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Bilateral common peroneal neuropathy due to rapid weight loss after biliary surgery - a case report

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Introduction

The causes of peroneal nerve injury are known as direct trauma, external compression, and traction injuries. In addition, damage to the peroneal nerve by the tumor, cyst, or the like can be considered. Also, weight reduction was identified as one of the causes of peroneal neuroapthy and was called Slimmer's paralysis. Slimmer's parallysis reported so far has mostly been caused by weight loss after bariatric surgery or due to anorexia nervosa or intentional dieting, and it is usually unilateral. However, bilateral common peroneal neuropathy after other abdominal surgery, especially biliary surgery, is never. We report a case of bilateral peroneal neuropathy associated with rapid weight loss during the postoperative period after biliary surgery.

Case

A 58 year old man was referred to the Department of rehabilitation medicine for a foot drop of both ankles that occurred about three months ago. The patient underwent laparoscopic cholecystectomy before 3 months of acute cholecystitis and second CBD resection with R-Y hepaticojejunostomy due to bile drainage. After the patient underwent two surgeries, at some point, the patient began to have symptoms of pulling his both ankle when he walked. The patient was 168 cm tall and weighted 68 kg (Pre operation BMI = 24.1). After two surgeries, his weight dropped to 58 kg for about one month. (BMI = 20.5, 0.33 kg loss per day). In the physical examination, the patient had a weak weakness of bilateral ankle dorsiflexion (right : 2/5 and left 0/5). The electromyographic finding was consistent with both common peroneal neuropathy, severe partial axonal injury, and around fibular head level. (Table 1,2) We performed blood tests to discriminate diabetes, thyroid dysfunction, vitamin B12 or folate deficiency, which may cause noncompressive peroneal neuropathy and all were normal. Ultrasonography showed no tumors or cysts along the nervous pathway from both buttocks to fibular head below. In left knee MRI, there was a finding of volume loss and edema at anterior and lateral muscular compartments. (Figure 1.) The patient underwent electrical stimulation in the bilateral tibialis anterior with basic rehabilitation. After 3 months, the patient's body weight returned to 62.2 kg (BMI 22.0), and both ankle dorsiflexions were recovered (right: 3/5 and

left: 1/5). I was not feeling a great discomfort. And he did not feel a great discomfort when walking without the use of orthoses.

Conclusion

In conclusion, any surgery that may result in rapid weight loss, as well as bariatric surgery, can cause slimmer paralysis paralysis and it must be careful.

Table 1. Motor Nerve Conduction Study of Lower Extremities

Stimulation nerve	Recording site	Latency (ms)	Amplitude (μV)	Conduction velocity (m/s)
Deep peroneal nerve				
Rt ankle	Rt EDB	4.55	2.2	42.1
Rt below fibular head		11.80	2.2	7.8
Rt fibular head		14.35	0.6	26.7
Rt above fibular head		15.10	0.6	
Rt fibular head	Rt TA	3.55	1.0	-
Lt ankle	Lt EDB	4.25	1.1	43.5
Lt below fibular head		11.60	1.0	8.2
Lt fibular head		14.05	0.1	-
Lt above fibular head		NR	NR	
Lt fibular head	Lt TA	4.00	0.3	-
Tibial nerve				
Rt ankle	Rt AH	3.90	14.8	44.2
Rt popliteal fossa		12.05	12.4	
Lt ankle	Lt AH	4.00	13.6	44.2
Lt popliteal fossa		12.15	10.9	

Rt, right; Lt, left; EDB, extensor digitorum brevis; TA, tibialis anterior; AH, abductor halluces, NR, no response.

Table 2. Needle Electromyography

Muscle	Spontaneous	MUAP			Recruitment
	Fib / PSW	Amp	Dur	PPP	Pattern
Rt. TA	2+	N	N	N	Discrete/Single
Rt. PL	2+	N	N	N	Discrete
Rt. EDB	1+	N	N	N	Discrete/Single
Lt. TA	2+	-	-	-	No activity
Lt. PL	2+	N	N	N	Discrete
Lt. EDB	2+	N	N	N	Single

MUAP, motor unit action potential; Fib, fibrillation; PSW, positive sharp wave; Amp, amplitude; Dur, duration; PPP, poly phasic potential; TA, tibialis anterior muscle; PL, peroneal longus muscle; N, normal.

Volume loss and edema at anterior and lateral muscular compartments in left lower leg
: c/w subacute to chronic common peroneal neuropathy.

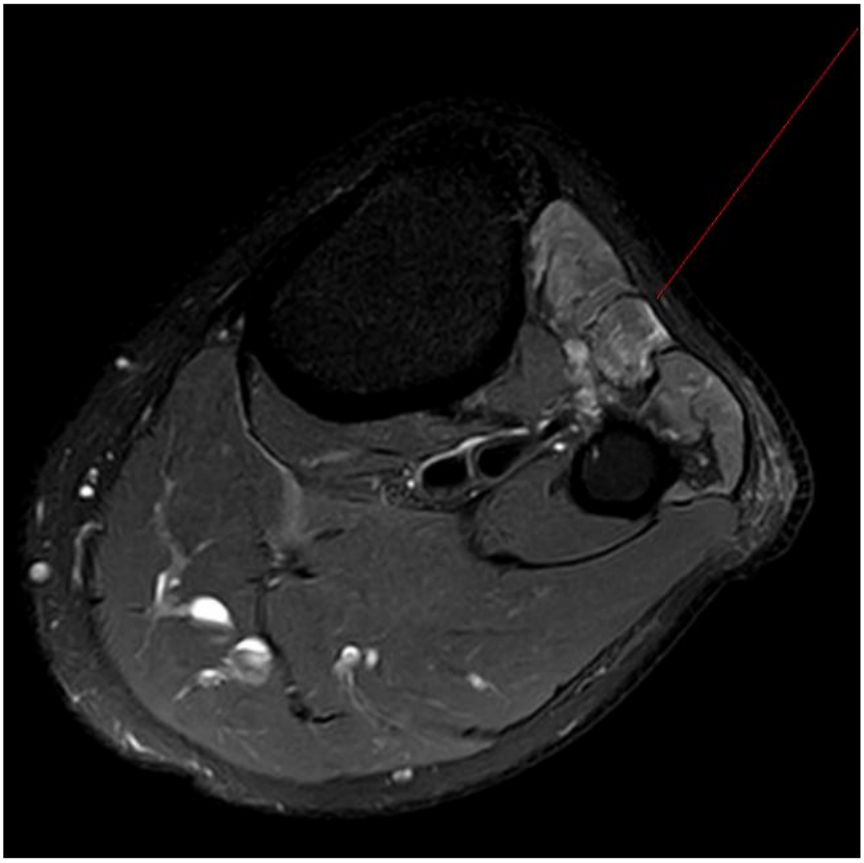

Figure1.