In summary, we are concerned that the results described by Kasik, et al., are due at least in part to departures from the previously described protocol for delivery and stabilization of the neonatal rabbit pups. Indeed, our experience with this animal model and with others suggests that seemingly minor variations in described animal protocols can have major effects on experimental outcomes.

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References

Epidemiological Study of Gliomas

To The Editor: The paper by Morantz, et al., points out the need for nationwide epidemiological studies of brain tumors (gliomas) (Morantz RA, Neuberger JS, Baker LH, et al: Epidemiological findings in a brain-tumor cluster in Western Missouri. J Neurosurg 62: 856–860, June, 1985). A questionnaire including personal, environmental, genetic, and geographic data should be devised, and every new case of glioma should be registered. One would hope for discovery of a common pattern from the computation of the collected data.

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Timing of CT Scanning After SAH

To The Editor: The relationship between severe vasospasm and the severity of subarachnoid hemorrhage (SAH) as shown on computerized tomography (CT) scans has been widely accepted. However, caution is needed in evaluating the extent of SAH on the CT images, as exemplified by the following case.

This 55-year-old woman complained of sudden severe headache and nausea 1 week before admission to our hospital. She was immediately taken to a local hospital where she remained unconscious for 24 hours. Computerized tomography scans were taken twice, once on the day of admission, demonstrating SAH (Fig. 1 left), and again the next day (Fig. 1 right).

Neurological examination on admission to our hospital revealed ptosis of the left eye. The patient's consciousness was clear and no hemispheric signs were detected, but she complained of double vision. A four-vessel angiographic study was performed, which revealed an internal carotid-posterior communicating artery aneurysm on the left side. The aneurysm was clipped. The patient's postoperative course was excellent, although mild delayed ischemia, normal-pressure hydrocephalus, and a deep-vein thrombosis occurred.

The difference between the CT images is remarkable (Fig. 1). The scan on the day of SAH shows a diffuse thick high-density area in the basal cisterns (Fig. 1 left). The scan taken 24 hours later shows the same area as rather isodense (Fig. 1 right). According to Fisher's classification, severe vasospasm should almost invariably follow an SAH, while it is almost never encountered on the following day.

This case points out the need for serial CT examinations of patients with ruptured intracranial aneurysms if the findings are to be related to the occurrence of severe vasospasm.

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Reference

History of the Anterior Cervical Fusion Technique

To The Editor: I have just read the article by Bulger, et al., on vocal cord paralysis and anterior cervical fusion (Bulger RF, Rejowski JE, Beatty RA: Vocal cord paralysis associated with anterior cervical fusion: considerations for prevention and treatment. J Neurosurg 62:657–661, May, 1985). It is a very interesting and certainly valuable contribution. However, I have a few observations and constructive comments about certain errors in the text.

The opening paragraph of the paper is completely incorrect. It states that the anterior approach to the...
cervical spine was introduced by Robinson and Smith and popularized by Cloward. This statement has been made in the orthopedic literature since I first published my report on the anterior cervical operation and I have renounced it very much. At the time I developed my technique of anterior cervical disc removal and interbody fusion in 1956, I was unaware of the publication of Drs. Robinson and Smith, a fact I pointed out in my article published in 1962. My operation was conceived and developed as a neurosurgical procedure for the purpose of finding a new route into the spinal canal through which pathology anterior to the spinal cord could be removed: namely, disc protrusions and osteophytes. The cervical interbody fusion procedure was an outgrowth of my experience with lumbar interbody fusions, which I had been performing for 13 years before I devised the interbody fusion procedure for the cervical spine. Thus, the Cloward anterior cervical disc operation is an original neurosurgical procedure devised and perfected by a neurosurgeon without any prior knowledge or influence by any other surgeon with a similar idea. Robinson and Smith's operation is an orthopedic procedure designed to fuse the vertebral bodies. As a matter of fact, they adamantly taught that the intraspinal disc protrusions and osteophytes should not be removed, and that if the spine was fused the osteophytes would "go away."

The article by Bulger, et al., refers to my 1962 paper, stating that I had mentioned a 2% incidence of permanent hoarseness, presumably from vocal cord paralysis, following anterior cervical fusion. This also is incorrect. That article states that four (2%) of 200 patients had slight hoarseness, but concludes that "we believe this was due to the edema of the laryngeal muscles." In these four patients "the condition completely cleared within 1 to 6 weeks, without residual." Nothing was said about the patients having any permanent vocal cord paralysis.

Since reading the paper by Bulger, et al., I have quickly scanned the complications that have occurred in over 2000 anterior cervical operations I have performed, and I have had no cases with hoarseness since 1960. The four cases I described occurred in the early developmental stages of the operation. I am sure now that they were not due to recurrent laryngeal nerve trauma, but most likely were the result of hemorrhage and edema on the anterior surface of the spine postoperatively. When I started to use the Jackson-Pratt drain in all anterior cervical procedures, the removal of blood, serum, and edema from the front of the spine eliminated these sources of hoarseness.

Finally, the authors report that they use the cutting cautery to create an edge under which the sharp-tooth retractor blades are placed. May I suggest that they review the descriptions of my technique for the anterior cervical operation in which I stress very positively that, after the medial margin of the longus colli muscles are cauterized, these muscles should be stripped from their attachments to the bodies of the vertebrae above and below the disc as far laterally as possible (even out onto the transverse process). This permits the deep insertion of the tooth retractor blades and gives a much wider exposure of the intervertebral disc, which I believe is essential for proper removal of the lateral osteophytes. Bulger, et al., also indicate that they place the retractor blade teeth "into" the longus colli muscle (not into the esophagus). If the retractor blade is placed under a well detached longus colli muscle, the blades will never pull out and traumatize the esophagus.

Again, I commend the authors on their article and hope they take these comments as informative rather than critical.

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References


RESPONSE: We appreciate Dr. Cloward’s comments. We have reread his papers, and those of Smith and Robinson and it appears that priority for a published account of an anterior approach to the cervical spine belongs to Robinson and Smith, who presented a brief note in 1955. In their paper of 1958, they reported experience with 14 cases of anterior cervical fusion, the first of which was operated on in February, 1954. Dr. Cloward credits Exum Walker for showing him the first cervical discogram by an anterior approach in early 1956. He then states that he immediately began using discograms, and "it was while investigating discography on cadavers that I conceived the idea of an anterior approach to lesions of the cervical spine." In the discussion of Dr. Cloward’s 1958 paper, Dr. George Perret stated that he first heard of this operation in 1954 when Dr. Dereymaeker of Belgium visited various neurosurgical clinics in the United States. He later reported his experience with 34 cases (treated essentially by the same method as used by Smith and Robinson).

Dr. Cloward’s great contribution, for which he rightly deserves priority and for which we shall always be grateful, is the application of the operation to the treatment of spondylitic ridges producing myelopathy, lesions of the nerve root foramina, and trauma and tumors of the cervical spine. He is quite correct that Robinson and Smith’s operation has a limited application. It essentially is a curettage of the disc space,