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Osteochondroma at distal forearm affecting both median and ulnar nerves: Report of a rare case

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Introduction

Osteochondroma are common benign bone tumor, constituting 15% of all bone tumors. It is usually asymptomatic and does not affect neuromuscular function. 50% of osteochondroma are found in the lower limbs. For the upper extremity, it is relatively often found in humerus, but rarely in hand or wrist. We report a rare case of large-sized osteochondroma at distal forearm level which Resulted in both median and ulnar neuropathy altering the course of the nerves.

CASE

The patient was a female office worker of age 43 and had hypoesthesia and numbness on the left index and middle fingers. She also complained abduction weakness on the left thumb. The symptoms started four years ago. The physical exam revealed an obvious atrophy on thenar muscle and the deformity on left wrist, 2ndand 3rd fingers. Motor power of thumb abduction measured by manual muscle test was grade two. The paresthesia was localized in median innervated area of the hand and the ulnar nerve innervated area was relatively spared. After taking X-ray (figure 1), she was consulted to the Department of Rehabilitation Medicine for electrodiagnostic evaluation to have differential diagnosis about neuropathy without CT and MRI image. At first, nerve conduction study (NCS) was done following the routine Methods of evaluating median and ulnar nerve. Abnormal findings were observed from both motor and sensory nerve in median and ulnar nerve. Assuming that the course of the nerves could have been altered due to osteochondroma, ultrasonographic evaluation was done for tracking actual nerve course. (figure 1) The actual course of median nerve shifted to the radial side from distal forearm and the compression of median nerve was observed in the ill-defined Carpal tunnel level. (Figure 2) With this information, we performed NCS again after drawing the direction of median and ulnar nerve on the wrist, and moved the stimulation sites toward proper directions. (Table 1) Median motor and sensory NCS showed no change with sono-guided stimulation. The latency of ulnar motor nerve ranged in normal limit with sono-guided stimulation. Electromyogram studies showed denervation potential at left abductor pollicis brevis and left opponens pollicis. Final electrodiagnosis was concluded as median motor and sensory neuropathy and ulnar sensory neuropathy. After hospitalization, the alternation of the nerve rout was confirmed again by MRI. The surgery was operated for two times with weekly interval, extirpating approximately 3*3*2cm of osteochondroma from wrist.

Conclusion

We present a rare case of an osteochondroma arising from distal ulna causing both median and ulnar neuropathy which has not been reported. As seen from the case, when evaluating neuropathy with the lesion which is suspected to alter the course of nerve direction, sono-guided correction to the routine NCS technique can be added for the accurate Results.

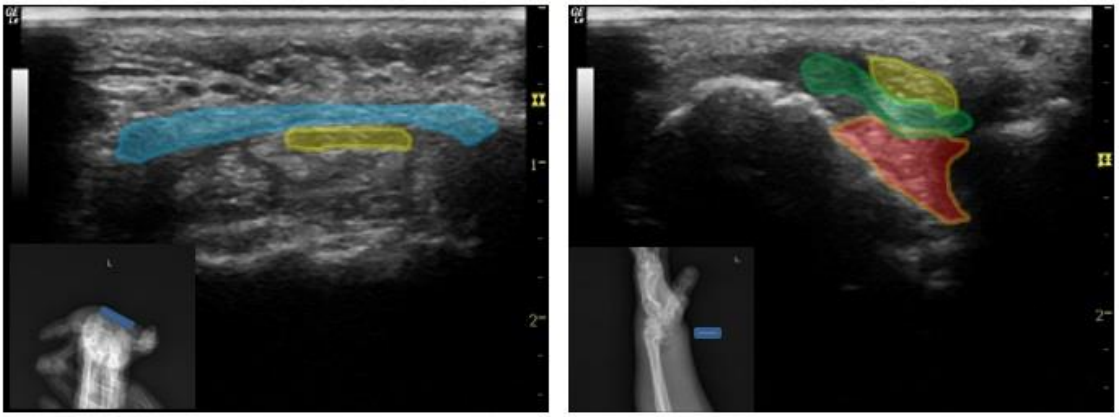
Table.1 Findings of electrodiagnostic study

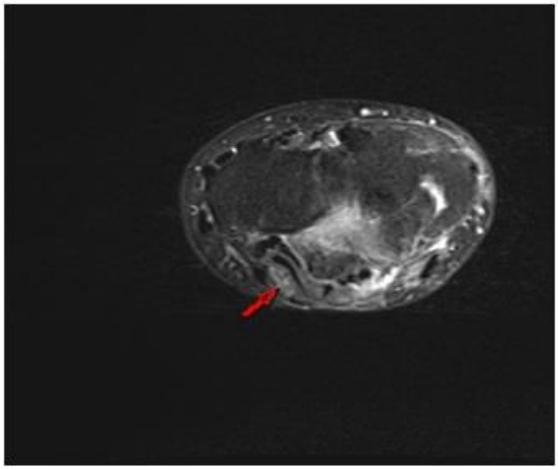
Motor nerve	Stimulation – Recording site	Method	Latency(mSec)	Amplitude(mV)
Lt. Median	Wrist – APB	Routine	Unobtainable	Unobtainable
		Sonoguided	Unobtainable	Unobtainable
Lt. Median	Wrist- 2nd LM	Routine	Unobtainable	Unobtainable
Lt. Ulnar	Wrist-ADM	Routine	3.7	8.3
		Sonoguided	3.1	10.5
Lt. Ulnar	Wrist-2nd LM	Routine	2.9	7.9
Sensory nerve	**Stimulation – Recording site**	**Method**	**Latency(mSec)**	**Amplitude(uV)**
Lt. Median	Wrist-1st finger	Routine	Unobtainable	Unobtainable
		Sonoguided	Unobtainable	Unobtainable
Lt. Median	Wrist-nd finger	Routine	Unobtainable	Unobtainable
		Sonoguided	Unobtainable	Unobtainable
Lt. Ulnar	Wrist-5th finger	Routine	3.9	21.4
		Sonoguided	3.5	20.2

APB, abductor pollicis brevis;ADM, abductior digit minimi;LM, lumbrical muscle;

A. altered course of median nerve estimated by ultrasonography
B. assumed course of median nerve in general population
C. altered course of ulnar nerve estimated by ultrasonography

Figure 1. X-ray and Picture showing altered course of nerve in left fingers and wrist.





(A) Sonogram of carpal tunnel level. [Yellow shadow – median nerve, Blue shadow – flexor retinaculum]
(B) Sonogram of wrist crease level. [Yellow shadow – median nerve, Green shadow –flexor tendon, Red shadow – osteochondroma.
(C) T2-weighted axial MR image demonstrating median nerve swelling.

Figure 2. Sonogram and MRI image of median nerve lesion.