Reported is a case of a 39-year-old man with medial medullary infarction following chiropractic neck manipulation. Neurologically, he showed right hemiparesis sparing the face, right deep sensory impairment and tongue deviation to the left in five hours after neck manipulation. A cranial MRI revealed an ischemic lesion in the left medial portion of the medulla oblongata. Cerebral angiography demonstrated no apparent organic lesion of the right vertebral artery (VA), but showed hypoplasia of the left VA. We suspect that the left medial medullary infarction occurred because of the reduced VA blood flow following the contralateral VA compression, in addition to the ipsilateral VA hypoplasia. This case is the first one reported in which medial medullary infarction was possibly induced by neck manipulation.