

AND

INAUGURAL DISSERTATION,

ON

Inflammation



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FOR THE DEGREE OF

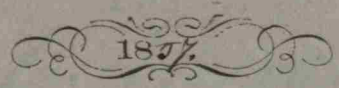
DOCTOR OF MEDICINE.

BY

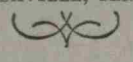
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By

A. P. W. Gullough.

Inflammation

Inflammation from its almost universal prevalence at the commencement of disease or its Suppuration during its progress, renders it of the utmost importance to the practicing man, and to understand it aright implies a knowledge of by far the greater majority of Diseases he is called upon to treat.

We will say in advance that it is not our purpose to investigate the various notions entertained and promulgated by different authors of the nature of inflammation but such of them only as receive the present sanction of the Medical world.

Our subject has been the source of so much profuse writing, though after they have been advanced, lived, and flourished for a time to give place to an other which seemed perhaps to approach nearer the truth or from its novelty and

the pertinacity with which its founders clung to it, but ^{it} had its day, and was soon lost sight of in search of something new.

On regard to the nature, progress, intensity and mode of termination inflammation is greatly modified by age sex, temperament, Season of the year. by the nature of the exciting cause and character of tissue in which it is developed.

The time of life which seems to be most susceptible for this disease is from the first to the tenth year. The peculiarity and diversity of effect considered with reference to sex some organs are more liable to suffer in the one and some in the other. Carotitis and Cerebritis are more prevalent in men than in women. While it is well known that females are more subject to inflammation of the peritoneum and Lymphatics With regard to the degree of intensity we see the same diversity which so peculiarly characterizes it

presenting a variety of forms, differing from the slightest possible derangement, to most intense morbid action, and in this respect may be denominated mild, moderate or violent. Again inflammation is sometimes to be latent, that is the symptoms are so ill developed as to preclude the possibility of detection this arises from a want of excitability, from perverted nervous action, and complications with other diseases. Another peculiarity is that inflammation does not recur with equal frequency in all the tissues of the body, while some are supposed to be entirely exempt. The cellular, the mucous, the serous, and dermoid textures, are particularly prone to inflammation, the Synovial Membrane the fibrous envelopes, the bones, the ligaments the cartilage, the muscles and their tendons inflame with difficulty, but when once affected they readily yield to its influence.

The rapidity with which this disease usually runs its course is subject to a considerable number of contingent circumstances, the most important of which, are the nature of the exciting cause. And structure of part affected. Approximating to the truth as a general rule it may be stated that the ratio with which a part is disorganised is in proportion to the liberality or scantiness with which it is supplied with blood vessels.

The phenomena usually enumerated as marking inflammation are, Redness, Heat, Pain and Swelling, these signs however are not constantly present and as might be expected are liable to frequent variations.

The phenomena of redness depends upon the greater amount of blood contained in the part inflamed. red blood entering those vessels which are destined to receive and.

convey colorless fluids only. or which naturally
 admit so few of the red corpuscles, that
 from their rapidity of motion cannot be seen,
 There is much variety in the shade of the
 redness. it is sometimes bright and violet
 as if the part was filled with arterial blood
 particularly in the acute forms. and earlier
 stages. Sometimes dark and livid as if
 filled with venous blood. The redness is dif-
 fused, Circumscribed and in patches.

The increase of heat depends upon the
 increased afflux of blood to the part,
 thereby bringing a greater amount of Oxygen
 in contact with the living tissue. Meanwhile
 the tissues themselves are undergoing perpet-
 ual change. which in the natural condi-
 tion of the body belongs to and is essential
 to health. The temperature of the part
 must exceed that which belongs to it in health.

though in general it is not so great as the Sensations of the patient or his heightened Sensibility would imagine. Nor is it above the maximum heat of blood in the central parts of the body.

The pain is multifarious in different cases both in degree and kind. Varying from the slightest derangement to the utmost possible agony. parts that are endowed with but little Sensibility become exquisitely sensible when inflamed. There is much also in the character of the pain. while at times there is little none. This happens in the mucous membranes and parenchymatous structures.

The pain is supposed to result from the nerves being ~~the~~ involved in inflammation though this is not reconcilable with the fact that parts least supplied with nerves are most painful when inflamed.

