Local Petechial Reactions Following Cerebral Angiography with Hypaque*

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Since the advent of the use of Hypaque Sodium 50 per cent (sodium diatrizoate) for cerebral angiography in 1956, there has been only cursory mention of local petechial reaction as a complication. Dunn et al. 8 described the occurrence of homolateral petechial hemorrhages of the face, neck and conjunctiva on the side of injection in 1 patient. DeSaussure and Keirn7 noted a similar reaction in 3 patients in their reported series of 300 cerebral angiograms using Hypaque 50 per cent. In both of these reports the petechial reaction was mentioned only in passing and these constituted the only specified instances found in the literature of this untoward complication with this contrast medium in cerebral angiography. Personal communications,9,10,13 have brought 7 other similar cases to our attention.

This report is concerned with the occurrence of local petechial reactions following cerebral angiography with Hypaque 50 per cent in 4 patients over a brief period of time at the Yale-New Haven Medical Center.

Case Reports

Case 1. A 19-year-old white female college student with no history of allergies entered the Grace-New Haven Community Hospital on Nov. 18, 1962, for investigation of left-sided paresthesias following a severe retro-orbital headache of several hours' duration.

History, physical examination and electroencephalogram indicated a focal cerebral lesion in the right parietal area. Cerebrospinal fluid was within normal limits.

On the 2nd hospital day, right cerebral angiography was performed using Hypaque 50 per cent. A total of 4 injections of 8 cc. each of the right common carotid artery were made to complete the studies.

Approximately 3 to 4 hrs. following arteriography, a petechial rash developed over the right side of the face (Fig. 1) which increased in intensity during the next 12 to 18 hrs., eventually involving the right side of the face, neck and palate to a marked degree, with less petechiae over the right upper chest and upper arm. The optic fundi were free of petechiae, although the conjunctiva was involved. The reaction reached its maximum intensity within 24 hrs. following onset, and began disappearing in 48 hrs. with complete resolution in 8 days.

There was no pruritis, fever, or change in neurologic signs or symptoms during the development of the reaction. Blood count and urinalysis were unchanged from the time of admission, and count of platelets was 175,000/mm.3 Capillary fragility test and petechiometer test at 20 mm. of mercury both gave negative results. Benadryl was instituted as an empirical therapy. A dermatologic

FIG. 1. Case 1. Cutaneous petechiae of the face and neck on the homolateral side of the carotid artery following arteriography with Hypaque 50 per cent. Photograph was taken 24 hrs. after the study.
consultant was of the opinion, however, that the reaction did not represent an allergic manifestation.

Case 2. A 50-year-old white widowed female entered the hospital for the 1st time on Nov. 27, 1962, with signs and symptoms of a right oculomotor palsy of 7 days' duration. The patient had a past history of a transient weakness of the left leg, mild hypertension, and some questionable syncopal episodes. No history of allergy was elicited.

General physical findings were unremarkable except for a blood pressure of 230/120.

Neurologic abnormalities were a complete paralysis of the extraocular muscles supplied by the right oculomotor nerve with lateral deviation of the eye at rest, complete ptosis and fixed dilated pupil. Other findings were a mild weakness of the left lower extremity and a suggestive plantar extensor response on the left.

Bilateral carotid angiography was performed via percutaneous puncture of the common carotid arteries, using Hypaque 50 per cent. A total of 3 injections of 8 cc. each were made on the right side and 2 injections of 8 cc. each on the left. A large saccular aneurysm was present on the right internal carotid artery at the junction with the posterior communicating artery. There was also a fusiform dilatation of the left internal carotid artery in its intracranial portion.

Within 4 hrs. after angiography, a petechial rash developed over both sides of the face and neck, including the pharyngeal mucosa. Initially, the lips, buccal mucosa and conjunctiva were spared but became involved within the ensuing 24 hrs. There were no petechiae over the chest or arms, the rash being demarcated at the base of the neck. About 48 hrs. after onset, the petechiae began disappearing in a progressive manner. On the 10th hospital day (6 days postangiography) the patient suddenly died.

Autopsy revealed the cause of death to be rupture of the aneurysm of the right posterior communicating artery. There were also multiple small aneurysms bilaterally in addition to the fusiform dilatation of the left internal carotid artery noted at angiography. No cerebral petechiae were noted.

Case 3. A 24-year-old white man was admitted to the hospital on Dec. 3, 1962 for evaluation of post-traumatic headaches.

Four weeks previously, the patient had been involved in an automobile accident, at which he was rendered unconscious for an undetermined length of time. Since that time he had complained of left-sided frontal headaches which were associated with vomiting.

The patient was a poorly controlled diabetic with a moderate peripheral neuropathy, for which he had been followed in Neurology Clinic. There was no history of allergy.

Physical examination revealed signs of a distal peripheral neuropathy in the lower extremities.

Roentgenograms of the skull demonstrated a small osteolytic lesion in the left frontoparietal region. Electroencephalogram showed a left temporal slow-wave abnormality.

On the 1st hospital day, left cerebral angiography was performed by percutaneous injection of the common carotid artery with Hypaque 50 per cent. Two injections of 8 cc. each and 1 of 5 cc. were made. The study was normal. Approximately 4 hrs. following the procedure, a petechial reaction involving the left side of the face, neck and scalp developed. The retina and oral pharynx were free of petechiae. Coincident with this reaction was an elevation of temperature to 101°F. and development of slight tender lymph-node enlargement in the left postauricular and occipital regions.

The fever subsided within 24 hrs. Both petechiae and lymphadenopathy had begun disappearing by the time of hospital discharge 2 days following angiography.

Case 4. A 44-year-old man with no history of allergies was admitted to the Neurology Service of an affiliated hospital on Jan. 7, 1963, with a chief complaint of severe headache for several hours.

Examination disclosed a right Babinski's sign. Cerebrospinal fluid was grossly bloody with an opening pressure of 270 mm. of saline. One week following admission, bilateral carotid angiography, using Hypaque 50 per cent, was performed. Three injections of 8 cc. each were made into the left common carotid artery while 2 injections of 8 cc. each were made on the right side. A large aneurysm of the anterior communicating artery, which filled from the left side, was revealed. Four hrs. later, a massive petechial reaction was observed on the left side of the face and neck, including the conjunctiva. There were a few scattered, barely visible, petechiae on the right side of the face and neck but not in the conjunctiva.

Neurologic findings were unchanged from the pre-angiographic status.

On the following day, the patient underwent a craniotomy for ligation of the aneurysm. No petechiae were seen on the surface of the brain that was exposed during surgery. The cutaneous petechial reaction subsided completely over a 4-day period.

Discussion

It will be noted from the case histories of the Grace-New Haven Community Hospital that 3 reactions occurred in a 2-week interval. During that time, only 4 cerebral angiograms were performed on the University Service of the hospital. Hypaque 50 per cent had been used on the University Service