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**A Comparative Study of Contrast Dacryocystogram and Nuclear Dacryocystogram**

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The technique of choice for evaluating obstruction in the lacrimal drainage apparatus is, at present, contrast dacryocystography (DCG). In this study, we compare contrast DCG with nuclear DCG in order to assess the accuracy of the latter procedure.

Twenty-one patients having symptoms of blockage were studied using both contrast and nuclear DCG. Approximately 200 mCi of pertechnetate in 0.01-0.05 ml sterile saline solution was used as an eye drop for each eye. Following instillation of the radioisotope in the conjunctival sac, the patients' eyes were scanned sequentially at 0, 5, 10, and 15 min. Both polaroid and conventional X-ray films were exposed. Physicians were only allowed to evaluate one of the two studies.

Twelve studies demonstrated obstruction in the lacrimal drainage system in both contrast and nuclear DCG. Seven had unilateral obstruction; five had bilateral obstruction. Five patients underwent dacryocystorhinostomy, and a postoperative scan also was obtained in this group of patients. Two studies were normal in contrast DCG and irrigation but abnormal in nuclear DCG (functional block). Two studies demonstrated anatomic discontinuity of canaliculus.

The procedure commonly employed at present to diagnose blockage in the lacri-

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Selected manuscripts from the issues of the Journal of Nuclear Medicine published 15 and 30 years ago.  
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mal drainage apparatus is radiographic contrast DCG. The major disadvantage of this technique is the requirement of catheterization of the canaliculi, thus, traumatizing the patient.

We observed a good correlation between these two techniques in all studies. In none of our cases did we observe abnormal contrast DCG but normal nuclear DCG. In two studies, there was a discrepancy, namely, normal contrast DCG but abnormal nuclear DCG. The reason for this discrepancy is that the contrast DCG is performed under manual injection pressure while nuclear DCG is a physiologic study mimicking the normal state of tear drainage. With contrast DCG, normal and extreme pathologic obstruction can be demonstrated. In functional block, however, such as in abnormal lacrimal pump or partial stenosis of the nasolacrimal duct, the nuclear DCG would be abnormal whereas the contrast DCG would be normal. Thus, contrast DCG, which employs direct catheterization of the canaliculi and injection under pressure, could create a false passage or open up physiologic or anatomic blocks—thus erroneously implying normality.

We therefore think nuclear DCG is superior to contrast DCG because it is an atraumatic procedure, provides better

diagnosis of functional and anatomic block, and delivers a smaller radiation dose to the lens and anterior chambers. ■

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**Half-Life**

Tapan K. Chaudhuri

Fifteen years ago, my brother and I were working separately on what were arguably the world's largest and smallest hole collimators. My elder brother, Dr. Tuhin K. Chaudhuri, and his colleague, Dr. James H. Christie, were working with a 44-mm diameter collimator, scanning the whole body with only 10  $\mu$ Ci of  $^{59}\text{Fe}$ . Their success was reported by the *Journal* in 1974. At the same time, I was busy trying to build the world's smallest pinhole collimator, featuring a 1-mm diameter hole, in order to scan the tiny nasolacrimal duct system.

After initial skepticism, the members of the ophthalmology community became very supportive of my efforts and began to utilize this new procedure, called nuclear dacryocystography (DCG), in patients. Diagnostic radiologists soon came to see that this method was superior to conventional contrast DCG, which was a relatively cumbersome procedure for the physician to undertake, and painful for the patient.

Fifteen years later, nuclear DCG remains an FDA-approved procedure for the evaluation of obstruction in the lacrimal drainage apparatus, and I believe that in the medical diagnostic armamentarium, nuclear DCG has not yet reached its half-life. ■