with this apparatus. Much time is saved when large numbers of tests have to be performed, especially if Owren's methods are being used. Just as important is the fact that much more reliable and reproducible results are obtained by using this automatic time-recording apparatus than with the hand-water-bath technique.

The apparatus was made for us by Evans Electroselenium Ltd., Colchester Road, Halstead, Essex. Cheap disposable glass tubes to fit the apparatus can be obtained from C. E. Payne & Sons Ltd., 131, Clapham High Street, London, S.W.4. Fine-pointed accurate 0.2-ml. pipettes, which are most convenient to use with the small glass tubes, can be obtained from Baird & Tatlock Ltd., Freshwater Road, Chadwell Heath, Essex. We thank Evans Medical Ltd. for a grant towards the development of this apparatus.

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Medical Memoranda

Purpura After Administration of Piperazine

During recent years piperazine has replaced many other anthelmintics in the treatment of ascariasis and oxyuriasis. It is supposed to be non-toxic. Recently we observed a patient in whom a single 4.8-g. dose of piperazine citrate was followed by extensive purpura. We have not come across any other similar report in the medical literature so far. A brief account of the purpuric episode is given.

CASE REPORT

A girl aged 10 years was admitted to the E.N.T. wards of Hamidia Hospital, Bhopal, on January 15, 1959, complaining of epistaxis and bleeding from the gums for two days. At this stage she and her mother failed to co-operate in elicitation of a proper history. Anterior rhinoscopy showed a large number of punctate bleeding-points on the anterior part of the septum and inferior turbinate on both sides. Bleeding was moderate in amount. Examination of the buccal cavity revealed bleeding from the gums; posterior rhinoscopy did not show any more bleeding-points, and there was no bleeding from the pharynx and larynx. Skin of the whole of the body showed discrete purpuric spots. In the wards a gross haematuria was also found.

Investigations.—R.B.C., 3,400,000/c.mm.; haemoglobin, 62%; total W.B.C. count 6,400/c.mm. (polymorphs 54%, lymphocytes 40%, large monocytes 5%, eosinophils 1%); bleeding-time, 2 min. 30 sec.; coagulation time, 4 min. 54 sec.; prothrombin time (modified Quick's method using "thrombokinas" calcium tablets) 20 sec. (control 20 sec.); blood platelet count, 135,000; Hess's capillary test, positive. Urine: large number of red cells and albumin ++. Stools: N.A.D.

She was given vitamin C, 500 mg. intravenously and 100 mg. t.d.s.; vitamin K, 10 mg. t.d.s.; "stypobion," 1 tablet t.d.s., calcium lactate, 10 gr. (65 mg.) t.d.s. "Argyrol" nasal drops, gargles with Condy's fluid, and mist. bromide were also administered. Her condition remained stationary for four days, and on January 19 she was transferred to the medical wards. By this time the epistaxis had stopped. Purpuric spots were still present extensively over the trunk and extremities. She looked very weak, and pallor was marked. At this stage urgent blood grouping and matching were done, and a donor was found, though because of her subsequent recovery the blood transfusion was not administered. In the medical wards

she was given vitamin C, 500 mg. intravenously daily; vitamin K, 10 mg. intramuscularly six-hourly; and "coagulen-Ciba," 1 ampoule intramuscularly six-hourly. Haematuria and epistaxis had ceased by January 20, though purpuric spots over the trunk and extremities were still appearing.

On January 22 closer questioning revealed that the patient had had 4.8 g. piperazine citrate in a single dose eight days before the onset of symptoms, on the prescription of a local practitioner who suspected ascariasis on clinical grounds only. The patient did not pass any worms subsequently, but on January 13 she developed epistaxis. After the elicitation of this history all previous treatment was stopped and "synopen" tablet 1 t.d.s. was given on the presumption that the purpura might have been due to piperazine allergy. By next day all bleeding had stopped, the purpuric spots were fast disappearing, and Hess's capillary test was negative. By January 26 all purpuric spots had disappeared, and clinically nothing abnormal could be detected. Serial investigations revealed that the platelet count on January 21 was 135,000/c.mm., and on February 3 it was 350,000/c.mm. The bleeding-time and the clotting-time on February 3 were 1 min. 6 sec. and 4 min. 5 sec. respectively. Subsequently the patient made an uneventful recovery. All treatment was stopped on January 26. The patient was kept under observation in the ward for another 15 days, being discharged on February 11.

COMMENT

The anaphylactoid purpuras are diagnosed because of the absence of blood changes. Thus the bleeding-time in such cases is normal, and there is no diminution in platelet count. In our patient, though the platelets were reduced to 135,000/c.mm., they never fell below 40,000/c.mm.—a level below which bleeding is generally observed to begin (Whitby and Britton, 1957), though exceptional cases are known to exist in which bleeding had occurred at counts exceeding 40,000/c.mm., in all probability because of concomitant vascular damage. Though a clot-retraction test was unfortunately not done in this case, the bleeding-time was within normal limits throughout, and it seems unlikely, therefore, that thrombocytopenia was mainly responsible, if at all, for the symptoms. The purpura must have been due to vascular damage. The capillary endothelium and platelets are supposed to be antigenically similar, and it seems that the platelets were also reduced because of the same allergic phenomenon. Allergic thrombocytopenia is known to occur after administration of quinine, quinidine, "sedormid," thiouracil, methoin, and sulphonamides, and no doubt the same antigen can damage both platelets and capillaries.

So far, we are unaware of any published case of purpura after piperazine administration, and it is interesting to record that a supposedly innocent substance like piperazine, which is in extensive use, can precipitate a severe allergic purpura. In this patient the diagnosis of drug allergy was not in doubt, because of the onset of symptoms eight days after administration of the drug, and because of other negative laboratory findings already discussed. An experimental reproduction of purpura after readministration of the drug was not considered worth while because of the hazards.

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