

OUR PRIZE COMPETITION.

DESCRIBE THE CAUSES, SYMPTOMS, AND TERMINATIONS OF INFLAMMATIONS.

We have pleasure in awarding the prize this week to Miss C. G. Cheatley, Incorporated Nurses' Home, Frederick Street, Belfast.

PRIZE PAPER.

When any part of the body is injured, a series of changes occur in it as the direct result of the injury, and these changes will be similar, no matter which part of the body is injured, or what the cause of the injury may be. The term inflammation is used to cover all these changes, and it will be mild if the injury is slight, and severe if the injury is great. A fracture causes inflammation of the surrounding tissues and of the bone; a burn causes inflammation of the skin and soft tissues. Inflammation has therefore many causes, such as blows, the presence of foreign bodies, the action of chemicals, burns, and scalds, but there is one variety of cause that is of the utmost importance in surgery, and this is the inflammatory condition caused by micro-organisms or bacteria.

Traumatic, non-bacterial, inflammation.—When a part is injured, certain changes occur in it which constitute inflammation, and the expressions of these changes are called the clinical signs of inflammation. The earliest changes occur in the blood vessels, which become dilated, whilst the blood-flow through them is quickened. The part, therefore, contains more blood than usual, and is redder and hotter than the surrounding tissue.

The serum of the blood then begins to pass out from the vessels, and the tissues become swollen with fluid.

As the part is swollen its nerves are pressed upon, and it becomes painful, and there are now present the four classical clinical signs of inflammation—redness, heat, swelling, and pain. A fifth evidence of inflammation is found in the loss of function of the part, which cannot work properly in its inflamed state. For example, if the kidney is inflamed, it can no longer secrete the urine properly, and either suppression will occur, or abnormal materials will be found in the urine.

In more severe inflammation, as well as the escape of serum (inflammatory lymph) from the blood vessels, there is also an escape of the white cells (leucocytes) of the blood. In the most severe types, especially if occurring in a soft tissue, such as the lungs, the blood vessels rupture, and the red cells escape. This is known as hæmorrhagic inflammation.

The above varieties of inflammation may end in:—

(1) Resolution, or the restoration of the part to its previous healthy condition.

(2) Fibrosis, or chronic inflammation.

Like the symptoms, the treatment of acute inflammation must be both local and general, and its aim to promote resolution.

Chronic inflammation or Fibrosis.—When the cause of the inflammation is not quickly removed, the process continues and becomes chronic. The cells of the surrounding tissue multiply, and there appear in the inflamed area a number of strands of fibrous tissue. This fibrous tissue steadily increases in amount so long as the inflammation continues, and after it has formed it contracts. This fibrous tissue (fibrosis) destroys the cells of the part, and may lead to serious consequences. For example, if both kidneys are chronically inflamed, the fibrous tissue formed supersedes the kidney cells till there are not enough cells left to carry on the function of excretion, and the patient will die from gradual accumulation in the blood of excretory products (uræmia). In the case of joints and tendon sheaths, the strands of fibrous tissue stretch between the different surfaces, and prevent movement. Such bands are called adhesions. Adhesions also occur in the serous membranes, such as the pericardium and peritoneum. In the latter situation they may lead to intestinal obstruction by strangulating the gut.

Septic inflammation.—When inflammation results from the action of certain micro-organisms it is called septic, and it not unfrequently ends in a breaking-down of the tissue to form pus, a process known as suppuration. The most common of the septic organisms are the staphylococcus and the streptococcus, and they usually cause acute suppuration. Although all suppuration is due to the presence of bacteria, it must not be forgotten that many bacteria cannot cause suppuration, and even those that can do not do so in every case. Micro-organisms can cause acute non-suppurative inflammation, and chronic non-suppurative inflammation, as well as the suppurative form.

When, therefore, inflammation goes on to suppuration, a fluid mass is formed in the centre of the inflamed area, giving it a curious fluid feeling which is called fluctuation.

There is a rise of temperature, flushed skin, sweating, sometimes rigors, vomiting, constipation, or diarrhoea, rapid anæmia, loss of flesh and strength; these symptoms are characteristic of septic fever. If free vent is not given to the pus, the patient may die of septic poisoning.

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