

In April 1983, an internal memo at Kodak demonstrated that the company was aware of legal activity involving iophendylate and also of the declining clinical popularity of the "mature" product.

Pantopaque was losing market share to the new dye, Amipaque: 1982 sales showed a 40% increase for Amipaque and a 16% decrease for Pantopaque.

Kodak proposed firstly raising the price of their product and secondly, submitting biannual reports enumerating outstanding legal cases.

One imagines this is the standard corporate practice?

Later in the same month, Newton, now designated Director of Sales and Marketing, recommended various revisions of the Physician package insert, including changing the phrase,

"occasionally severe arachnoiditis may occur"

to

"arachnoiditis may occur"

and adding

"arachnoiditis may be more frequent if Pantopaque is used after surgical procedure."

On the same day, Newton also sent a memo to Manufacturer Sales Representatives to emphasise that representatives should make clinicians aware that Pantopaque was not, as compared with its rival, associated with seizures.

He also wanted reps. to make use of an article by Chynn relating to techniques for removal of Pantopaque; Chynn apparently held the view that problems experienced tended to be due to technical procedure difficulties.

Newton did not fail to stress the element of financial gain, by mentioning commission and the major part that Pantopaque had to play in that commission.

Chynn was funded by Lafayette to write an article about a safe procedure for removal of Pantopaque, which was later published in the journal Radiology ([\[1\]](#))

In May, 1983: Junck and Marshall ([\[2\]](#)) stated:

"The most important adverse effects observed with myelographic agents include **acute and chronic meningeal reactions with iophendylate**, and seizures and transient encephalopathy with Metrizamide."

The same month saw Newton writing to a Dr. Gilmor (who only a year previously had expressed serious concern about the impact of Haughton's article) about Gilmor preparing an article which Newton characterised as "acceptable to us" (favourable about Pantopaque).

Newton also authorised expenses for Gilmor and his wife to attend a meeting on neuroradiology (which amounted to around \$2500!)

Newton continued to raise the clinical visibility of the product by advertising directly to physicians, stating:

"Pantopaque has been used for several million myelograms and the incidence of side effects has been extremely low."

Particular attention was drawn to the fact that using Pantopaque cost only about 50% of the cost of Amipaque.

There was also a remark about the lack of a listing in the Index Medicus of side effects of myelography prior to the introduction of Amipaque, whereas there was now such a listing under a special heading and this related nearly always to Amipaque.

Also in 1983, Hoffman, ([\[3\]](#)) working with dogs, found pre-mortem **multilevel blockage of the subarachnoid space, leptomeningeal inflammation, fibrosis, adhesions, cysts and nerve roots embedded in thick bundles of collagen.**

Hoffman remarked:

"it would seem that the literature on this subject deals with only the most severe clinical examples and that arachnoiditis producing symptoms in the absence of sensory-motor abnormalities is unrecognised."

Cromwell again published a paper ([\[4\]](#)) on treatment of arteriovenous malformations using iophendylate.

Out of 31 operations, there were two deaths related to the procedure and one additional complication of cortical blindness that partially resolved.

[1] Chynn KY. *Radiology* 1973 Nov; 109(2): 361-7 Painless myelography: introduction of a new aspiration cannula and review of 541 consecutive studies.

[2] Junck L, Marshall WH. *Ann Neurol* 1983 May; 13(5): 469-84 Neurotoxicity of radiological contrast agents.

[3] [Hoffman GS](#), [Ellsworth CA](#), [Wells EE](#), [Franck WA](#), [Mackie RW](#). *Spine*. 1983 Jul-Aug;8(5): 541-51. Spinal arachnoiditis. What is the clinical spectrum? II. Arachnoiditis induced by Pantopaque/autologous blood in dogs, a possible model for human disease.

[4] Cromwell LD, Harris AB. *AJNR Am J Neuroradiol* 1983 May-Jun; 4(3): 366-8 Treatment of cerebral arteriovenous malformations: combined neurosurgical and neuroradiologic approach.