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MEDICAL DIVISION  
AUSTIN E GIVENS, M.D., F.A.C.S.  
DIPLOMATE AMERICAN BOARD OF SURGERY

1/27/80 Dr. Lerner  
copy to Dr. Lerner  
SF  
January 24, 1980

Sidney Lerner, M.D.  
College of Medicine  
231 Bethesda Avenue  
Cincinnati, Ohio 45267

Dear Sid:

I can't tell you how much I appreciate your thoughtful comments regarding the unusual case report I presented to you on the telephone.

For weeks now I have reviewed masses of information regarding individuals that have shown high lead-in-urine levels as a result of exposure to alkyl lead. I have reviewed our experience here, which has not been too helpful since we have had really superb control of organic lead exposure. The few instances that we have known about always followed the pattern you and I are familiar with.

Searching through all of the literature, and I mean the world literature, I could not find the answer to my question. Finally, I came upon in my file an incident that occurred elsewhere in 1976. In this incident, eight workers were removing sludge that was heavily contaminated with TEL, there was some defect in the respiratory protection system and all eight workers were heavily leaded. The usual pattern is seen, an abrupt rise in the lead-in-urine within two to five days of exposure with a rapid drop in lead-in-urine levels by the sixth to eighth day. Four of the cases were so typical that I am not sending that chart to you. I have removed the names of the individuals from the enclosed graph, but what you will see is that one of the two individuals whose lead-in-urine levels are shown in the upper graph peaked as we would expect on the fourth day then dropped rapidly by the sixth day, however went up slightly again by the tenth day and then dropped progressively. The other individual, however, is more interesting in that he could very well be duplicating the case I told you about, he peaked on the third day, dropped sharply by the fifth day, but then look what happened, he was very high again on the twenty-fourth day and then started dropping progressively. I spoke with the people that handled this problem and the workers involved, they assured me that all of this happened while all workers were having daily or twice daily lead-in-urine analyses, or on some occasions twenty-four hour urinalyses and none of the workers had been permitted to return to any alkyl lead exposure.

Now if you go to the bottom of the chart, again you will notice that one of those two workers peaked on the fifth day, dropped sharply by the seventh

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day and then peaked again by the twelfth day and then continued to drop progressively.

I think the worker I told you about probably had dropped to what I considered on two successive urinalyses to be acceptable, that is lead-in-urine levels of about 80 micrograms per liter of urine with adequate specific gravity, and then upon my allowing him to return to work peaked again in a week or two just as the two workers in the example I am sending to you. I am, therefore, as I told you in our telephone conversation keeping that worker out of the TEL operation entirely until his lead-in-urine levels drop below 60 micrograms per liter of urine and stay there for a couple of weeks. I then plan to allow him to return to the tetra-ethyl lead operation. It is important to note that this particular worker has always had excellent lead-in-urine control, maintaining a lead-in-urine level of about 30 to 35 micrograms per liter of urine over the past five years. Obviously he had some exposure and we have not been able to determine how that occurred.

It would seem to me that there must be, then, some individuals that peak in the usual fashion and for whatever reason peak again somewhere between two and three weeks later. Why this should happen I do not know, is it because they tend to retain the alkyl lead in some lipid tissue and then release it into the urine later or is there some enzyme depletion factor after the first peak that must be replenished before the second excretion takes place? I really do not know, but would like to hear from you if you have any other thoughts on the subject.

Mary sends her kindest regards.

With personal regards,

*Austin E. Givens, Secretary*  
AUSTIN E. GIVENS, M.D.

AEG:hlm  
Enclosure(1)

