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A rare case of ischemic monomelic neuropathy following arteriovenous fistula operation

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Case Study: Ischemic monomelic neuropathy (IMN) following arteriovenous fistula (AVF) operation in end-stage kidney disease (ESKD) is rare complication. It is characterized by acute onset of motor weakness and sensory change without ischemia following AVF operation. However, it can cause the permanent nerve damage without immediate surgical intervention. Therefore, early recognition of the symptoms is important to avoid irreversible nerve damage. We report a case of patient who presented with IMN which developed after AVF operation.
A 61-year-old man with diabetic ESKD was admitted for left brachiocephalic AVF operation. Two days after surgery, he complained of left hand pain and numbness. After then, his symptoms gradually worsened from postoperative 3rd day. He couldn't raise his hand and it became pallor, numb and hand grip was impaired over time (Fig. 1). Nerve conduction study (NCS) was performed that showed reduced compound muscle action potential (CMAP) above wrist of left ulnar nerve and absent CMAP above wrist of left median nerve. NCS also showed absent sensory amplitude in left median nerve and left ulnar nerve. The Doppler ultrasound study showed physiologic steal phenomenon, but it was not clinically significant. The radial arterial blood flow was also observed. Furthermore, neurological deficit was more severe than ischemia clinically. Consequently, we were able to diagnose it as IMN rather than vascular steal syndrome based on the having neurological symptoms and radial pulse without necrosis of the skin and muscles. Because artherosclerosis of the opposite arm was so severe, proximalization of arterial inflow (PAI) surgery was performed to redistribute blood flow while maintaining this AVF (Fig 2). Immediately after operation, his left hand became warm but his neurologic symptoms were sustained for several months even after PAI. He has received rehabilitation treatment steadily and neurologic deficit is improving.

Figure 1. (A) Left wrist drop, (B) Decreased grip strength

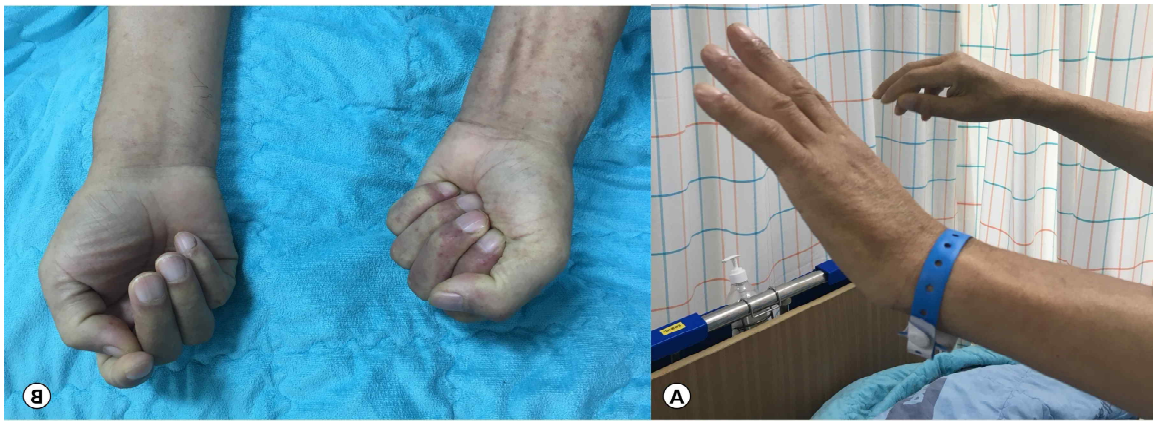

Figure 2. (A) Left brachiocephalic fistula, (B) Proximalization of arterial inflow using PTFE graft