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AN
INAUGURAL DISSERTATION
ON

Increase Of Fibrine In Inflammation

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This
Inaugural Dissertation
Is
Respectfully Inscribed,
By
The Author.

Increase of Fibrine in Inflammation.

Inflammation the most common and yet the most difficult of all pathological conditions to understand, is characterized by many interesting phenomena more or less obscure, that are interesting to the pathologist in a scientific point of view and important to the practitioner as aids in diagnosis. None of the changes produced by this morbid process, are to be rejected, because of a want of interest or importance; but a consideration of each one separately were I even competent to explain them, would involve more time and study than it is at present practicable to bestow upon one particular subject. I shall therefore speak of the one only which is to me most interesting, because of its remarkable peculiarity, viz: the increase of the fibrinous constituent of the blood.

This change is not apparent - but real. The fibrine is not only seemingly increased it is actually augmented. Upon what principle it occurs or whence it is derived has never been explained. As speculation in medicine is lawful, notwithstanding it is sometimes ridiculous, I will offer reasons (or rather words) for what I conceive to be the only possible source of an increased quantity of Fibrine in the blood during inflammation. When Inflammation has progressed to a sufficient extent to effect the general system or in other words to produce a high grade of symptomatic fever the function of nutrition is suspended and the fibrine which is held in solution by the serum of the blood and which ought to have been appropriated in the capillary vessels to the purposes of nutrition passes unchanged into the venous blood, where

it is detected by the plebotomist. By this theory (if it deserve the name of theory) it is reasonable to conclude that the fibrine is not only gradually increases as nutrition gradually subsides and in an inverse ratio but continues to augment even after the latter process has entirely suspended, from the fact that digestion and assimilation are doubtless still going on. This opinion is substantiated by the fact that the inflammatory diseases in which the greatest increase of fibrine is present are those that interfere least with the functions of the digestive organs. For instance in the Exanthemata in which active inflammation is always present and in which at the same time the functions of the chylopoietic viscera are always perverted, this change is not near so marked if it exist at all, as in Acute Rheumatism or Pleuritis in which the patient

4

always in uncomplicated cases retains his appetite during the whole progress of the disease. Carpenter, in a note with reference to the experiments and observations of several learned pathologists says that Andral substantiated the important fact which had been before suspected that the increase in the quantity of Fibrine in acute inflammatory diseases is invariable, the increase being strictly in proportion to the intensity of the inflammation and the degree of symptomatic fever accompanying it. In another note he says it appears obvious that the increase in the quantity of Fibrine is ~~not~~ dependent upon the febrile condition which is secondary to the inflammation, but upon the Inflammation itself. This conclusion he says is confirmed by the interesting fact that in idiopathic fevers the proportion of Fibrine is diminished instead of being increased.

Carpenter is high authority, but with due deference to his reputation and scientific attainments I contend for reasons before assigned that the increase of Fibrine in acute inflammatory diseases is dependent upon the symptomatic fever and not upon the local inflammation. Persons most predisposed to the Phlegmasiae are those in whom digestion assimilation and nutrition are active, when attacked the disease is ushered in with symptoms of already existing inflammation, which is active in proportion to the vigour of the constitution, consequently the symptomatic fever runs high the secretions are locked up nutrition suspended and the Fibrine increased as a consequence.

The Idiopathic fevers on the other hand are produced by a specific poison which effects the system through the circulation, first deteriorating the blood itself, then deranging

6

The digestive organs and afterwards involving the whole system. Inflammation in such diseases is always secondary and occurs after the conditions essential to an increase of Fibrine have been destroyed by the action of the remote cause. In the advanced stage of phthisis the proportion of Fibrine is sometimes increased. This Carpenter says is probably owing to the development of inflammation around the tubercular deposits. It is much more reasonable to suppose that it depends upon the hectic or symptomatic fever produced by the local irritation. Andral. Carpenter says, ascertained the fact by experimenting upon animals that no circumstance of debility or privation prevents this characteristic change. He took three dogs, and after ascertaining the proportion of fibrine in the blood of each of these animals,

7

he deprived two of them of food entirely. On the fourteenth day coincident with inflammatory changes in the stomach the proportion of Fibrine in the blood was found to have arisen from two to four. This can be accounted for upon the same principle. The stomach was deprived of its accustomed stimulus and every organ of the system sympathized with it and it in return was made the mouth-piece through which every tissue complained of a deficiency of the watery element of the blood, which was being rapidly and constantly consumed thus creating an amount of irritation incompatible with nutrition. while the fat which had been before deposited was rapidly absorbed the oily portion consumed in the process of combustion to keep up the requisite amount of heat, which is the strongest indication in such cases, and the cell walls which are composed of a protein compound, were doubt-

les converted into Fibrine which by the excessive irritation in the whole economy was prevented from being appropriated, and by that means, the increase of Fibrine was presented which was only coincident with and not dependent upon the inflammatory changes in the stomach. The other dog was permitted to have a small quantity of food every day, consequently the characteristic change did not take place until the twentieth day. This experiment instead of proving that previous debility does not prevent an increase of Fibrine as a result of local inflammation proves conclusively that irritation may exist in a healthy animal to a sufficient extent to pervert nutrition and thus cause an increase of Fibrine, independent even of inflammation. This theory is still further supported, by the action of the remedies that are employed

9

in acute inflammatory diseases, most remarkable on account of this peculiar alteration in the relative constituency of the blood. for instance, in acute pneumonia or pleurisy when venesection is indicated, the operation is always followed with more marked success when it has been carried to a sufficient extent to produce a sedative effect upon the nervous system by which irritation is diminished, relaxation produced, secretion promoted, and nutrition, which had been suspended is reinstated, and the fibrine that had accumulated is now readily appropriated, hence, the rapid recovery from such attacks. Tartarized Antimony, when administered as a defibrinizer fulfills the indication by first nauseating the stomach and thus intercepting the source of Fibrine. As a result of the nausea sedation and relaxation follow by which the rapidity of

The circulation is diminished, secretion ex-
 cited and nutrition permitted. Upon these
 plain philosophical principles, the disease is
 abated and the increase of Fibrine coun-
 teracted. The preparations of Mercury defibrin-
 ize the blood by exciting secretion facilita-
 ting absorption and thus favoring the func-
 tion of nutrition. It is regarded by some
 as a curious fact that Mercury possesses
 the peculiar property of diminishing the pro-
 portion of Fibrine in the blood, and at
 the same time under other circumstances
 of increasing it. This it seems to me is quite
 easy to understand. In the first instance it
 defibrinizes the blood upon the principle
 before suggested - that is by exciting secretion
 and absorption, and thus allowing the nu-
 tritive function to go on. After this end is att-
 ained by the continued exhibition of Mercury
 the Salivary glands will become inflamed,

11
and produce a degree of constitutional irritation, sufficient to suspend the nutritive process, and as a consequence, the Fibrine will be again increased. Although this theory, supported by the arguments advanced, be passed unnoticed for a time it will doubtless at some future day, be regarded as an established fact in pathology.