the liquid penetrating his clothing. The vesicles were incised where present, and the burnt areas were bathed with weak dettol solution and subsequently anointed with sulphanilamide paste. Four of the patients complained of nausea either one or two days after the onset of the lesions, and these symptoms lasted for approximately 12 hours. The incised vesicles took on the form of yellowish-brown crusts which later separated,

FIG. 1

FIG. 2

to leave pale areas in contrast with the erythematous skin, which became a dark coppery colour, so that the skin of the neck in particular had a mottled appearance. No septic complications were met with in the subsequent progress of the lesions. Two of the patients had sustained mustard-gas burns in the last war, and they had the shortest latent periods after exposure. One still complained 12 days afterwards of an intermittent burning sensation in the neck which interfered with his sleep.

Discussion

The 10 members of the local authority service present at this demonstration were all highly trained in anti-gas precautions. They were fully aware of the consequence of exposure to mustard gas, but not one realized that he had been splashed by droplets. They all assumed their respirators immediately the accident occurred and considered themselves safe. Conjunctivitis was not evident in any of the cases, probably owing to this; but two of the men had narrow escapes, as they sustained tiny burns on the eyelids.

Sulphanilamide paste apparently countered the danger of skin sepsis and proved a very satisfactory dressing.

Summary

We report 10 cases of mustard-gas burns sustained as the result of an accident during an A.R.P. demonstration.

Attention is directed to the insidious action of mustard gas, a feature that was of course noted in the last war.

The incident described emphasizes the need for strict observance of the recommended safety precautions required in the conduct of such demonstrations.

Medical Memoranda

Fulminating Purpura and Adrenal Haemorrhage

Cases of fulminating purpura and adrenal haemorrhage (Waterhouse-Friderichsen syndrome) are rare enough to be worth recording.

CASE REPORT

At about 12 noon on March 11, 1942, in response to an urgent call, I visited a male child aged 4 months who had suddenly become seriously ill. On my arrival the mother gave the following history: The child had always seemed perfectly healthy. On the previous evening he appeared to be quite normal and had taken his feed as usual. He had slept through the night. On the morning of March 11 he took his feed, though not very readily, the bowels had acted and were normal in appearance, but the mother had noted a rash behind his ears. As the rash began to spread over his face the mother thought that he was "going in" for measles. At about 11.30 a.m. the child suddenly became much worse; his breathing became very rapid and noisy, and as he appeared to be unconscious the mother became very alarmed.

Examination showed a well-nourished, extremely shocked, and cyanosed child, presenting almost a complete Hippocratic facies. A well-marked purpuric rash covered the face profusely, and was also present on the abdomen and on both extremities. There were also large blotches of ecchymoses on both thighs and forearms. The rectal temperature was 101.4°, the pulse about 160, the respirations 64, accompanied by a loud stertor. Nothing abnormal could be seen in the mouth, throat, or nose. The lungs were resonant, the abdomen was flaccid, and rectal examination revealed a soft yellow stool adherent to the gloved finger. There was no head rigidity; Kernig's sign was negative; the pupils were dilated, equal, and did not react to light. No history of a convulsion was elicited. The child died in my presence at 1 p.m.

I was allowed to perform a post-mortem examination on the following day. The heart, lungs, and gastro-intestinal tract presented no abnormality; the mesenteric glands were not enlarged; the liver, kidneys, spleen, and thymus appeared normal. There was, however, haemorrhage into both suprarenal glands, both cortical and medullary portions being involved. No bleeding had occurred into the adjacent tissues. Permission was not granted to examine the brain and spinal cord.

COMMENT

In a review of the literature Sacks (1937) found only 64 cases published up to that time; by the beginning of 1940 these had reached a total of 70 (Carey, 1940). All the cases show a striking similarity, the patient usually being a child aged 2 to 15 months, who becomes suddenly ill and dies often in less than 24 hours. A haemorrhagic rash of greater or less extent is present in every case, the temperature is mostly between 100° and 103°, and the sudden collapse, cyanosis, and accelerated respiratory rate may lead to a diagnosis of pneumonia. The illness is so fulminating and death occurs so early that complete investigation is generally not possible. The accepted view appears to be that the purpura and the haemorrhage into the adrenals are due to a massive bacteraemia, and MacLagan and Cooke (1916) suggest a selective action by the meningococcus. If that is so the disease is so fulminating that the patients appear to succumb to the general infection before the lesions of the meninges have had time to develop. It might, of course, be a fulminating type of any other infectious fever.

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I. S. FOX, M.B., Ch.B.

BIBLIOGRAPHY

- Carey, T. N. (1940). *Ann. intern. Med.*, **13**, 1740.
MacLagan, P. W., and Cooke, W. E. (1916). *Lancet*, **2**, 1054.
Sacks, M. S. (1937). *Ann. intern. Med.*, **10**, 1105.
Waterhouse, R. (1911). *Lancet*, **1**, 577.