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Syndrome of the beauty salon/vertebrobasilar insufficiency: An increasingly rare but real danger to women

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Abstract
It is known as "beauty parlour syndrome" or "vertebrobasilar insufficiency" when a stroke is brought on by the simple act of having one's hair washed in a salon. It is a complex condition with a wide range of symptoms caused by an infarction in the vertebrobasilar artery system, as determined by clinicopathological analysis. Strokes that occur after the blood has returned to the brain account for around 20–25% of all ischemic strokes and continue to be a leading cause of disability and mortality. The diagnostic process is complicated by the fact that many of the symptoms and indicators associated with ischemia also apply to the anterior circulation. For this reason, it is crucial to identify the causes and symptoms of ischemia in the posterior circulation as soon as possible so that the most effective treatment may be implemented. Clinicians need to correctly diagnose the condition and adequately manage patients throughout the lengthy course of illness in order to preserve patients' quality of life and reduce healthcare expenses connected to this condition. In order to provide appropriate patient care and treatment approaches, this narrative review will centre on the etiology, pathophysiology, and natural history of PBS. The purpose of this analysis is to increase public understanding of beauty parlour syndrome so that affected individuals may receive diagnosis and treatment.

Keywords: vertebrobasilar insufficiency, stroke, and the "beauty parlor syndrome"

Introduction
Temporary neurological symptoms, known as "Beauty Parlour Syndrome," are caused by insufficient blood supply to the brain's posterior circulation via the vertebral and basilar arteries. An important conduit for post-brain circulation is the basilar artery. Double vertebral arteries meet at the intersection of the Pons and medulla, creating this structure. It is the vertebrobasilar network, formed when the vertebral arteries and basilar artery connect, that carries blood to the next segment of Willis' circle. The occipital cortex, thalamus, midbrain, medulla, and pons get blood from the posterior circulation, which is important for vision. Since different regions of the brain experience significantly reduced blood supply, the symptoms linked to "Beauty Parlour Syndrome" also vary. Strokes affecting the posterior circulation region account for about 20% of all strokes and have a much higher death and morbidity rate. Twenty-five percent of strokes and TIAs in the United States strike the area around the basilar vertebrae.

Synonyms and Alternate Forms
Saloon Sink Syndrome, Basilar Artery Occlusion, Global Cerebral Ischemia, Vertebrobasilar Circulatory Disorder, Vertebral Basilar Ischemia, Vertebro-basilar Insufficiency, and Vertebro-basilar Atherosclerotic Thrombotic Disease are all names for the same condition.

Background
A stroke brought on by shampooing one's hair at a beauty salon is known as "Beauty Parlor Syndrome" or "vertebrobasilar insufficiency" (VBI) in the medical community. Dr. Michael Weintraub first described Beauty Parlour Syndrome in the Journal of the American Medical Association in 1993 after observing five women who developed severe neurological symptoms as a result of prolonged neck deformation caused by sitting at salon washbasins. According to a report published in 1997 by British doctors in the medical journal The Lancet, a 42-year-old lady suffered a stroke while getting her hair cleaned in a salon. Slurred speech and numbness in her right side were the results of a stroke, according to the report written by two British specialists. Recent research into the causes of strokes has uncovered how salon wash basins can trigger carotid or vertebral artery tears by applying tension to the neck. Clinical investigations and neuroimaging data collected during the past two decades have significantly advanced our knowledge of the clinical characteristics, mechanisms, causes, therapies, and post-circulation ischemia prognosis.

Definition
Reduced blood flow (ischemia) in the brain's posterior circulation causes the transient symptoms known as "beauty parlour syndrome" or "vertebrobasilar insufficiency" (VBI).

Epidemiology
The vertebrobasilar system accounts for about 20% of all strokes and TIAs. Since the vertebrobasilar system carries 20% of all cerebral blood flow, it is not surprising that occlusions in this system account for 20% of all strokes. Fortunately, occlusions in the basilar artery are thought to cause only about 1% of all strokes. The male population is twice as likely to be affected. Many factors contribute to the disproportionately high rate of illness and death among African Americans. These include genetics, a higher prevalence of obesity, and health care delivery inequalities.

