Case 2.—A man aged 29 had appendicectomy performed, with drainage, on June 7, 1938. The following day he became restless, confused, and uncertain. He continued to get worse mentally, and was transferred to us on June 14. He was quieter on admission, but was confused. The wound was oozing thick foul pus. With vigorous local treatment the discharge became more rapid; in two days the superficial layers of the wound opened and pus discharged freely from between the tissue layers. From then onwards the mental symptoms ceased entirely.

Case 3.—A youth aged 17 was treated in surgical wards on November 30, 1938, for concussion, fracture of the skull, and an extensive lacerated wound of the left popliteal region. Plaster was applied to the leg over the dressing to prevent contracture. The cerebrospinal fluid was clear. At the end of three weeks of apparent progress he became noisy, irrational, and violent, and was transferred here forthwith. He presented the typical toxic picture, and was noisy and most violently resistive to all attentions. The original plaster was still on the leg, and foul and pungent-smelling pus from the popliteal wound was oozing over the top. The plaster was removed, and an extensive area of unhealthy hypertrophic granulations covered with thick pus was revealed. In twenty-four hours he became quite manageable and would freely permit nursing attentions and the frequent changes of dressing required. The acute mental state subsided in about three days. Some mental dullness still persisted for four or five weeks, partly attributable to his skull condition and partly to the previous intense absorption of toxic products from the wound.

Case 4.—A man aged 24 had a large abscess of the right lower abdominal wall opened and drained on October 25, 1936. After two weeks he became violent and irrational, and was transferred to us on November 13. He presented the usual toxic picture and was resistive, confused, and uncertain. The wound showed a discharging sinus. With the usual measures he improved considerably in a week, but remained rather dull and slow for a longer period. The wound had healed in two weeks, but for six weeks further the temperature remained erratic, and deep tenderness and a slight ache in the right side suggested a remote and inaccessible pocket of pus. However, with subsidence of temperature all mental symptoms had ceased and he made a rapid return to good general health.

These are four cases representative of many others; in all of them pus was either pent up or was discharging sluggishly, and they all responded to efforts directed to releasing the pus. In Case 3, although the acute mental symptoms subsided rapidly, there remained for a longer period a dulling of the sensorium; here there was an extensive highly absorbent area which had been closely in contact with large quantities of foul pus for nearly three weeks. This is in keeping with the general observation that where pus has been present in large quantity and for long periods before the acute mental outbreak one finds that residual mental symptoms remain which clear more slowly. In Case 4 retardation of recovery appears to have been very probably due to an undiscovered but suspected pocket of pus which eventually absorbed.

In none of the cases quoted was there any previous history of mental illness. Where, in rare instances, such a history does occur the condition under discussion remains an entity on its own and follows the course of the others with normal mental histories.

Conclusions

The condition described is not infrequently met with in mental observation wards, and presents a characteristic picture readily recognizable by three features: (1) the surgical history; (2) a toxic physical state; and (3) an acute confusional psychosis.

Where such a psychosis follows or is superimposed upon a surgical condition the surgeon should consider the possibility of septic absorption from an infected

wound. The early recognition of their toxic origin would often prevent such cases from going as far even as the mental observation wards.

The prospects of rapid recovery from the acute symptoms are good, given efficient and early drainage.

The occurrence of residual symptoms is related to the duration and extent of septic absorption before the psychosis; but although these symptoms may be slow in clearing the ultimate prognosis remains, on the whole, good. Only very infrequently do residual symptoms prove so marked and so persistent that treatment in a mental hospital is necessary.

SEVERE SKIN AND GENERAL REACTION FOLLOWING THE ADMINISTRATION OF M & B 693 AND EXPOSURE TO ULTRA-VIOLET LIGHT

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It has long been recognized that certain drugs, among which are sulphonal, veronal, and luminal, have the capacity, when taken orally, to render human skin sensitive to the effects of actinic light, but it is doubtful whether the administration in medicinal doses has given rise to any untoward changes in the skin following exposure to light. The proclivity to photosensitization, however, is of much greater significance since the introduction of the new but already widely used group of derivatives of *p*-aminobenzenesulphonamide (sulphanilamide). This group contains both dyes such as prontosil rubrum, rubiazol, the colourless compounds sulphanilamide itself (prontosil album), proseptasine, soluseptasine, uleron, and also the most recently introduced M & B 693 (2-sulphanilyl-amidopyridine), a compound of value in the treatment of pneumonia, gonorrhoea, and other infections.

It has been demonstrated (Rimington and Hemmings, 1938) that sulphanilamide causes an increased secretion of porphyrin in the urine in animals and in man, and of these coproporphyrin I is an active photosensitizer. Rashes varying in character and in severity have often been noticed following the administration of some drugs of this group; also attention has been drawn to the fact that the exposed skin is particularly sensitive (Frank, 1937), and it is the practice of some of the chemical-manufacturing firms to issue a warning that exposure to natural or artificial sunlight is inadvisable during the course of the treatment. Nevertheless it does not appear to be generally recognized that a reaction of very severe degree may take place as a sequel to exposure to light during or following the administration of the sulphanilamide group of drugs. I therefore record the following experience.

