POST-OPERATIVE PSYCHOSES[1]

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A SURGICAL operation, always in itself a tragedy, ought by rights in compensation and in accord with all natural human calculation and expectation, to usher in without delay an era of comfort and of good health. Happy is he who attains this goal, a goal, sad to say, not always reached. The tragedy deepens when health refuses to enter the door, as in the case of an operation not removing existing trouble, when an ineradicable malignant growth exists. The gloom persists also when, as a result of the operation, new discomforts and dangers arise from serious disturbances in the healing process; when there is any profound and lasting disturbance in the nervous system, or when by that frightful and unforeseeable complication, thrombosis and embolism, the fruits of our labor are suddenly snatched away.

My purpose this afternoon is to deal with some of these unwelcome sequelæ, namely, post-operative psychoses, their frequency, cause, variety, seriousness, and finally to inquire how they are best treated or prevented.

Considering its importance, this group of post-operative complications has received scant attention at the hands of our surgeons. In the quarter of a century just elapsed, papers have appeared sporadically and these for the most part fragmentary, in this country and abroad, merely reporting a case or two. This neglect is perhaps due to the fact that such a consideration carries the surgeon into an obscure and alien domain with which he has no technical familiarity, one whose very terms are puzzling.

Unable to deal with more than one phase of the subject, I have appended in my bibliography a list of the most important contributions. Those of Werth (1) before the German Surgical Society at Halle in May, 1888, of our own J. M. Baldy (5) before this Society in Washington in 1891, and Picqué (8) at the French Surgical Society in March, 1898, are extensive discussions, and especially valuable, as also the papers of Hurd (15), Engelhardt (13) and Selberg (14).

Although often adverting to the fact that surgical operations are sometimes provocative of insanity, alienists themselves have, as a matter of fact, paid small attention to a subject so peculiarly their own province. In addition to Dr. Hurd's paper, the best treatment from the psychiatric side is found in the discussion at the French Congress of Alienists at Angers in 1898. It is a notable fact that the text-books on Surgery and Psychiatry often dismiss the subject with but a word or no mention at all.

One is struck at once in scanning the literature by the diversity of views held regarding almost every phase of the subject. In the first place to what class shall the term post-operative insanity be applied? Hurd (15) would limit the cases to those clearly the result of infective processes; Selberg (14), in addition to infection, reckons some cases as due to anæsthesia, some to drugs, some to auto-intoxication, some to physical and others to mental exhaustions; Picqué (8) eliminates those cases due to alcohol, drug intoxications, septic infections, and employs the term only to designate those instances where the trouble supervenes in a patient not otherwise ailing, without fever and without any demonstrable form of intoxication. Regis (11) divides his cases into these three groups:

1. Those coming on immediately after operation, due to anæsthesia and shock.

2. Those coming on a little later, due to septicæmia, shock, auto-intoxication.

3. Those coming on still later, after weeks or months, due to asthenia from prolonged illness or lack of the internal ovarian secretion. All agree that a predisposition either hereditary or a disposition acquired is present in most of them, some asserting that no normal person ever becomes unbalanced as the result of an operation.

Some writers make no attempt to determine

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the kind of insanity following operation. Urbach (6) in the five cases he observed after 106 gall-bladder operations, classified them all as "acute hallucinatory confusional insanity" or as he terms it, the "collapse delirium." Rayneau (17) who has considered this aspect carefully, declares that the post-operative insanities conform to no one type. My own experience coincides with this, but I believe that the majority of the cases, however, do belong to the group of "acute hallucinatory confusional insanities."

As to the character of the operation, Selberg (14) notes that most of the reports in Germany relate to gynecological and ophthalmological cases and therefore regards these as the commonest causative factors. Picqué (8) strongly combats this view from a large experience, asserting that gynecological are by no means more likely than any other operations to cause mental post-operative aberrations. According to Picqué (8) an outbreak is commonest in children, in old people and in hysteropathics. My own experience is limited to adult women between the ages of seventeen and sixty-one years. Among them the period of greatest frequency is in the decennium between thirty-five and forty-five, when one-half of all the cases occurred. Judging by the literature, post-operative mental disturbance is as common in men as in women. Baldy (5) in eighteen institutions for the insane found that in fifteen cases ten were males.

