Second, we are pleased to note that Dr. Ohaegbulam agrees with us that our reported pathological findings in the cerebral vessels are not pathognomonic of sickle-cell anemia (although entirely consistent with pathological findings from numerous other reports on the subject). The eventual vascular insult upon the cerebrovasculature created by the sickled erythrocyte is reminiscent of other vasculopathies and atherosclerosis. As we stated in our paper, the cerebral arteries may have a limited repertoire of manifestations to a variety of different insults. We stressed the importance of such a final common pathway of chronic cellular injury, and suggested that sickle-cell cerebral vasculopathy may present a paradigm for acquired aneurysm formation applicable to other acquired aneurysms.

Third, it appears that the trend for multiple aneurysms in African-Americans in Detroit reported by Ohaegbulam, et al., and in sickle-cell anemia reported by ourselves is consistent with the fact that blacks bear the brunt of sickle-cell anemia. Such an expected finding hardly calls for the note of caution urged by Ohaegbulam. What does call for a cautionary note is the finding of Ohaegbulam, et al., that three (1.8%) of 171 white patients and four (5.4%) of 73 black patients in their Detroit series had multiple intracranial aneurysms. This is clearly incongruent with the incidence of multiplicity of intracranial aneurysms estimated to be 15% to 20% in the aneurysm population at large (see the review by Weir). Extrapolating on the basis of these data to blacks in general is at best a courageous leap of faith and at worst may be misleading. Although the incidence of multiplicity of intracranial aneurysms in blacks was 5.4% compared to 1.8% in whites in Ohaegbulam's study, the reported incidence of multiplicity in sickle-cell anemia was 60% in our series and 47% in the published experience.

Fourth, we did not report in our series, nor do we currently perform, routine partial exchange transfusion prior to angiography. As we stated, this therapy is indicated to reduce the amount of hemoglobin S to less than 50% and to maintain the hematocrit at 30% to 35% (hemoglobin 9 to 11 gm/dl) during management of the patient's aneurysms. Most of our patients receive further exchange transfusion prior to surgery. Many patients managed early in our series underwent angiography before the availability of non-ionic contrast agents. While it is true that iopamidol, a non-ionic contrast agent, causes less sickling than meglumine iothalamate, an ionic contrast agent, the degree of sickling due to either agent is determined by the level of contrast medium in the blood. In vitro, a blood contrast level of 3.1 gm/dl results in significant sickling. Considering that during common carotid angiography the amount of contrast material has been shown to reach 33 gm/dl, there is the potential for enhanced sickling following administration of contrast agents in patients with sickle-cell anemia. Even less reassuring is the fact that enhanced sickling is but one of the many undesirable effects of contrast medium on blood and blood vessels. For example, contrast medium increases blood viscosity, reduces erythrocyte deformability, reduces blood flow, and may cause endothelial injury, all of which are deleterious to the patient with sickle-cell anemia. Use of magnetic resonance angiography may ultimately decrease the need for conventional angiography in this situation.

Finally, we are unaware of any "undisclosed factors" that Dr. Ohaegbulam suspects might have played a role in the genesis of our patients' aneurysms. Specifically, none of the patients had persistent carotid-basilar anastomoses, aortic coarctation, polycystic kidney disease, tumors, antecedent trauma, or overt connective-tissue disorders. Admittedly, two of our patients were sisters and we cannot exclude "familial" or unrecognized connective-tissue disorders.

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References


Intracranial Aneurysms in Sickle-Cell Anemia

To the Editor: We read with interest the article reviewing intracranial aneurysms in sickle-cell anemia by Oyesiku, et al. (Oyesiku NM, Barrow DL, Eckman JR, et al: Intracranial aneurysms in sickle-cell anemia:
hemoglobin S was less than 32%. Intraoperative systolic pressures were not lowered below 90 mm Hg. Hematocrit in the postoperative period was maintained in the range of 30% to 35%. During the postoperative course, serial hemoglobin electrophoresis monitored the ratio of hemoglobin A to hemoglobin S. Immediately following surgery, we maintained the patient on 3 liters/day of intravenous crystalloid solutions with Swan-Ganz monitoring of pulmonary artery diastolic and pulmonary capillary wedge pressures.

Cerebral aneurysms are a rare neurovascular complication of sickle-cell anemia. Subarachnoid hemorrhage can further complicate pregnancy and the postpartum period in these patients. We agree with the authors that close hematology involvement and strict fluid management are important adjuncts in this unique patient population.

**Reference**


**Response**: We thank Drs. Chalif and Decker for their interest in our paper. Their interesting case is reminiscent of Case 8 in our series, a patient with bilateral mirror-image posterior cerebral artery (P, segment) aneurysms.

We applaud their meticulous hematological monitoring and prompt appropriate therapy. Inattention to details of perioperative medical management in patients with subarachnoid hemorrhage in general, and sickle-cell anemia in particular, may result in preventable complications that confound a technically flawless operation.

**Mesencephalotomy for Cancer Pain**

To The Editor: I read with interest the publication by Dr. Bosch (Bosch DA: Stereotactic rostral mesencephalotomy in cancer pain and deafferentation pain. A series of 40 cases with follow-up results. J Neurosurg 75:747-751, November, 1991). Dr. Bosch's results in his group of seven patients dramatically support the message I have been trying to convey for years; namely that destructive surgery is not highly effective in treating the common constant causalgic or dyesthetic element...