In January 1984, Johansen et al, ([1]) working with monkeys, found arachnoiditis after myelography and laminectomy.

This study is important because it negates the idea that the dye alone could not cause arachnoiditis, but only would do so in the presence of blood or trauma.

The authors found that arachnoiditis

"was as severe after myelography alone as after myelography and laminectomy."

"Severe arachnoiditis"

was found after iophendylate,

 "whether or not surgery was performed."

By 1984, we see Lafayette paying 3% commission on all direct orders for Pantopaque (5% of $500 net), which was obviously an incentive for its representatives to push the product.

Of course, these reps. would not have been cognisant of the animal studies performed by Hazleton.

Indeed, in June 1984, a message was sent from Hazleton to Alcon about obtaining Alcon's permission to publish an article about the clinical disease and death in the rabbit pyrogen studies using intravenous Pantopaque (which were not as damning as the intrathecal dog study).

Alcon's response is illustrative of the blatant disregard the company had of statutory and ethical requirements of them (and leaves us under no illusion as to their motive):

" R &D does not support publication by Hazleton...it cannot benefit Alcon in any way and may prove to be damaging to our product."

In the same year, whilst Lindgren in Sweden was giving a lecture in which he stated that oily based contrast media

"doubtless caused arachnoiditis",

and that it was

"clear that positive contrast media...can cause clinically significant arachnoiditis",

the FDA were investigating **Alcon**'s Puerto Rican facility, where raw materials were still being obtained from **Kodak**.

The FDA wanted to know why **incidents of patient reaction had not been included in the annual report** and were told that the company considered that the frequency of those reactions was not ?abnormal' and that in any case it was included in product labelling.

By this time, all sales reps. were given a copy of an article by Meador et al. ([2]) about cases of irreversible neurological damage after Amipaque; this was being used to highlight the so-called ?safety' of Pantopaque in comparison.

In December 1984, Smith and Wolpert ([3]) described the use of iophendylate to layer with Metrizamide for thoracolumbar imaging. Double jeopardy!

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[1] Johansen JG, Barthelemy CR, Haughton VM, Lipman BT, Ho KC AJNR *Am J Neuroradiol* 1 984 Jan-Feb; 5(1): 97-9 Arachnoiditis from myelography and laminectomy in experimental animals.

[2] Meador K, Hamilton WJ, El Gammal TA, Demetropoulos KC, Nichols FT 3rd. *Neurology* 1984 Jun; 34(6): 817-21 Irreversible neurologic complications of metrizamide myelography.

[3] Smith SP, Wolpert SM. *Radiology* 1984 Dec; 153(3): 821-2 Metrizamide-iophendylate layering technique for thoracolumbar myelography.