Etiology
Potential culprits include thromboembolism, atherosclerosis, and vascular dissection. The underlying mechanism is context-dependent. Certain factors, notably those that worsen atherosclerosis, put people at a higher risk of developing BPS. Smoking, hereditary factors, hypertension, age, gender, family history, and elevated blood fats are all contributors. Patients with a prior history of coronary artery disease or peripheral artery disease are likewise at a higher risk. Many cases of BPS can be traced back to the presence of persistent atherosclerotic plaque. Unilateral or bilateral BPS can also be caused by mechanical forces operating on the neck. BPS can be brought on by things like resting one's head back into a washbasin at a beauty salon, getting chiropractic adjustments, observing birds, shooting a bow, or stargazing. Heart diseases such as atrial fibrillation, bacterial endocarditis, vertebral artery dissection, and systemic hyper-coagulable states are other possible causes.

Risk Factors
The risk factors are very similar to those for stroke in general. Risk factors for Beauty parlor syndrome are similar to those which increase the risk of atherosclerosis, including,

- Male gender
- Genetics
- Smoking
- Hypertension
- Diabetes mellitus mellitus
- Hyperlipidaemia.
- Late-Life Crisis
- Hypertension
- Obesity
- Elevated lipid levels
- A sedentary way of life (sedentary)

In addition, patients with a history of various cardiovascular disorders, such as coronary artery disease, atrial fibrillation, endocarditis, arterial dissections, or hyper-coagulable states, are at increased risk for VBI.

Pathophysiology
Infarction can result from an embolism, just as it can from other causes of stroke. Hemodynamic insufficiency and embolism are the two main causes of ischemia, which leads to VBI (Figure 1). Emboli do not typically go into the vertebral arteries, unlike the carotid arteries. The aortic arch, the origin of the vertebral artery, and the proximal subclavian arteries are all possible locations for donor embolisms. Atherosclerotic disease, however, is the leading cause.

Embolism
The majority of the time, a thrombus that forms in the heart will make its way to the anterior circulation rather than the posterior circulation. The possible origin of VBI is atherosclerosis. plaques, pieces of which break off to create emboli [14]; emboli can also arise as a result of direct damage to blood vessel walls due to trauma, compression, and, in rare cases, fibromuscular dysplasia, aneurysm, or dissection. As the leading cause of embolic infarction, they are a major risk factor for atrial fibrillation.

Hemodynamic
Symptoms are often repeatable and brief, and infarction is extremely uncommon when VBI is caused by hemodynamic insufficiency affecting the basilar artery or both vertebral arteries. Occlusion of either the vertebral arteries or the basilar artery might cause severe hemodynamic ischemia. Additionally, carotid circulation via the circle of Willis' posterior communicating artery will only partially contribute. Antihypertensives, faulty pacemakers, and vasculitis are also risk factors for traumatic brain injury (TBI). Other vascular occlusions, such as Subclavian Steal Syndrome, can also cause VBI by diverting blood flow away from the brainstem and towards the vertebral artery, the conduit with the least resistance.

