PANTOPAQUE

NOTES ON ABSORPTION FOLLOWING MYELOGRAPHY

CAPTAIN GEORGE M. WYATT, AND LIEUTENANT COLONEL ROY G. SPURLING
MEDICAL CORPS, ARMY OF THE UNITED STATES

(From the Sections of Roentgenology and Neurosurgery, Walter Reed General
Hospital, Washington, D. C.)

PANTOPAQUE has replaced Lipiodol and the gases as the contrast medium for myelography in the Army Medical Corps. The chief reason for the preference to lipiodol is that Pantopaque is absorbed instead of remaining as a persistent foreign substance in the subarachnoid space. Experience has shown it to be nontoxic and no more irritating than lipiodol, and its sharp radiographic contrast and consequent clear delineation of pathologic anatomy affords a definite superiority over the gases as does lipiodol. In contrast to lipiodol, pantopaque is more fluid than viscous and therefore fills out the smaller spaces such as the dural nerve sheaths. It also is more easily removed following examination.

The chief advantage of pantopaque, however, lies in its absorbability and it is the purpose of this paper to discuss this absorption as observed roentgenologically.

Observations at the Walter Reed General Hospital at intervals of a few weeks or months following injection of pantopaque suggested that absorption might not be so rapid in all patients as it was previously thought to be. Accordingly, follow-up x-ray pictures were obtained for six patients in whom the removal of pantopaque had been incomplete. These roentgenograms included the skull and entire spine and sacrum to exclude the possibility of migration of the contrast material. The patients were selected from the first group in which pantopaque was used at the Walter Reed General Hospital, the sole bases of selection being incomplete removal and availability for follow-up study. All of these patients had ruptured intervertebral discs removed surgically but in no instance was the dura entered or any attempt at removal of the residual pantopaque made during the operation.

Amounts of residual pantopaque were estimated on the basis of the size and number of the collections shown on the x-ray pictures. Obviously such estimation is crude and the figures arrived at will vary with the individual observer. There was, however, no doubt that the material was being absorbed at a significant rate of speed (Figs. 1 and 2).

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Fig. 1 (Case 6)—A. Approximately 1.5 c.c. of pantopaque remains in the subarachnoid and subdural spaces and along a nerve sheath.

B. X-ray picture 2½ months later shows about 80 per cent absorption. It also represents the only instance in which iodine was seen to be absorbed from the compound. (Upper arrow indicating globules of the same size but less density than those indicated by lower arrow.)

C. X-ray picture taken 11½ months after examination shows about 90 per cent absorption both in the meninges and along the nerve sheath. The patient was asymptomatic.

Fig. 2 (Case 3)—A. Approximately 0.5 c.c. of pantopaque remains in the subarachnoid space.

B. Roentgenogram 1½ months later shows about 75 per cent absorption.

C. Roentgenogram 3½ months after examination shows about 85 per cent absorption. The droplets are fixed in the same position as in B.
presented by the small particles is much greater in relation to the total mass considered as a single spheroid than is the surface area presented by a few small droplets. When only a few small droplets remain the tendency is toward coalescence rather than breaking up with body motion.

As previously stated, the entire subarachnoid space was surveyed. The contrast medium was observed to flow as high as the first lumbar vertebra but none of the roentgenograms revealed any pantopaque in the skull, cervical spine, or thoracic spine. The only explanation for the lack of migration is that the patients did not assume the head-down position during the first few weeks following examination. After a month or two, the material becomes fixed in position. This fixation indicates some tissue reaction to residual pantopaque. None of the patients, however, had any symptoms referable to the residual material, even though in one instance some pantopaque had been injected subdurally and remained in a nerve sheath (Fig. 2).

CONCLUSIONS

1. Pantopaque is absorbed from the subarachnoid and subdural spaces of the human body.
2. The most rapid absorption occurred during the first few months following injection.

3. Although absorption was not complete during the periods of observation, the continued absorption in all instances warrants the assumption that complete absorption will eventually take place.

4. No toxic reactions were observed.

REFERENCES