My data are taken from my records in the gynecological department of the Johns Hopkins Hospital and from those of my private institution; the operations were abdominal and pelvic, most of them gynecological.

A word as to the character of the cases I have admitted to this group. All except prolonged, definite mental aberrations have been excluded; cases where delirium might be due to infection or intoxication have also been purposely left out. In none of the patients under consideration had there been a history of alcoholism or drug habit, so that delirium tremens and allied conditions are excluded. In a few of the cases there had been a mild infection, but the mental state has not seemed to bear any relation to the fever and intoxication. In many there was no infection, no suppression of urine, no drugs given after the operation, in other words I have limited myself to the pure psychoses due to shock, worry, or the effects of the anæsthesia. This is the group which Picqué (8) terms the true psychoses. While not including here the commoner milder mental disturbances, I cannot pass them without at least a brief reference. It is exceedingly common to note some change of humor after operation, and by close attention it is remarkable to note how many women manifest some well-defined change in disposition, irritability, depression, suspicion, etc., which vanishes in a day or two. In a consecutive series of 1,300 cases at my private hospital, there have been no less than fifty such cases, or one in every twenty-six. I have at present a woman under observation who is typical of this class. She is single, thirty-seven years old, a trained nurse, with good personal and family history; she is normally amiable and ladylike. For a long period she has had pelvic trouble, extreme pain, too abundant hæmorrhage at menstrual period, due to an adherent myomatous uterus. She had looked forward with anxiety to her operation and talked about it a great deal, and was in a highly wrought state of mental tension. I did an abdominal hysterectomy with the removal of both uterine tubes and ovaries. She had an infection in the fat in the incision which caused some rise of temperature, but noticeable above everything was her mental condition. She became irritable, bully-ragged her nurse, a warm personal friend, and insisted that she was going to die, that she was not being properly cared for, etc. This condition is passing away after a few days. Ordinarily this would simply be put down as peevishness and bad temper, but I feel sure that we have to deal with a definite psychosis, differing only in its severity from that which is on all sides recognized as insanity.

My sole reason for excluding this class of cases which is naturally associated with the others is that the limits of this paper do not allow their consideration. They represent the same changes in much milder and more transitory form, and I think would be of immense value to the trained psychiatrist in his study of the more severe forms. One can

trace, as it were, by gradual steps all the different degrees from the mildest case where the symptoms are just noticeable and pass away to that where there is raving mania which never passes off. The separation, therefore, which I have set up is an arbitrary one, the excuse for which is the limited time and the fact that it is the severer cases which give us concern and make the complication such a dreaded one.

Excluding this milder group, in about sixteen thousand operations there have been forty severe cases or one in each four hundred. Werth (1) in two hundred and thirty-eight laparotomies had six cases; Urbach (6) in one hundred and six gall-stone operations had five cases.

What has the character of the operation to do with the development of insanity after it? Is it the removal of the ovaries which brings this about? Is it the severity of the operation? Is it the duration of the anæsthesia? Take the forty cases of my series; they are:

Seven cases following repair of relaxed vaginal outlet.

Two cases following curettage of cancerous cervices.

One case following a cystoscopic examination.

Five cases following exploratory laparotomy with freeing of adhesions.

One case following dilatation of a urethral stricture.

Four cases following double salpingo-oophorectomy.

Four cases following hystero-myomectomy supravaginal with double salpingo-oophorectomy.

Four cases following radical operation for cancer of uterus.

One case following removal of gall-stone.

One case following removal of kidney.

One case following suspension of kidney.

One case following removal of left tube and ovary and appendix.

One case following removal of left tube and ovary and appendix and repair of relaxed vaginal outlet.

One case following removal of left tube and ovary.

One case following dilatation and curettage, suspension of uterus, and repair of relaxed vaginal outlet.

One case following suprapubic cystostomy for stone in the bladder.

One case following excision of rectum.

One case following excision of fibroma of bladder.

One case following exploratory laparotomy and suspension of kidney.

One case following removal of right tube and ovary and left tube.