Case History

On January 20, 1939, a well-developed man aged 25 had a single exposure to ultra-violet light at a non-medical clinic. Five days later he was admitted to the Royal Hospital, Sheffield, apparently suffering from a very extensive burn of the second degree. His temperature was 102° F., and his pulse 90 to 108. He gave a history that the inflammation of his skin had followed shortly after an ultra-violet-light exposure. He was treated by the application of sterile dressings under a warm cage. The pain necessitated two doses of 1/6 grain of morphine. He was given prontosil album 15 grains thrice daily. On January 27 he looked ill

and distressed, his temperature varying from 101° to 102.8° and his pulse being 100. The whole of the facial skin was oedematous, red, and covered by brownish-black crusts. The lips were swollen and crusted, and the mouth was opened with difficulty. Numerous bullae were present on the inside of the mouth. The skin of the chest, abdomen, and lower two-thirds of the back was acutely inflamed and covered by the remains of large bullae. The skin covering the shoulders and sides of the chest was free from bullae. The limbs were less severely affected and were free from bullae. At this stage it was ascertained that the patient had been taking one tablet of M & B 693 three times daily for the treatment of urethritis for four days previous to the exposure to ultra-violet light. The prontosil album treatment was therefore promptly discontinued. On January 28 his temperature was 103.2°. Small bullae appeared on the areas which had previously been free—namely, the shoulders, sides of the chest, and limbs. The following day the temperature began to fall and his general condition improved. On January 30 the patient's temperature was normal and his general state much improved. From this date he made an uninterrupted recovery, and on February 14 was discharged from hospital. A visit to the ultra-violet-light clinic elicited the fact that the patient had received three minutes' exposure from a standard mercury-vapour lamp at forty inches back and front—a moderate dose.

Comments

As M & B 693 has had a very extensive clinical application since its introduction without record of the occurrence of severe skin reaction, it is reasonable to consider the possibility of some extraneous factor being responsible for the reaction experienced in the above case, and the following questions arise.

1. Was the reaction the result of exposure to ultra-violet light of an individual who had been photosensitized by taking M & B 693?—Unfortunately there was no analysis of the urine during the illness to ascertain whether porphyrin was in excess. Wien (1938), in a comparison of the effects of sulphanilamide and M & B 693 in animals, found that, whereas the former caused a large increase in the excretion of porphyrin in the urine, M & B 693 in two to four times the amount had no effect. But cases of photosensitivity have been recorded following the administration of drugs of the group closely allied to M & B 693. Newman and Sharlit (1937) in fact describe a very similar sequence of events—namely, an extensive scarlatiniform eruption apparently excited by sun-bathing in a man who had taken prontosil for four days. In this case the rash was entirely confined to the area exposed to light. It is interesting to note that the rash was again elicited on previously involved skin by further administration of the drug in the absence of added irradiation. Frank (1937), on the other hand, reports two cases, taking sulphanilamide, in which exposure to sunlight produced an eruption that was not confined to the exposed parts. Menville and Archinard (1937) report four cases; in each the rash appeared only on the skin that had been exposed to light.

2. Had the patient an idiosyncrasy for M & B 693?—Drug dermatitis is not an uncommon occurrence, but fortunately the reaction is usually an erythema not comparable in severity to the degree in the case referred to. Nevertheless the contingency cannot be entirely excluded, for Schonberg (1937) has recorded an extensive purpuric and scarlatiniform eruption following the fourth day of sulphanilamide treatment. The same writer issues a warning against the repetition of the drug if a skin reaction has occurred, for a single 5-grain sulphanilamide tablet was sufficient to produce severe general symptoms and oedema of the face and larynx in the case referred to.

The fact that in the Sheffield case the mucous membrane of the mouth and also the skin covered by protective goggles were involved in the reaction appears at first sight to minimize the importance of the exposure to light as an exciting factor in the causation, but dermatologists are familiar with the occurrence of a rash extending a considerable distance from the site of contact with the sensitizing agent in cases of sensitization dermatitis.

Conclusions

Taking into consideration the small dose of M & B 693 in the foregoing case and the onset of the symptoms shortly after the exposure to ultra-violet light, there appear to be grounds for assuming that this man's skin was photosensitized by some chemical reaction following the administration of M & B 693, and that the exposure to a moderate dose of ultra-violet light precipitated the onset of an intense reaction, which at one time gave rise to considerable anxiety. Unless further clinical and experimental experience proves this contention to be erroneous, it is desirable that every prescriber of M & B 693 should be aware of this potentiality, and every patient be expressly warned of the danger of exposure to strong sunlight or any form of artificial sunlight during the time he is taking the remedy.

I wish to express my indebtedness to Mr. H. B. Yates for kindly permitting me to publish this case, and also to Professor E. J. Wayne for the valuable information he has given me.

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Clinical Memoranda

Extradural Hydatid Cysts producing Paraplegia

Hydatid disease of the spinal column is rare enough to justify a record of the following case, which is also noteworthy for the rapid development of the paraplegia.

CASE HISTORY

The patient was a man aged 27 who had contracted hydatid disease in India in 1936, the primary focus being in the neck. Three operations had been performed in India for the condition. Three weeks before admission on September 23, 1938, he began to experience weakness in the right hand and tingling and numbness down the inner side of the right arm. There was in addition a certain amount of weakness of the left hand, which had appeared since his operations but had since remained stationary.

Clinically the patient was in good general condition. There was a deep pitted scar on the lateral side of the clavicular head of the left sterno-mastoid and two other linear scars to the left of the upper dorsal spine. There was palpable deformity of the lower cervical spines and undue prominence of the spine of the first dorsal. Movement range was a little impaired. The right hand showed a moderate degree of wasting of the intrinsic muscles and to a lesser extent the wrist flexors, with loss of power; there was hypo-algesia in the cutaneous distribution of the right ulnar nerve. The left hand showed slight wasting and objective weakness of the intrinsic muscles, but no sensory change. The cranial nerves were intact, the fundi oculi normal, and there was no other alteration in central nervous system function. No clinical