an unknown patient who had had a normal labour four months previously, one would be most unlikely to suspect, much less be able to assess, the heart's efficiency during an attack of acute bronchial asthma of any severity. It must be noted, too, that the subjective signs of a failing heart, although definite, were elicited only after the patient's death, and even then with the greatest difficulty.

In reaching the conclusion that asthma was the factor which ultimately precipitated death, a few questions presented themselves for satisfactory explanation. (a) Was it possible for the patient to have had a normal labour of twenty-four hours' duration four months previously if her heart was in such a damaged and dangerous condition? (b) If her heart was in so grave a condition, surely there would have been some very definite physical signs? (c) Can ante-mortem clotting take place in the heart in the absence of valvular disease or endocarditis? (d) Were her attacks those of true *bronchial* asthma? (e) What is the evidence that she survived an attack of intracardiac clotting two years previously?

In answer to the first three questions Sir James Mackenzie (1917) said that he repeatedly saw individuals in the greatest danger whose serious condition had never been suspected, because there was present no physical sign indicating heart trouble, but if the patient's reaction to effort, as measured by her own sensations, had been investigated and appreciated, the gravity of the condition would have been recognized; that many cases of sudden death may be due to acute oedema, usually associated with mitral stenosis, but that there may be no valvular lesion; and that he was often unable to account for such a death. Further, he stated that many women with serious organic heart trouble seem little the worse for their pregnancy and that they may bear their confinement well, yet the effect of pregnancy on a diseased heart is that its strength is lessened permanently.

That the patient's attacks of acute asthma were of the bronchial type cannot be doubted, as they responded repeatedly to ordinary anti-asthmatic remedies, were typically bronchial in appearance and behaviour, and were relieved by the endocrine readjustment of pregnancy. In the severe sublethal attack of two years ago, which also began as acute bronchial asthma and which very soon became a cardiac catastrophe, it would appear that the superimposed heart signs and symptoms were due to intracardiac clotting. The heart signs appeared very rapidly, the patient all but died within a few hours, the attack was apyrexial, recovery was very rapid, and following it appeared very definite and rough valvular murmurs which cleared up with incredible speed. It is probable that the murmurs were due to an organized thrombus either in the right auricle or in the right ventricle—more likely the latter—moored to the chordae tendineae of the tricuspid valve (as described in the post-mortem findings), and that the rapid disappearance of the murmurs was the result of the rapid organization and absorption of the thrombus. Moreover, the fatal attack started in an exactly similar way, and the post-mortem findings gave a very positive explanation of the course of events in this final attack.

Summary of Conclusions

A fatal case of intracardiac clotting precipitated by an attack of acute bronchial asthma and followed by massive embolic infarction of the lung in a young primipara is described.

There is evidence that two years previously the patient survived intracardiac clotting which also resulted from bronchial asthma.

Intracardiac clotting may take place in the absence of endocarditis and may give rise to the signs of a gross valvular lesion.

A seriously damaged heart may, even with the strain of pregnancy and a lengthy labour, show no direct physical sign of failure.

REFERENCE

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ACUTE PSYCHOSES FOLLOWING SURGICAL PROCEDURES

BY

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In the *British Medical Journal* of January 28, 1939 (p. 162), Dr. Barber describes a case of acute mental illness from a gangrenous appendix with abscess formation, and refers to such a mental manifestation as being "very rare" in surgical conditions. The case was interesting and instructive, but I believe it would be more instructive still were it realized that such a state is by no means a rarity.

In Erdington House (the Birmingham Mental Observation Wards) we see from time to time acute psychotic patients of this type admitted from surgical wards. There is a history, more or less common to them all, that the patient has had surgical treatment for some acute condition—for example, appendicitis, strangulated hernia, severe wounds—and that in a varying number of days after an apparently satisfactory operation or other procedure there develops an acute mental state characterized by restlessness, confusion, noisiness, impulsive violence, resistance to all nursing attentions, and occasionally by fleeting hallucinations and delusions of a persecutory nature. Removal to the mental observation wards becomes necessary.

On admission the above mental state is easily confirmed. But in addition there is a fairly obvious general physical condition of toxæmia—rapid pulse, slight pyrexia, hot dry skin, malar flush or sallow sunken features, dry brown furred tongue, sordes on teeth, etc. The entire ensemble of symptoms and signs, both physical and mental, gives, in other words, the characteristic picture of a toxic psychosis. With this clinical picture one knows from experience that there will almost invariably be found either a large collection of pus under an apparently healed wound or else that pus already discharging is not gaining a sufficiently free outlet; and that vigorous measures to this end will produce a rapid and satisfactory result. The following four typical cases are illustrative.

Illustrative Cases

Case 1.—A man aged 23 underwent herniotomy on February 25, 1937. On March 3, after apparently normal progress, he became violent, noisy, and difficult, and was transferred to Erdington House the next day. On admission he was dull, morose, suspicious, and restless, and complained of pain in the wound, which was seen to be tense and swollen, the surrounding tissues being inflamed and indurated. With hypertonic fomentations there began on the 8th a most profuse and vigorous discharge of thick, foul greenish-brown pus. By the following day the temperature had subsided; he was quiet and brighter, and expressed great relief. On the 10th he was returned to the surgeon with paralytic ileus, from which he also recovered, and at no time was there any recurrence of mental symptoms.

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

BY

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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