It also results from the stretching and pressure of the nerves from the Swelling

The pain sometimes precedes any other Symptom this is especially observable in internal inflammation. Sometimes the pain is continued and uniform. Sometimes Continued but not uniform. Sometimes intermittent and even periodic

Swelling is the result in part of a distension of the blood vessels caused by the superabundant afflux of blood to the part.

But no great amount can arise from this Cause alone, and is mostly due to the extravasation of fluids into the surrounding interstices. The degree of inflam Swelling. in different Cases, depends upon the violence, and Cause of the inflammation with the laxity of the part involved

Besides these Symptoms enumerated as Characteristic of inflammation there are many others, which accompany it, varying with the extent of the inflammatory action, the most important as well as constant of these is, Fever. Variouslly called Sympathetic, irritative or inflammatory. The relative duration of the fever is subject to Considerable variations, persisting for a little while only, or lasting for several days. Pulse full and bounding, or small and contracted. Face flushed, Headach and sometimes delirium.

On Short the symptoms are those of high vigorous excitement. There is an other grade of fever which approaches the Typhoid in type being Susceptibility but want of energy in the system, the heart beats rapidly but not forcibly the pulse frequent but feeble

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An excess of fibrin is an other symptom of inflammation though not peculiar to it alone being the result rather than the cause. This excess may be known by the firmness and tenacity of the Cragulum and frequent appearance of the buffy Coat.

Besides these phenomena there is in every case of inflammation which has continued for any considerable length of time a perversion of the Vital actions. We will notice first the Changes that occur in Secretion.

On the earlier stages of the inflammation while yet the excitement has scarcely passed the boundary line of irritation there is an increase in the Secretions beyond the normal quantity, but as the inflammation progresses there is almost always a diminution of the Secretions or suspension. During the continued course of the

disease the secretions are not only reestablished but even more abundant than in health. But not precisely in their normal quality being more or less acrid and exsiccating the parts with which they come in contact. and ore more or less albuminous.

The next perversion of the vital actions is the exudation of plastic lymph a name applied to a substance exuded from the vessels of the inflamed part. Capable of becoming organized, thus forming a new living structure. The fibrous portion concretes while the albuminous portion remains combined with water in the form of serum. fills and distends the surrounding interstitial spaces into which it is effused.

All that seems to be essentially necessary to the organization of the exuded fibrin is that it be in contact with living tissue.

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As it at first escapes from the vessels unmix-
ed with other fluids it is a homogenous
transparent mass. and is often exuded
immediately after the inflammation
has been established.

Secretion of Pus this product of inflamma-
tion which occurs at a later period than the
preceding is effected by a process termed
Suppuration, Frequently the inflammation
ceases before it reaches this stage and is then
said to end in resolution. The Suppurative
process may commence at period varying from a
few hours to several days. occurring alike
in all the tissues of the body. Modified in
all by some intrinsic property which they
may possess peculiar to themselves
As it occurs usually in a sound consti-
tution it is called Candor or healthy
pus and is a whitish yellow opaque

homogeneous mass. Chemically neither alkali nor acid, but is often mixed with blood, Mucous Serum and Coagulable lymph which impose upon it the chemical property that they may possess. The violence of the pain often abates when the process of suppuration is established, the tension of the part being diminished by the escape of the pus.

Dependent upon, and closely connected with Suppuration is the formation of abscess the time required for the perfection of which depends upon the degree of inflammatory action, and the anatomical elements of the particular part affected. When the abscess is superficial it always manifests a tendency to the cutaneous surface where it ultimately points and breaks. The period required to effect this depends upon the activity of the absorbents and.

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and is always promoted by pressure, this process is denominated ulcerative absorption.

The formation of abscess is generally attended by well marked symptoms the pain loses its intensity and changes to a throbbing pulsatile sensation, the swelling soft but more prominent and fluctuating. fluctuation is perceived, the surface assumes a purple or livid aspect, and ulcerates making an opening by which the contents escape. Not an uncommon occurrence is of inflammation is softening a sign of invaluable importance in diagnosis, the parts in which it is most common as well as strongly marked are the brain, Spinal Cord and Mucous membrane. The Cause of this softening seems to be a perversion of the nutritive functions of the organ by which its cohesiveness is lost and its nutritive elements are not given out,

Among the list of vital perversions Gangrene should hold a prominent place not so much from the frequency of its occurrence as the hurtful affects attendant upon it.

