PANTOPAQUE INTRAVASATION (EMBOLIZATION) DURING MYELOGRAPHY

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(Received for publication July 2, 1956)

Hinkel\(^1\) first noted and described the phenomenon of intravasation of Pantopaque during myelography in 1945. His was the unique experience of fluoroscopically watching the contrast medium disappearing spontaneously from the spinal canal. "As the patient coughed, I saw a marked and bizarre change in the pantopaque column. It appeared to extend in all directions like a star-burst. The original subarachnoid oil column shrunk rapidly, and branching, slender finger-like columns of oil were seen extending to the right, the left, caudad and cephalad from it. Within fifteen seconds no oil could be seen in the subarachnoid space and a broad oil column was seen forming to the right of the lumbar spine. It was at once realized that the oil had entered the venous system."

Four years later in 1949 Fullenlove\(^2\) similarly witnessed the rapid disappearance of the contrast medium: "The pantopaque was seen to leave the spinal canal through the venous plexus in the area, and within three minutes the greater part was gone."

Steinbach and Hill\(^3\) in 1951 reported a case in which 7.5 ml of Pantopaque was left in the spinal canal when efforts to remove it were discontinued because of gross bleeding at the site of puncture. Subsequently intrathoracic distress developed and roentgenograms of the chest revealed the presence of "multiple small, fine, reticular densities . . . " in both lungs, interpreted as Pantopaque emboli. In the subsequent discussion, it is inferred that all of the contrast medium had disappeared from the spinal canal. A similar case\(^4\) has been seen at the same institution since publication of the original paper; the details of the later experience are not as yet available.

More recently, Ginsburg and Skorneck\(^5\) reported another instance of embolization in the lung visualized roentgenographically, following intravasation.

We believe that intravasation of Pantopaque during myelography is more common than the paucity of reported cases would seem to indicate.

CASE REPORT

A 47-year-old white man was admitted to the hospital on July 6, 1955, complaining of low-back pain with radiation down the posterior aspect of the right leg, numbness about the rectum, and loss of sexual power. He gave a history of having had two low-back operations within 3 days in 1941 for pain in the back and leg. Following the operations, right foot-drop was present and the pain persisted essentially unchanged. In October, 1954, there was spontaneous development of numbness about the rectum, impotence, and difficulty in initiating micturition. The above symptoms persisted without progression or remission.

Examination. There was marked weakness of dorsiflexion and plantar flexion of the right foot with atrophy of the calf and anterior tibial muscle groups. The right Achilles reflex was absent. Slight saddle hypesthesia and hypesthesia were present and there was more pronounced sensory loss over the anterolateral aspect of the right leg below the knee, extending over the dorsum of the foot. Straight leg raising was not limited and the Naffziger test was negative.

A lumbar puncture done at the L5 interspace showed normal dynamics, and cerebrospinal
fluid studies revealed no cells, a very faint trace of globulin and a slightly elevated protein of 69 mg. per 100 ml.

Roentgenograms of the lumbar spine revealed a transitional 1st sacral vertebra and evidence of a previous laminectomy with posterior fusion of L4 to S1.

Myelography. It was learned from the previous surgeon that a Thorotrast myelogram had preceded the operations in 1941. The contrast medium was reported to have been completely retrieved at the end of the procedure and none was demonstrable on the above-described films.

On July 7, 1955, lumbar myelography was performed. The introduction of the needle was atraumatic. A few milliliters of clear fluid were withdrawn and 9 ml. of Pantopaque were injected with the patient on his left side. He was then turned to a prone position and tilted head-down to move the contrast medium into the upper lumbar region. This area appeared to be normal and an anteroposterior spot film was taken. The column of oil was then returned to the lower lumbar area where a defect appeared fluoroscopically at the 4th lumbar interspace on the left, below which a pronounced narrowing of the sac was noted. Anteroposterior and oblique spot films were made. At this point the patient complained of "a tickle in my chest," and an irritative cough developed, but otherwise he seemed to be tolerating the examination well. When the patient was tilted to the upright position, it was noted by fluoroscopy that the amount of contrast medium had greatly decreased and the remainder was progressively disappearing. Successive films were taken rapidly to record this phenomenon until only approximately $\frac{1}{4}$ ml. of Pantopaque remained. The spinal needle was withdrawn and a roentgenogram of the chest was made.

![Fig. 1. Column of Pantopaque as it appeared when loss of volume was first recognized under fluoroscopy.](image-url)