

He remarks that no other writer, as far as he is aware, has mentioned this cause of sudden death. Blundell treats at some length of causes which, if not identical, are certainly similar to the one in Dr. Madden's case. "Dreadful contusions and mortifications," he remarks, "are apt to occur in laborious labor, ..... from the rude action of the hand, perhaps; from violent efforts to abstract the head with instruments; from frequently repeated but unavailing labor-pains; and, above all, from impaction of the head in the cavity of the pelvis..... By any of these causes, intense mortifications, sweeping all round the upper or inferior part of the vagina, may be produced. If these sloughs are superficial, they are less dangerous; but if they lie about and penetrate deeply, death at the end of a few hours...is not unfrequently the result, the system giving way under collapse."

The symptoms and phenomena of shock are so fully pointed out in all surgical works that we will not stop to notice them. That it may prove speedily fatal in the puerperal as in the surgical patient, is a fact no one will deny.

Having thus briefly referred to fatal collapse, and some of its causes, we pass to the *third cause of sudden death*, viz.:

### III.—EMBOLISM.

Under this term, for convenience, we will include the phenomena of *thrombosis*, by which we understand the process of *clot-formation* and *embolis*, or *clot-transmission*. This is a subject which, until a comparatively recent period, was but imperfectly understood, and doubtless many cases of sudden death have occurred, both in puerperal and other patients, which were, for want of a clearer knowledge of this subject, ascribed to lesion of the heart or brain.

There is possibly now a danger of the profession running to the extreme in another direction, and of ascribing to *embolism* every sudden death that occurs. However this may be, deaths from this cause certainly do occur, and some of these cases we find among lying-in patients. Dr. Madden, to whose paper we have already referred, gives it as his opinion that "this is the most frequent cause of sudden death after parturition."

And we name, 1st. *The peculiar altered condition of the blood of the pregnant woman*. It is well known that during the latter months of pregnancy the blood differs decidedly from its normal condition, the essential, and to us most interesting, change being a marked increase of fibrine, with diminution of the corpuscles. This condition of the blood continues for some time after the occurrence of parturition.

With the large increase that we have named, the increased danger of thrombosis occurring is readily seen; and, with some of the unfavorable conditions that are often present in the puerperal state, even *spontaneous coagulation* may occur at any time.

2d. *Anemia may exist previous to confinement*, which would aggravate the hyperinosis of pregnancy, since a relative increase of fibrine is characteristic of

this condition likewise. Anæmia would also act unfavorably, by inducing a flabby or relaxed condition of the muscular walls of the heart, and thus impairing the force of the circulation, which, as we shall hereafter see, favors clot-formation.

3d. *The loss of blood after delivery* acts also in these two ways, viz., by depressing the circulation, and by destroying the normal relation existing between the fibrine and blood-corpuscles, leaving the former relatively increased.

4th. *The occurrence of inflammation*, which is a quite common sequence of parturition, would still further increase the danger from this cause. Especially is this true of inflammation of the lungs, which may itself arise in puerperal cases as a consequence of embolism. When this disease exists, an overaccumulation of blood may occur in the right cavities of the heart, from the presence of the exudation preventing a free passage of blood through the lungs. The right ventricle and auricle are enfeebled by distension, and this condition, in conjunction with the increase of fibrine in the blood, leads to coagulation (Flint). A death from embolism, with the conditions of pleuro-pneumonia and the puerperal state, occurred in this city a few months ago. The patient was convalescing favorably, and, while sitting up in bed, the respiration became suddenly embarrassed, other symptoms of heart-clot were present, and death occurred in half an hour. An autopsy verified the diagnosis previously made. Dr. R. H. Cummins.

5th. *Post mortem of the vascular system*. This mode of sudden death was pointed out by Meigs as long ago as 1849.

6th. *Open state of the uterine sinuses*, facilitating the entrance into the circulation of either detached clots or particles of other foreign substances that may serve as nuclei for the collection of fibrine. Sir James Simpson has pointed out that "morbid matters sometimes pass into the circulation in the puerperal state, through the uterine veins, and are afterwards carried round with circulating mass... Some of these appear to have a direct tendency to produce coagulation, or consolidation, in the super-fibrinated and diseased blood."

7th. *Severe contusions and lacerations during labor*, by which vessels of considerable size sustain mechanical injury, and through these, if ruptured, detached clots or any foreign substance may pass into the circulation, as through the uterine sinuses. Or, a coagulum may be formed in the vessel, as a consequence of external irritation. It is a well-established fact that clotting of blood in a vessel may be caused by irritation *outside* the vessel, even the pressure of an enlarged gland sometimes producing this result. The same result sometimes follows gun-shot wounds, open sores, or bone fractures. It is only necessary to suggest that many sources of similar irritation frequently arise during the process of parturition.

8th. *Inflammation of veins*, as in the phlegmasia dolens, which is not a rare sequence of parturition.

The more common danger, perhaps, is that which may arise from the formation of a thrombus at the