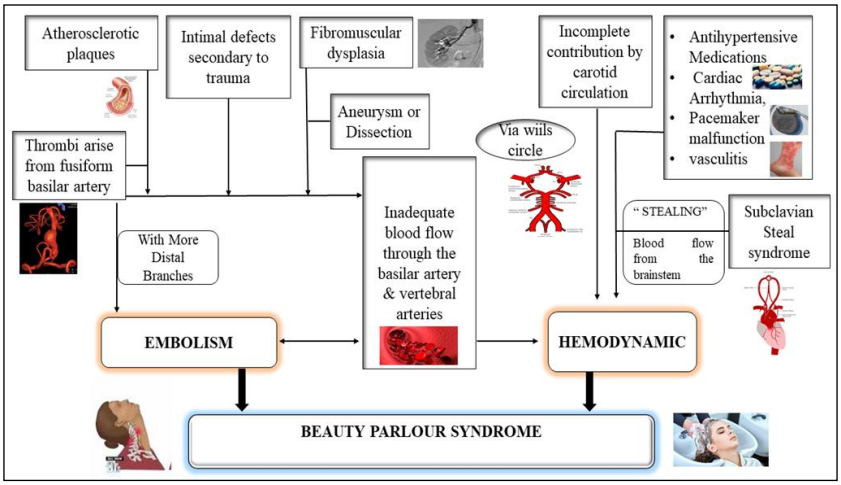

Fig 1: Pathophysiology of Beauty Parlor Syndrome.

Clinical Presentation

Variable symptoms, including decreased blood flow and sometimes referred to as vertebrobasilar insufficiency (VBI) or basilar vertebral ischemia, are attributed to the many different brain areas that are affected by vertebrobasilar illness (lack of blood flow to an organ). Ischemia in different regions of the brain fed by the posterior circulation leads to BPS symptoms.

The symptoms include

- Vertigo (the most prevalent symptom) (the most common symptom)
- A minimum of one episode of dizziness or syncope is experienced by 60% of patients with VBI.
- Patients experience "drop attacks," in which they suddenly feel dizzy and weak in the knees, causing them to collapse.
- Blindness or diplopia
- Paresthesia
- Confusion
- Dysphagia/dysarthria
- Headache
- altered state of mind
- Ataxia
- abnormal motor weakness on the opposite side
- temperature drop and discomfort
- Incontinence

Involuntary brain movement disorder (VBI) frequently causes vertigo. It's also a major indicator of peripheral vestibular diseases, which are generally safer. Most patients exhibit the classic symptoms, which are altered states of consciousness and localized motor weakness. Pupil abnormalities, oculomotor symptoms, and pseudo-bulbar manifestations (facial palsy, dysphonia, dysarthria, and dysphagia) are observed in greater than 40% of patients. Despite the fact that the symptoms of a VBI can last anywhere from a few seconds to an hour, VBIs are technically classified as transient ischemic attacks and must resolve within 24 hours.

Diagnosis

Vertebrobasilar insufficiency evaluation begins with a thorough history and physical examination, with a focus on the cardiovascular and neurological systems. Establishing the location of the vascular lesion and determining if urgent intervention is needed to accomplish recanalization are the key goals of the evaluation.

A full blood picture, blood urea nitrogen (BUN), creatinine, lipid profile, international standardized ratio (INR), activated partial thromboplastin time (aPTT), and prothrombin time are examples of limited-value laboratory tests (PT). While deficiencies in protein C, protein S, or antithrombin III are often cited as causes of thrombosis, this condition most often manifests itself in the veins. Arrhythmias that may have a thrombotic cause can be screened for with the use of an ECG.

Arteriographic imaging of the vertebral and basilar arteries is essential for diagnosis and therapy. The following imaging tests are necessary for a VBI diagnosis:

1. The initial imaging test is often a computed tomography (CT) scan. Larger areas of ischemia insult may be easier to spot on a CT scan. The CT scan has excellent bleeding detection sensitivity. However, CT scanning is less successful in evaluating the brainstem, cerebellum, and posterior circulation and has a limited sensitivity for early ischemia.
2. CT angiography (CTA): CTA will yield good images of both intracranial and extra-cranial vessels, but the use of ionizing radiation and a nephrotoxic contrast medium makes it less acceptable in older patients with renal failure and in young adults due to radiation exposure.

3. Magnetic resonance angiography (MRA): An MR angiogram can non-invasively pinpoint the location of a clot in a blood vessel.
4. The optimum imaging modality for any posterior fossa lesion, including acute ischaemia infarction, is magnetic resonance imaging (MRI).
5. Contrast-enhanced MRA is preferred for diagnosing extra-cranial vertebral arteries because it is less reliant on flow phenomena and more accurate in appraising stenosis. Intracranial MRA is usually sufficient for evaluating vertebrobasilar arteries.