One case following removal of left ovary and repair of relaxed vaginal outlet.

One is at once struck by the fact that psychoses seem as common after mild as severe operations. Note the number of cases (seven) after simple repair of the perineum, after curetting, etc. In none of these patients was there manifested either extreme physical exhaustion before, or hœmorrhage during, or shock after the operation. In one only a cystoscopic examination without anæsthesia was done. In the others ether, or gas and ether were employed. In the majority of our patients who take ether, immediately afterwards casts and albumin appear in the urine. It is possible that a similar toxic effect is produced in the brains of those patients who show trouble immediately after operation. In Germany, toxic effects of chloroform are much accused; from my experience ether may likewise be blamable. On the other hand cases occur after local anæsthesia, as in two out of the eight cases reported by Selberg (14). Grekow (18), in reporting one case in a woman thirty years old, attributes the condition to the fact that he used local anæsthesia. It would seem from all this that anæsthesia *per se* really has as little to do with producing the condition as the severity of the operation. Nor yet does the character of the operation seem important. Note that in only twelve out of the forty was double oophorectomy performed.

In a report of three cases, Olshausen (7) insists that supravaginal amputation of the uterus with accompanying removal of the ovaries is more likely to lead to mental disturbances than the complete removal of the uterus. My own experience would seem to show the reverse. Does not all this go to

prove that the kind of operation done is not a determining factor?

Although iodoform gauze drains were used in some of the larger operations, I do not feel that iodoform poisoning has an important bearing on this subject. Among the earlier authors this was much discussed and had both its defenders and its accusers.

Does heredity play an important part? The consensus is almost universal in this group of insanities as in all others, that mentally tainted, neurotic, alcoholic and luetic ancestry predisposes to insanity. Berkley (16) states that on an average 60 to 70 per cent of those in asylums show such an ancestry. My own case records would seem to argue the contrary, as in case after case it is noted that the family history is negative. I believe, however, that careful inquiry in a long series of cases would show the great importance of heredity. People, unless searchingly questioned, try to avoid all reference to insanity in the family history.

Of what importance is the personal history in determining psychoses after operation? There can be no question but that those who have previously been insane are likely to a recurrence after an operation. I have myself, however, operated on but a limited number of such cases and not one developed insanity as a result of the operation. My experience with alcoholics has likewise been small, and although these patients are well known to be most likely to develop insanity, I have had no post-operative ones. In ten out of the forty cases in the series there was a marked history of nervousness, hysteria, and neurasthenia for long periods before the operation. In some of the others there was a neurotic high-strung temperament. In recent years since my attention has been more directed to the matter, I have noted that these patients have, as a rule, a great horror and dread of the operation beforehand, that they have thought a great deal about it, many needing almost to be pushed into the operation.

Occasionally one notes a peculiar and unnatural exhilaration, so that the patient who has dreaded an operation at last comes to it in the gayest of humors, almost dancing into the anæsthesia room. Such a preoperative state calls for careful study as evidence of a decided want of mental balance.

While not denying that there may be some mental instability in most instances, I am convinced that a perfectly sound person may develop a post-operative psychosis.

My opinion is that the psychical shock of the operation as such leads in predisposed persons to post-operative psychoses of a severe and prolonged character. The operation in this way acts in a manner analogous to great fires, accidents, earthquakes and terror in producing insanity.

A much smaller proportion, it would seem, arise from infections and are like the febrile psychoses.

The opinion expressed by Rayneau (17) coincides with my experience, that post-operative insanity does not conform to any one type. The operation may bring to light a state to which the patient was predisposed, mania, melancholia, paranoia, dementia, acute hallucinatory confusional insanity, etc. I wish, however, to note that the "acute hallucinatory confusional insanity" is the commonest form, and indeed I believe where another predisposition is not present, that it is this form that is found. This fact was first noted by Urbach (6) who found it in all five of his cases after gall-stone operations. Out of the forty cases at my disposal, ten were acute maniacs, four were melancholics, fifteen were acute hallucinatory confusional insane, one was a paranoiac, one had a mild dementia, four were melancholic with periods of mania, and four cannot be classified. It is not worth while to discuss here the well known symptoms of mania which do not differ from those described in any text-book on psychiatry; suffice it to say that there is a wide variation in the degrees of the disturbance; practically all begin mildly, some remain in this state, but many go on to extreme grades. The maniac usually starts with insomnia and garrulousness, the memory seems even sharper than normal, although less under control, singing, cursing, tearing at bed clothes and the wildest movements follow. They usually know what is going on about them, know people and things. The melancholics with their peculiar delusions and hallucinations,

