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Reconstitution of obstructed ICA via collaterals.

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enhancement if only an enhanced study was obtained or if similar sections were not studied both before and after enhancement.

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Reconstitution of Obstructed ICA via Collaterals

Recently we encountered an unusual case in which a left internal carotid artery (ICA), occluded at its origin by atherosclerosis, was reconstituted in its cervical position by small anastomotic branches of the ascending pharyngeal artery. An initial angiogram demonstrated apparent occlusion of the left ICA at its origin. However, on late films, there was opacification with antegrade flow of the ICA, 3 cm distal to its origin. On the basis of the angiogram, we concluded that the left ICA was not completely occluded, but minimally patent, a condition described by Gabrielsen et al. [1] as "pseudo-obstruction."

At surgery, however, the proximal 2 cm of the left ICA proved to be a small fibrotic band without pulsations or blood flow, indicative of a chronic occlusion. Six days later, the patient was again referred for cerebral angiography to evaluate the left external carotid artery for a possible external-ICA bypass. This study demonstrated collateral flow via small branches of the ascending pharyngeal artery to the cervical portion of the ICA 3 cm distal to its occluded origin (fig. 1). The anastomosis probably occurred through hypertrophic branches of the vasa vasorum of the ICA.

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The "Third Pedicle" Sign in Oblique Lumbar Puncture

The technique of fluoroscopically controlled lumbar puncture is well known as a method for introducing contrast material into the subarachnoid space [1-4]. A midline puncture usually is made between the L2 and L3 spinous processes. Occasionally a midline puncture is impossible because of closely spaced spinous processes or postoperative scarring [5]; in these instances a paramedian or oblique lumbar puncture has been advocated [5-7]. The latter approach requires puncturing the skin at a point several millimeters from the midline and angling the needle so that it passes between the laminae and returns to the midline at the proper distance beneath the skin to be within the subarachnoid space. The angle of the needle varies according to the size of the patient and must be precisely chosen so that when the tip reaches the midline it will also be in the proper anteroposterior (AP) plane. The depth of the tip when it is approaching the midline cannot be accurately determined by AP fluoroscopy alone; lateral fluoroscopy or filming usually is necessary. The solution to this problem is to rotate the patient slightly so that by passing the needle in a vertical plane, the lumbar puncture will be made obliquely relative to the spinal column [5-7]. Beginning myelographers sometimes find it difficult to understand the anatomic landmarks fluoroscopically in the rather shallow obliquity required for this technique. We describe a quick and easy way of identifying the proper point at which to introduce the spinal needle when performing an oblique lumbar puncture under fluoroscopic control.

Technique. When it has been determined that a midline puncture is not feasible, the patient is asked to flex one knee and the ipsilateral hip slightly while remaining prone. This maneuver produces a slight rotation of the pelvis and lumbar spine. AP fluoroscopy at this time will show that the spinous processes have shifted slightly and the pedicles are slightly asymmetrical (fig. 1A). In addition, a ringlike structure usually can be seen between the spinous process and the larger pedicle. This ring, which itself may resemble a pedicle, represents the space between the two laminae; it is formed by the inferior margin of the superior lamina, the superior margin of the inferior lamina, and the cortical lines of the spinous process and pedicle. When this "third pedicle" can be seen, it serves as a very useful target through which to pass the spinal needle in a plane parallel to the central fluoroscopic ray (fig. 1B). The role of fluoroscopy then is

Fig. 1.—A, Left cervical carotid artery injection, early oblique view. Good filling of external carotid branches, including ascending pharyngeal artery (arrow). No filling of ICA. B, Late film from same injection. Reconstitution of cervical ICA (white arrows) 3 cm from its origin via branches of ascending pharyngeal artery (black arrow).