MRI/MRA is more sensitive than CT scanning for the early diagnosis of ischemia and vascular blockage. Other disorders, such as a brainstem cavernoma or cerebellopontine angle lesion, can be definitively diagnosed by MRI. This includes acoustic schwannomas and dermoid or epidermoid cysts. Although it has its limitations, duplex ultrasonography can also be used to detect anomalies in the vertebral artery.

Differential Diagnosis

When assessing the diagnosis, it's vital to think about other possible causes that could account for the patient's symptoms. Labyrinthitis, vestibular neuronitis, meningitis, basilar migraine, cerebellar hemorrhage with brainstem compression, benign paroxysmal positional vertigo, cerebellar infarct or hemorrhage with edema, subsequent fossa lesions including metastatic disease, and supratentorial mass lesions with mass effect, herniation, and compression of the brainstem are all possible causes of vertigo. Hypoglycemia, Todd paralysis, and conversion disease are all potential mimics.

Management of beauty parlor syndrome

Treatment typically entails making adjustments to one's way of life. The treatment for a VBI is highly dependent on determining what caused it. For example, if the patient is an elderly patient who has suffered a "drop attack" with associated head or other injuries, the patient should be advised to sit down if he or she experiences lightheadedness or changes in vision. Common precipitating factors include postural changes, exercise, and dehydration.

Vertebrobasilar disease treatment is time-sensitive, just like care for anterior circulation ischemic strokes, and a multimodality strategy is necessary for secondary prevention of all ischemic episodes.

Once neuroimaging has ruled out hemorrhage as the origin of the vertebrobasilar insufficiency, anti-platelet (Aspirin or clopidogrel) and anticoagulant (warfarin) drugs may be advised to avoid episodes if hyper-coagulability was the underlying cause.

Non-Pharmacological Therapy

Ischemia in the brain's posterior circulation can be treated using a wide variety of medicinal, interventional, and surgical techniques.

Substantial Alterations to One's Way of Life

Modifying one's way of life is the first step in the non-pharmaceutical treatment of vertebrobasilar disease.

- Adjustments to one's diet
- Stopping Smoking
- Keeping blood sugar levels steady is essential.
- Exercising on a Regular Basis
- The Management of Diabetes
- Rehydration

Alternatives to Open Surgery

Treatments for vertebro-basilar insufficiency can be surgical, including

- Endarterectomy
- Surgical rerouting or bypass grafting
- Surgery to repair the vertebral artery
- Stenting and angioplasty

Surgery may be necessary in certain patients, and the alternatives include open surgical repair or endovascular repair, which often involves stent implantation through a catheter inserted in the groin. However, the ramifications of surgery on the vertebral arteries are still unclear.

Although angioplasty is frequently used to treat patients with basilar artery stenosis, its role in vertebral artery stroke remains unknown.

Prognosis

The severity of neurological symptoms, patient age, the presence or absence of arterial lesions, the site and extent of infarction, and other co-morbidities all play a role in the prognosis following a stroke caused by a blockage in the vertebral artery. An additional 10%–15% recurrence risk exists. Even mild strokes have a high mortality rate.Rehabilitating a patient who has survived a traumatic brain injury might take months, and even then, some neurological function may be permanently impaired.

Beauty Parlor Syndrome Complications

Significant difficulties associated with beauty parlour syndromes include:

- Vessel occlusion caused by a blood clot
- Difficulty breathing because of a clot in the lungs
- MI
- Pneumonia from aspiration
- Gastritis
- The medical term for pressure sores

Prevention of Beauty parlor syndrome

Atherosclerosis is the leading cause of vertebrobasilar illness; however, it can be avoided with the right measures.