The probable cause of gangrene is the undue disproportion between the excitement of a part and its powers of vitality, the latter being entirely exhausted by the excess of the former. At the approach of gangrene the Circulation though it still goes on is more feeble and languid while perhaps that in Capillaries is entirely arrested.

The surface becomes much darker assuming a purple or livid hue. The pain diminishes with a sense of heat. Absolute gangrene is evinced by loss of Sensibility Change of Color to dark or black. loss of temperature with Chemical Changes which continue to go on until putrefaction takes place.

A new inflammatory process is set up and a red line is placed around the part separating the living from the dead tissue. But the disease never stops here unless the patient dies, the inflammation being necessary for the repair of the injury sustained. ulceration takes place if not anticipated by the surgeons knife, and separates the unsound from the sound parts. An ulcer is left with a suppurating surface and is filled with granulations

Granulation and cicatrization seem not properly to come under the present heading. But should be denominated curative agencies employed by nature to heal her breaches. Yet being the result of inflammation and so closely connected with suppuration and mortification we will notice them at this place through the processes.

being very long it will be impossible to treat of them in detail.

The granule consists of Coagulable Lymph and the process by which it is formed is very similar to that of a ~~union~~ union by the first intention. A watery fluid oozes up from the surface of the wound. which if allowed to remain becomes organized by the Subjacent vessels extending into it.

The surface of the sore is elevated into a number of little rounded bodies which are the rudimentary granules. An other layer of plastic lymph is effused. the vessels are still further extended, and thus incrustation after incrustation is formed until the cavity is finally filled up. When Cicatrization its finishing stroke as to do more perfectly and effectually what granulation had done commences by

Contracting the diameter of the wound the inflammation having subsided, a thin delicate pellicle is placed over the margin of the breach until it soon unites with the old skin by an interchange of vessels and nerves. — — — — —

Another and striking peculiarity of inflammation is the occurrence of that strange and often inexplicable phenomena denominated metastasis, a term which has been neatly characterised as expressive of only our ignorance. This occurrence may be frequently accounted for upon the principle of Sympathy. Contiguity of Structure and Continuity of Surface. but it often occurs independent of any such Connection or Relation, as inflammation of the testicle, supervening upon inflammation of the parotid gland.

The most plausible theory of inflammation and the one which seems to obtain at present is First the application of the Stimulus or excitant upon the nervous terminations either from within the body or without it. Consequent upon which is the contraction of the minute Capillaries ramifying in the part irritated, so as almost to arrest the circulation,

Immediately after this they expand and dilate so as not only to reestablish but quicken the circulation. Following up the inflammation after it has continued for a certain length of time reaching a particular stage, the circulation is again impeded in its progress and even often arrested,

As this process continues there is an increase in the relative amount of.

red corpuscles, and an actual increase of the white with the peculiar change wrought upon their nature that has the effect of causing them to coalesce or adhere thus completely stopping up the tubes of capillaries while the liquid portions of the blood percolates through them and is effused into the surrounding interstices

The vessels which carry on the collateral circulation dilate under the influence of the irritation they receive and carry on the circulation with increased rapidity

From this explanation it will be seen that inflammation is essentially an over action of the vital powers of the parts concerned.

The evidences of which are increased heat, increase of the circulation increased secretion in the earliest stages. The copious elimination and formation of new products at the more advanced stage.

Thus far we have confined our selves to the local effects of inflammation, but it is by no means restricted to its original seat

No great degree of inflammation can continue for any considerable length of time without involving other parts or the whole system in disorder. As the function of an organ inflamed are impaired or suspended other dependent or connected functions must necessarily suffer.

Another of derangement in organs not connected is the concentration of circulating fluid and nervous energy in the part affected which leads to a deficiency of these vital agencies else where. Still another source of derangement is the sympathetic connection of different organs of the body, by which derangement in the one is followed by derangement in another independent of any peculiar relation between their functions.

Most writers in treating of the Subject of inflammation, make a number of terminations, a Division in there is much Convenience in a practical point. As it is always necessary to adapt our treatment to the particular end in view. but these terminations might with equal propriety be called different forms or Stages of the Same disease, And does not merit the distinctive title of terminations more than the same Changes recurring in any other disease. A sufficient proof of which is the fact that scarcely no two authors are agreed upon the same number. Some making two and others three while some make seven, and others again make eleven.