their apathies, failure to talk, etc., are also a clearly defined group; among these suicidal tendencies are common, two of my melancholics attempting this.

A word about the acute hallucinatory insanity, or as it is termed by Berkley (16) collapse delirium with motor excitement. There are marked delusions and hallucinations, but also a distinct confusion of the intellect, with great motor excitement at times. In the periods of depression these patients become oblivious to all surroundings, do not know their friends, may even cease consciously to take food and drink, yet they are maniacal, loud and noisy, but lack the flow of words and tremendous intellectual stimulation of the true maniac.

The majority begin showing symptoms between the second and tenth days; eight of my forty started almost immediately after operation; the longest period was one month. Contrary to Selberg (14), I find that the mental state has had very little to do with retarding the healing of the wound. Somatically with one or two exceptions all did well. As stated at the commencement of the paper there was, with a half dozen exceptions, no reason to attribute the psychoses to infections, as there were no fevers, the urine was normal, the bowels active, and so apparently auto-intoxication could be excluded.

The duration is variable, the shortest period among my patients was two weeks, advancing from this up to permanent insanities. I have always found my psychiatrical colleagues most cautious in giving any prognosis either as to the duration of the trouble or as to whether or not it is likely to be permanent. Unfortunately a number of the patients from the public wards at the Johns Hopkins were seen years ago, and although we have notes to show that the illnesses lasted for months, the patients have been lost sight of, and whether they remained permanently mad, I cannot say. Taking the fifteen cases from my private hospital records, where a better watch has been kept on their progress, I find that thirteen recovered and stayed well, one remained mildly demented, and one is persistently insane. From this group I am inclined to be hopeful in my prognosis of a post-operative insanity, but it is well always to be cautious in expressing an assurance that a given case will return to health, for the trouble may persist permanently, as in one of my earliest experiences in Kensington, Philadelphia. A poor girl with a large ovarian cyst was operated on successfully, as far as her physical condition was concerned, but had to be removed to the Norristown Asylum, where she died tubercular several years later. She had been greatly worried because her friends had accused her of being pregnant and said she came to me to have the pregnancy interrupted.

Let us see what the various writers say as to the prognosis:

MacPhail (19) estimates 60 per cent recoveries.

Werth (1) estimates 50 per cent recoveries.

Fillebrown (3), bad when anything but transitory.

Selberg (14) estimates 50 per cent recoveries.

Compared with these authors, my statistics are favorable as far as recoveries are concerned, but in spite of this the horror of the complication remains as one of the most trying and frightful experiences that can arise. The longer the trouble persists, the less are the chances of recovery. As a rule, and especially in confusional cases, the return to normal is gradual and extending over many days.

How can one avoid and how treat these complications? From what has been said about the causes, the family and the personal history must be carefully entered into. Insane relatives or alcoholic parents should put one on one's guard. Hysteria and neurasthenia in the patient must be considered. *Above everything else one should go into the circumstances of the trouble which bring the patients to you. Have they worried greatly?* Are they sure they are going to die? Do they dread the operation? Are they showing unusual nervous symptoms? Are they sleeping well? When these conditions are pronouncedly adverse and the operation is elective, i. e., not essential, put it off until things are more favorable. Before doing any operation, secure if possible the entire confidence of the patient, gradually bring them to look upon the operation as a small and normal thing. *Dis-*

abuse the mind of all gossip and false belief given by well-meaning but foolish acquaintances, especially the dread that the operation may change the psyche. If the family tend to excite the patient, exclude them from her room. Above all secure discreet, cheerful, congenial, and patient nurses.