- Stop smoking
- Consume foods that are low in fat and cholesterol.
- If you're overweight, you should try to lose weight.
- Doing regular exercise
- Treat high blood pressure by lowering it.
- If you have high blood sugar, lower it.
- Head Rest (head-neck cushion)

Conclusion

Vertebro-basilar insufficiency, sometimes known as "beauty parlour syndrome," arises when the neck is overstretched near a sink while washing hair, causing blood vessels in the neck to be extended and damaged. A potentially fatal stroke develops because of a lack of blood supply. The occipital bone of the client's head is supported by the Head Bed, an inventive head-neck mattress with an adjustable head support pad and a supplementary support mattress that relieves stress on the cervical spine. There is currently no study to back this up; however, isolated examples have been reported in medical publications. There is anecdotal evidence; however, no definitive correlation has been established, so it's encouraging that scientists are looking into the topic.

References

1. Kubik CS, Adams RD. Occlusion of the basilar artery. Brain,1946:69:73-121.
2. Savitz SI, Caplan LR, Vertebrobasilar disease N. Engl. J. Med,2005:352:25:2618-26.
3. Weintraub MI. Beauty parlor stroke syndrome: report of five cases. JAMA,1993:269:2085-2086.
4. Bolton PS, Stick PE, Lord RS. Failure of clinical tests to predict cerebral ischemia before neck manipulation, J. Manipulative Physiol. Ther,1989:12:304-307.
5. Nagel S. [Stroke due to acute occlusion of the basilar artery: Diagnosis and treatment]. Med Klin Intensivmed Notfmed,2017:112(8):679-686.
6. Spetzler RF, Hadley MN, Martin NA, Hopkins LN, Carter LP, Budny J. Vertebrobasilar insufficiency: part 1: microsurgical treatment of extra-cranial vertebrobasilar disease. Journal of neurosurgery,1987:66(5):648-661.
7. Lima Neto AC, Bittar R, Gattas GS, Bor-Seng-Shu E, Oliveira ML, Monsanto RDC *et al*. Pathophysiology and Diagnosis of Vertebrobasilar Insufficiency: A Review of the Literature. Int Arch Otorhinolaryngol,2017:21(3):302-307.
8. Ekker MS, Boot EM, Singhal AB, Tan KS, Debette S, Tuladhar AM, de Leeuw FE. Epidemiology, aetiology, and management of ischaemic stroke in young adults. Lancet Neurol.,2018:17(9):790-801.
9. Gorelick PB, Caplan LR, Hier DB, Patel D, Langenberg P, Pessin MS *et al*. Racial differences in the distribution of posterior circulation occlusive disease. Stroke,1985:16(5):785-790.
10. Baloh RW. Vertebrobasilar insufficiency and stroke. Otolaryngology—Head and Neck Surgery,1995:112(1):114-117.
11. Kjerpeseth LJ, Ellekjær H, Selmer R, Ariansen I, Furu K, Skovlund E. Risk factors for stroke and choice of oral anticoagulant in atrial fibrillation. Eur. J. Clin. Pharmacol.,2018:74(12):1653-1662.
12. Ausman JI, Liebeskind DS, Gonzalez N, Saver J, Martin N, Villablanca JP *et al*. A review of the diagnosis and management of vertebral basilar (posterior) circulation disease. Surg Neurol Int.,2018:9:106.
13. Buch VP, Madsen PJ, Vaughan KA, Koch PF, Kung DK, Ozturk AK. Rotational vertebrobasilar insufficiency due to compression of a persistent first intersegmental vertebral artery variant: case report. J Neurosurg Spine,2017:26(2):199-202.
14. Caplan LR. Vertebrobasilar embolism. Clin Exp Neurol.,1991:28:1-22.
15. Kim BJ, Sohn H, Sun BJ, *et al*. Imaging characteristics of ischemic strokes related to patent foramen ovale. Stroke,2013:44:3350-6.
16. Serena J, Marti-Fabregas J, Santamarina E *et al*. Recurrent stroke and massive right-to-left shunt: results from the prospective Spanish multicenter (CODICIA) study. Stroke,2008:39(12):3131-6.