

# Letter to the Editor: Nerve Root Pathology and the V-sNCT

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## Abstract

### DEAR EDITOR:

I find the article Predicting Nerve-Root Pathology with V-sNCT (ISSN 1092 - 406X in the 2002 issue (Vol 6 #1), authored by Randall Cork, MD, PhD, et. al., to be particularly interesting. However, I would like clarification on a few points:

### QUESTIONS

Question 1. In the examples I can see that sufficient dye was injected so as to visualize the all the lower nerve roots. What volume was required to achieve this?

Question 2. The patient selection criteria is not clear. It isn't mentioned. Also, can I assume the examiners were blinded to other findings?

Question 3. The correlation between the graphs and films seems to be that the highest intensity (rating) correlates with the nerve root with restricted dye flow. Does this mean the analysis uses the patient his own control, so the highest intensity threshold is the significant finding? Is it true then that since there is no population data given for normal subjects, can I assume the V-sNCT results are independent of age, gender and population averages?

Question 4. What interventions were employed, and is there available data on the results of intervention; i.e. were followed up epidurograms and V-sNCT exams performed?

Sincerely,

Lanny Taub, MD  
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### AUTHORS' RESPONSE

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Question 1: As part of our standard epidurogram protocol, we inject 10 ml of dye. When this is done for a normal epidural space, the nerve roots are visible and appear like the branches of a Christmas Tree. However, if a nerve root has any kind of lesion, e.g, scar tissue, that specific branch does not light up under fluoroscopy. This procedure detects roots which do not fill and thereby identifies nerve roots we suspect to be compromised by scar tissue or other lesions.

Question 2: As stated in the Methods section, "patients with L5 or S1 radicular back pain scheduled for lysis of epidural adhesions were studied." We agree that this was not specific enough in the paper. In fact, we had been much more specific in our IRB application, but edited ourselves too much for brevity. The patients studied were sequential patients undergoing a neuroplasty procedure for back pain. The readers of the epidurogram, the readers of the V-sNCT, and the performers of the physical examination were all blinded to each other's findings. The study was randomized and double-blinded.

Question 3: These are all excellent observations in the form of questions. We believe these points to be the main message of the study. V-sNCT does provide a non-invasive test that can be use has a predictor with high correlation of what nerve root will have restricted dye flow. This is supported by the high sensitivity (95%), specificity (70%), and predictive value (91%) for nerve-root pathology, using the V-sNCT as the predictor. The increased ROC area under the curve and the higher relative risk of abnormal nerve roots with an abnormal examination also support the diagnostic advantage

of V-sNCT. This quality of prediction is independent of age, gender, and any other population descriptors with patients with back pain.

Question 4: The intervention employed was neuroplasty, also called lysis of adhesions. Follow-up epidurograms have not been done; however, follow-up V-sNCTs have shown improvement in those 70% of patients which have demonstrated clinical improvement. These data will form the basis of a long-term follow-up study.

In conclusion, the authors appreciate Dr. Taub's interest in what we are convinced is an excellent tool now available to us to help in diagnosing pain problems with significantly higher specificity than available from the neurological examination alone. We hope other pain practitioners will give this new tool a try. It is inexpensive, painless, and very helpful.

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