The *reaction of patient to medicaments* should be known, iodoform should be sparingly used, the anæsthetic given in as small quantities as possible, and the operation done as quickly as possible. The *anæsthetist* must show tact and care in his management of the patient. All these things, while not so essential, should be thought of.

When the condition has once arisen in the mild and early stages, the patient must be kept in a quiet room, a nurse must be in constant attendance, lest the patient do herself some harm. She must be fed regularly but not forced. The bowels should be kept open, plenty of fluid given. All implements or ways in which patient can do herself injury must, so far as possible, be removed. Sedatives in the restless patients are sometimes necessary, but must be given with care; morphia, as a rule, contraindicated. When after a week or so the patient does not clear, it is my practice to put the treatment into the hands of a competent alienist. It is not infrequently necessary to transfer the persistent and violent patients to asylums.

Sometimes a patient who has long been suffering from an active delirium finally subsides into a condition of hallucination as to time and place and personnel which, as she slowly improves, becomes intermittent with lucid intervals.

In such a case I remember well a little artifice which greatly helped to hasten the restoration and to orient a patient. It is now about eighteen years since I was called to Cumberland, Md., to see a patient with a pelvis filled with inflammatory masses and what we then termed with more accuracy than elegance big pus tubes. She was very ill and the operation consisted in opening the abdomen, and thus guided by touch and sight opening and draining the abscesses *per vaginam.*

The long illness with the shock of the operation, limited though it was, proved too much for the psyche, and she lapsed into a typhoid delirium which lasted a number of days. Finally she began to notice her surroundings, but to her great distress, imagined she had been taken away from home and she plead constantly to be taken back again. After a few days when she seemed a bit more rational, I arranged a little dramatic scene, a ruse to bring her back. We arranged the big four poster bed in her mother's room for her and her old mother in the room, sitting where she had often seen her in the rocking chair by the window knitting. Then we picked her up out of her bed and carried her out of the room she was in through the next room across the hall, telling her all the while we were bringing her home. When she got to the door of the room she exclaimed, "Why there's Ma," and was very happy when we deposited her in her mother's bed. The hallucination was routed and she was completely restored by the ruse, and she never ceased wondering how it was we had brought her back again. So much affectionate anxiety had hovered over her sick bed as she seemed for days to lie between life and death, that the home coming of the psyche to its normal habitat lingers in my mind as a prettier and a more affecting little drama than any I have ever seen enacted.

One has to be careful in sending these patients to asylums, for as Selberg (14) rightly observes these post-operative delusional states may even acquire a forensic importance. Where the patient suffers from a delirium of persecution, she may carry over some of her bitterness and notions of wrong inflicted upon her into her saner condition, and she may even make her notions a matter of serious legal inquiry.

Under such circumstances it is important that the physician should at once be able to clear himself by having carefully kept notes as well as sufficient reliable testimony as to the patient's condition.

I have now a patient who refuses to settle his account because he imagines he was ill-treated, when, as a matter of fact, he came to me profoundly under the influence of drugs and soon became so maniacal that I had to send him to an asylum. But he, while recall-

ing nothing specific as to his own condition and conduct, remembers very well much that had to be done to restrain him, and keeps up a lively sense of resentment as though he had been subjected to unnecessary personal indignities.

Careful note taking, and good witnesses, and frankness with relatives will clear up misunderstandings of this sort if the case by chance comes to court.

CONCLUSIONS

1. Post-operative psychoses, seen often in childhood and the aged, occur also in women in the prime of life, most frequently between the ages of thirty-five and forty-five.

2. Anæsthesia, physical shock, the kind or severity of the operation are not effective causative agents.

3. Infection, auto-intoxication, drug intoxication are important factors, but there are many psychoses entirely independent of them.

4. Mild aberrations of a transitory nature are very common.

5. An unstable nervous system, and especially undue anxiety and worry about the operation and the trouble which leads to the operation are the most potent factors in bringing about profound nervous sequelæ.

6. Prognosis is favorable.

7. Prophylaxis consists in quieting and reassuring the patient. In this connection the nurse is most important.

8. Care should be taken to avoid any legal or forensic complications by frankly dealing with the family from the onset of the trouble.

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