

Dorland (W. A. M.)

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A CLASSIFICATION OF PUERPERAL SEPSIS.

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By puerperal sepsis is meant that serious complexus of symptoms arising from the introduction into the system of the puerperal woman of the septic germs and their ptomaines, and consisting in great alterations in the temperature and pulse-rate, in profound physical depression, and in marked local (vulvar, vaginal and pelvic) manifestations. Our knowledge of this grave disease has been marvellously developed within the past few years, largely owing to the wonderful progress made in bacteriology and pathology, and we are in a position to-day to offer a more thorough classification of its various clinical phases than would have been possible less than a decade ago. As has been concisely pointed out by Dr. Harold C. Ernst, of Boston, in order for the development of the disease there is required in the first place a specific virus; secondly, a means of entrance for this virus into the system; and thirdly, a certain constitutional condition that will favor the development of the disease, the other two factors being present. The specific virus may be any one of a large number of pathogenic microbes that have been, from time to time, discovered in various puerperal septic patients; very probably, however, it is the streptococcus pyogenes (Fehleisen's diplococcus of erysipelas) that is the most frequent causal organism. The investigations of König, Williams, Chase, and others would seem to demonstrate the truth of this statement. Whatever the variety of micro-

organism concerned in the origination of the disease, however, in order to become pathogenically active, it must either have lain dormant in the genital canal for some time prior to parturition, or it must be introduced therein during or shortly after labor. An entrance into this region once effected, further encroachment upon the organism is facilitated by the numerous abrasions and lacerations that are present after every labor, however normal. It must be borne in mind that a mere mucosal abrasion is fully as dangerous as is a more extensive destruction of tissue. The factors that would seem to favor the development of puerperal sepsis in any case may then be stated to be three, namely, a markedly reduced vitality, the presence of numerous abrasions and lacerations in the parturient canal, whereby a ready entrance is afforded the pathogenic microbes, and the great difficulty that will be experienced in preserving a proper degree of cleanliness owing to the anatomic peculiarities of the parts. It is probable that the great malignancy manifested by the streptococci is largely dependent upon their enormous power of propagation, rather than upon any special inherited virulence on the part of the germs. Be this as it may, it is certain that by their presence the following changes in the woman's organism are effected. In the first place, there occurs an enormous propagation of the germs implanted within the parturient tract; these, by their presence,

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give rise to the formation of very deadly substances known as ptomaines, which are readily absorbed by the vessels and lymphatics of the region, and quickly enter the general circulation. There then ensue grave alterations in the constitution of the blood and the vital fluids of the body; varying degrees of hydremia and of leukocytosis may be noted, and, finally, vast numbers of the germs themselves as well as large quantities of their poisonous products may be detected in the blood and body-serum. Locally, there are frequently produced very marked alterations in the tissues of the genitalia. An inflammatory process of greater or lesser intensity may be noted; this may consist merely in an engorgement of the parts with catarrhal manifestations; there may occur a marked diapedesis, and exudates of varying degrees of consistence be thrown out; or there may be produced such a devitalization of the tissues as to result in necrobiosis, or even absolute gangrenous changes with the formation of extensive sloughs.

According to the amount of ptomain-intoxication, the method of introduction of the virus into the system, and the pathologic changes and clinical manifestations produced thereby, will depend the variety of the septic infection presented by the patient. It has only been of recent years that any classification of the various forms of puerperal sepsis has been attempted. The grouping of Spiegelberg, and, more recently, that of Kehrer, are most probably the best that have as yet been offered, but both of these are largely defective in that they fail to include the rarer manifestations of the disease, and give no clue to their pathologic basis. In the preparation of the following classification, which is founded on a combined clinical and pathologic basis, an effort has been made to give a rational presentation of the various aspects of the disease, including not only the more familiar, but the rarer, forms as well. Clin-

ically, heterogenetic puerperal sepsis is encountered in two main varieties, namely, that in which there has occurred a general systemic infection, and that in which the general infection is quite subordinate to the local manifestations. Under these main divisions the various forms of the disease are grouped according to their pathologic features.

