

with the aortic pressure. The patient did well and was discharged home within 10 days.

As a result of the detection of a marked difference in blood pressure between the two arms, use of the internal mammary artery was avoided, thus preventing potentially life-threatening complications due to myocardial ischemia caused by subclavian-coronary artery steal.² Of interest is an identical case³ in which similar findings were noted. We believe that the best way to avoid the use of the internal mammary artery in a patient with unsuspected subclavian steal is to have blood pressure measurements in both arms routinely measured prior to anesthesia.

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Anesthesiology
76:321, 1992

Symptoms Following Lumbar Puncture May Be Related to Decreased Cerebrospinal Fluid Pressure and/or Venous Dilation

To the Editor:—Kelly *et al.* described an occurrence of shooting pains down both arms into the hands of a patient following lumbar puncture (LP).¹ They are correct in stating that this is a novel development since extensive reviews of the subject have revealed no similar occurrence.^{2,3} Furthermore, as Marshall⁴ and Page⁵ found, major decreases in cerebrospinal fluid (CSF) pressure can exist without development of posturally induced headache. This is one of several reasons why data on the incidence of post-LP headache vary so much from one source to another.

Insofar as post-lumbar puncture nerve palsies are concerned (not actually demonstrated in the Kelly¹ account), those most frequent involve the Abducens nerve, bilaterally on rare occasions.² The usual explanation for this selectivity of the sixth cranial nerve relates to the relatively long intracranial course of this purely motor nerve rendering it susceptible to both pressure and stretch. Some ophthalmologists, however, attribute the palsy to an increased venous pressure as the nerve courses through the cavernous sinus. Venous dilation, to be sure, does occur in the central nervous system in compensation for a decrease in CSF pressure, also accounting for development of headache.

That the spinal cord may sag (as may the brain) may be a fanciful explanation for the temporary paresthesias noted by Kelly *et al.*¹ One should not overlook the possibility of prior cervical pathology temporarily revealed by a decrease in CSF pressure and the ensuing venous congestion: disc protrusion, spondylosis, pachymeningitis, and vascular malformation. The presence of a spinal cord tumor has been revealed for the first time after LP, most likely due to venous congestion. Post-LP headache is relieved by blood patch because of a considerable and abrupt increase in CSF pressure, which persists for some time. *Pari passu* venous pressure must also decline.

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In Reply:—Vandam raises several pertinent points. Our patient was not highly muscular. While it is certainly possible that pressure from cervical ribs may present symptoms described in our case, we do not

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(Accepted for publication November 4, 1991.)

It would be interesting to learn the physical characteristics of the patient described—highly muscular or asthenic—as might relate to pressure on the brachial plexus from cervical ribs. It would also seem cogent to extend the posthospital observation period and, if necessary, perform magnetic resonance imaging studies of the cervical spinal cord and column if symptoms reoccur.

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(Accepted for publication November 12, 1991.)

believe that an epidural blood patch would dramatically resolve the symptoms if they were caused by pressure from cervical ribs. The possibility of preexisting cervical pathology (revealed by a decrease in