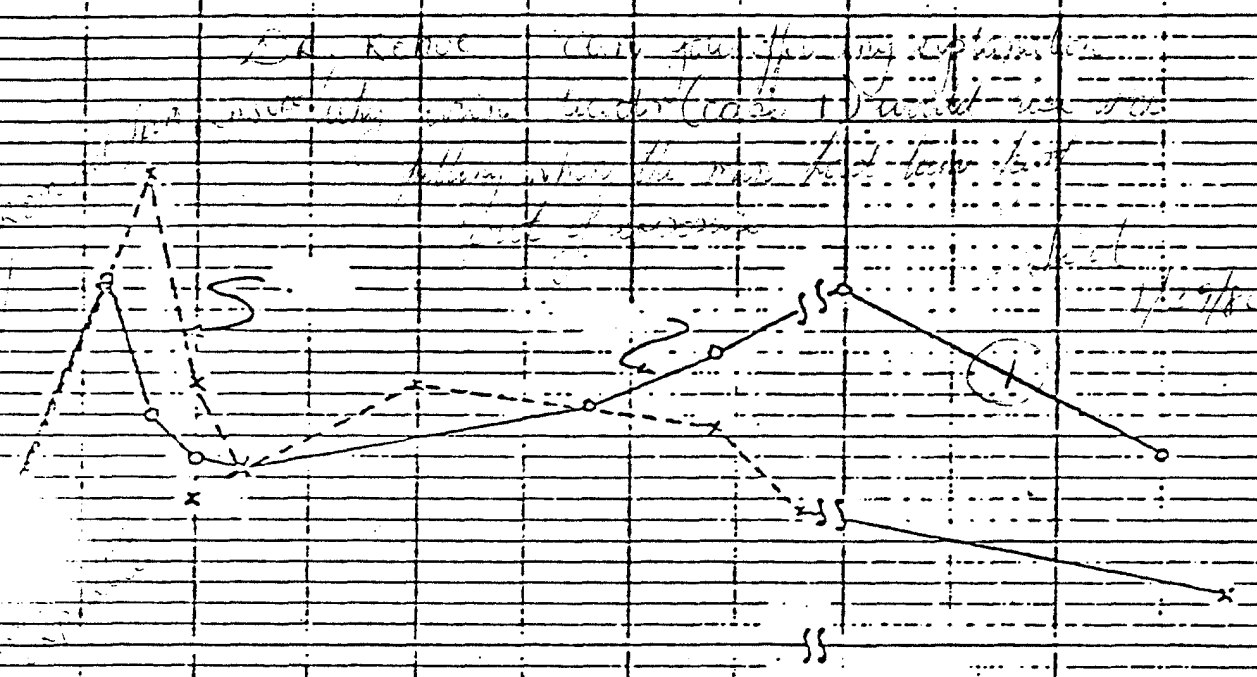
Dr. Givens is away on business; he has asked me to sign and mail this letter in his absence.

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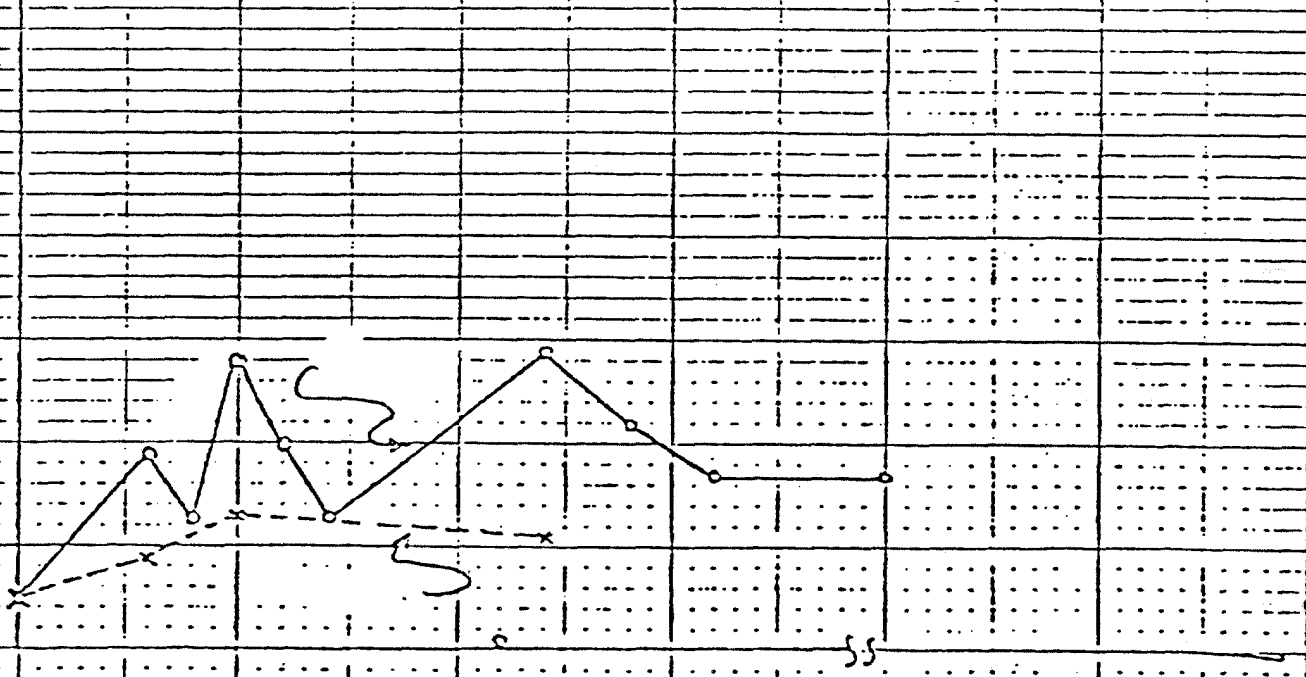
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