Under general puerperal sepsis may be included all those forms dependent upon hemic or vascular infection. Here may be mentioned simple sapremia or true puerperal septicemia; puerperal phlebitis in its various forms, including uterine and parauterine phlebitis, puerperal pyemia, puerperal pneumonia and puerperal ulcerative endocarditis (both due to embolic infection), puerperal rheumatism, puerperal arthritis, and phlegmasia alba dolens; puerperal erythema; puerperal pemphigus; puerperal tetanus; and puerperal neuritis.

Under the second heading are included those cases in which the sepsis is mainly localized in or around the uterus and its adnexa. This embraces, in the first place, all forms of local lymphatic infection, including puerperal metritis in its various forms; puerperal pelvic cellulitis, and puerperal peritonitis, pelvic or general. Secondly, those cases in which there is a special involvement of the genital mucosæ, including vulvitis, endokolpitis, endometritis and endosalpingitis in their various forms. Thirdly, puerperal urethritis, cystitis, ureteritis, and pyelitis. Fourthly, puerperal proctitis.

Finally, mention must be made of the very rare form of autogenetic puerperal sepsis or autoinfection.

For convenience in reference the foregoing classification may be tabulated as follows:

A. HETEROGENETIC PUERPERAL SEPSIS.

Class I. *General Puerperal Sepsis.*

1. Hemic or vascular infection.

- (1) Puerperal septicemia. Synonyms: *Sapremia* (Duncan); *resorptive fever*; *ptomainemia*; *ptomain poisoning*; *ptomain intoxication*; *septic intoxication*; *septic fever*; *putrid infection*; *putrid intoxication*.
- (2) Puerperal phlebitis (*infectious phlebitis*; *septicemia venosa*) with thrombosis (*thrombophlebitis*) and embolism (*puerperal embolism*).
- (a) Uterine and parauterine phlebitis (*phlebitis uterina*; *puerperal metrophlebitis*).
- (b) Puerperal pyemia (*septicopyemia*; *pyæmia metastatica*; *pyæmia multiplex*).
- (c) Puerperal (*septic*) pneumonia.
- (d) Puerperal (*septic*) ulcerative endocarditis.
- (e) Puerperal rheumatism.—Puerperal (*septic*) arthritis.
- (f) Femoral (crural) phlebitis (*phlegmasia alba dolens*).
- (3) Puerperal (infectious) erythema (*scarlatiniform erythema*).
- (4) Puerperal (*septic*) infectious pemphigus.
- (5) Puerperal tetanus (*tetanus puerperarum*).
- (6) Puerperal neuritis.

Class II. *Local Puerperal Sepsis*.

1. Lymphatic infection (*septicemia lymphatica*; *puerperal lymphangitis*).

- (1) Puerperal metritis.
- (a) Phlegmonous (*metritis purulenta*).
- (b) Gangrenous (*metritis gangrænosa*).
- (2) Puerperal pelvic cellulitis (*puerperal*

parametritis, *puerperal perimetritis*, *puerperal ovaritis*).

- (3) Puerperal peritonitis, pelvic or general (*peritonitis puerperalis*).

2. Involvement of the genital mucosæ.

- (1) Vulvitis.

(a) Catarrhal or suppurative (*vulvitis catarrhalis*).

(b) Phlegmonous or ulcerative (*vulvitis purulenta*).

(c) Gangrenous (*vulvitis gangrænosa*).

(d) Diphtheric (*vulvitis diphtheritica*).

- (2) Endocolpitis.

(a) Catarrhal or suppurative (*endocolpitis catarrhalis*).

(b) Phlegmonous or ulcerative (*endocolpitis purulenta*).

(c) Gangrenous *endocolpitis gangrænosa*.

(d) Diphtheric (*endocolpitis diphtheritica*).

- (3) Endometritis.

(a) Catarrhal or suppurative (*endometritis catarrhalis*).

(b) Phlegmonous or ulcerative (*endometritis purulenta*).

(c) Gangrenous (*endometritis gangrænosa*).

(d) Diphtheric (*endometritis diphtheritica*).

- (4) *Endosalpingitis*.

(a) Phlegmonous or ulcerative *endosalpingitis purulenta*; *puerperal* or *septic pyosalpingitis*.

3. Puerperal (*septic*) urethritis, cystitis, ureteritis, and pyelitis.

4. Puerperal (*septic*) proctitis.

B. AUTOGENETIC PUERPERAL SEPSIS (*Autoinfection*).

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