cerebral ischemia and stroke in elderly women. Public education directed especially at beauty salons should lead to avoidance of hyperextension positioning during shampoo treatment in elderly persons with substitution of a safe, flexed posture.

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