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Introduction

Primary hyperhidrosis is defined as excessive sweating of idiopathic etiology, associated with sympathetic hyperactivity, which most frequently affects the hands, axilla, feet, and face. Treatment methods for primary hyperhidrosis include conservative treatment such as drug therapy, iontophoresis, and botulinum toxin injection therapy, and surgical treatment such as sweat gland removal and sympathectomy. Brachial plexus injury (BPI) after sympathectomy is reported to be a very rare complication with a prevalence of 0.02–0.06%. We report a 36-year-old man who developed brachial plexus palsy after endoscopic sympathectomy for palmar hyperhidrosis.

Case Presentation

A 36-year-old man with no specific past medical history visited the Department of Thoracic Surgery of our hospital complaining of hyperhidrosis of his palms. Antiperspirant and iontophoresis were performed at another hospital but were not effective. A bilateral R4 sympathectomy was performed to improve symptoms. The patient was placed in a supine position with both arms abducted and externally rotated. Immediately after recovery from anesthesia, however, the patient complained of numbness and weakness of his right arm. According to the Medical Research Council Grading System, the muscle strength was checked as grade 2 in the right shoulder, elbow, and wrist, and grade 3 in the hand. There were no specific findings on Cervical MRI, and electromyography was performed under suspicion of BPI. Electromyography showed suspicious brachial nerve palsy in the superior and middle trunk (Table 1, 2). The PMP22 gene test also showed no specific findings. The patient received physical therapy including strengthening exercises and electrical stimulation therapy. Two months after surgery, the symptoms were completely recovered.

Table 1. Nerve Conduction Study

Sensory nerve	Stimulation site	Latency (ms)	Amplitude (uV)	
Rt. Median	Wrist	2.6	37.5	
Lt. Median	Wrist	2.4	57.8	
Rt. Ulnar	Wrist	2.3	20.8	
Lt. Ulnar	Wrist	2.3	18.9	
Rt. LABC	Elbow	2.2	21.2	
Lt. LABC	Elbow	2.1	41.3	
Rt. MABC	Elbow	2.1	14.8	
Lt. MABC	Elbow	2.2	13.6	
Rt. Radial	Forearm	2.1	45.2	
Lt. Radial	Forearm	2.1	41.6	
Motor nerve	Stimulation site	Latency (ms)	Amplitude (mV)	Velocity (m/s)
Rt. Median	Wrist	3.6	18.0	62
	Elbow	6.5	16.4	68.8
	Axilla	8.1	16.0	
Lt. Median	Wrist	2.9	16.6	61.1
	Elbow	6.5	16.2	66.7
	Axilla	8.0	16.1	
Rt. Ulnar	Wrist	2.3	17.4	66.1
	Below Elbow	5.9	16.8	52.9
	Above Elbow	7.6	16.7	57.1
	Axilla	8.3	16.7	
Lt. Ulnar	Wrist	2.4	17.4	54.1
	Below Elbow	6.1	17.1	56.2
	Above Elbow	7.7	16.9	57.1
	Axilla	8.4	16.9	

Lt, Left; Rt, Right; LABC, Lateral antebrachial cutaneous; MABC, Medial antebrachial cutaneous

Table 2. Electromyography Study

Muscle	IA	Fib	PSW	IP
Rt. C5-6	-	-	-	
Rt. C6-7	-	-	-	
Rt. C7-T1	-	-	-	
Rt. Triceps	+	+	+	Reduced
Rt. Deltoid	+	-	+	Reduced
Rt. Biceps	+	+	++	Reduced
Rt. PT	+	+	+	Reduced
Rt. FDI	+	-	-	Reduced
Rt. APB	-	-	-	Normal

Rt, Right; PT, Pronator teres; FDI, Flexor digitorum indicis; APB, Abductor pollicis brevis

Conclusion

Brachial plexus palsy was developed after a short operation of less than 30 minutes. It was caused by the brachial plexus being compressed or stretched due to the abduction of the arm. The prognosis for this has been reported to be relatively good. To avoid these complications, the operator should be careful not to over-abduction the patient's posture during surgery.