

OUR PRIZE COMPETITION.

WHAT IS TETANUS? HOW IS IT CAUSED AND HOW TREATED?

We have pleasure in awarding the prize this month to Miss Amy Phipps, Longmarton, Ashford, Middlesex.

PRIZE PAPER.

Tetanus is a disease of the nervous system, portraying a great excitability of the nervous system.

Its most prominent symptoms consist in a painful and lengthened spasm of the voluntary muscles.

The disease was mentioned as early as 400 B.C. by Hippocrates and has appeared at intervals ever since.

It is chiefly associated with war periods, due to the fact that the wounds sustained at these times are particularly likely to come in contact with the responsible germ, under conditions favourable to its multiplication, growth, and functioning.

The direct cause is a spore-bearing bacillus, rod shaped, and often "drum stick" in outline. It was isolated in 1889 by a Japanese scientist named Kitasoto. It lives and thrives a little distance below the surface of the earth in places where there is a collection of animal manure.

It is therefore chiefly present in wounds which have been in contact with earth, and especially those of a deeply punctured, lacerated, or gunshot type.

Predisposing causes include: Exposure to cold, lack of good food and other devitalizing conditions, the presence of foreign bodies in the wound, subnormal general health, and other diseases or their effects. The bacillus develops a toxin in the wound, which increases in amount and virulence with alarming rapidity; this becomes absorbed and finds its way to the nerves of the spinal cord—the latter quickly show signs of hyper-sensitivity, so that the cells are excited and the general rhythm of the nervous system is greatly disturbed.

The onset of the disease is usually four or five days after infection, but *may* occur in four or five weeks' time, and even after the wound is healed, these latter constituting the milder cases. The actual symptoms vary greatly in every individual and according to the severity of the case and the exact temperament and constitution of the patient.

First signs.—These usually appear as stiffness in the muscles near the wound, followed a little later by stiffness about the muscles of the jaw—hence the term "lockjaw"—which soon develops into a state of trismus. The spasm of the surrounding muscles and the drawn features and exposed teeth give the expression peculiar to the disease known as *risus sardonicus*.

This rigidity soon extends to the other muscles of the body, back, abdomen, neck, extremities, etc., and in most cases the body assumes the arched attitude known as either *emprostotonos*, *opisthotonos*, or *pleurostotonos*, according to the actual muscles involved.

This rigidity, which at first alternates with entire relaxation, is accompanied by recurrent convulsions, excited by the slightest external irritation, the face showing signs of extreme anguish; respiration is always interfered with, and asphyxia is threatened or occurs.

There is hyperpyrexia, with greatly accelerated pulse rate, the pulse often being thready and irregular. Sleeplessness, great restlessness and copious perspiration are notable symptoms; delirium and unconsciousness seldom occur in the early and hopeful stages.

In a favourable case, symptoms gradually subside in a few days, but a recurrence of symptoms is always to be found during convalescence. Frequently symptoms increase in severity, and death occurs either as a result of prolonged spasm of the respiratory muscles or exhaustion from sleeplessness and the violence of general symptoms.

There are few diseases which call for the skill and intelligent care of a State Registered Nurse more than tetanus—her *early* detection of the *first* symptoms may mean the life of her patient, and few diseases make the efficient nurse more glad of her choice of a profession.

As a prophylactic and curative measure, our sheet-anchor is anti-tetano serum. This was particularly demonstrated in the Great War.

The routine then was to inject all possible suspects with 500 units of serum, the dose to be repeated weekly for one month.

Should definite symptoms appear, much larger doses are given into the muscles near the wound, the nerve trunks, and spinal canal. To be of the greatest use, the serum must be injected at the earliest possible moment, before the toxins have got a firm hold on the nervous system. Treatment, given promptly and efficiently, is of vital importance.

The patient must be isolated and must not be left; absolute quiet in a warm, well-ventilated room is essential. All exciting causes must be excluded, it being remembered that a sudden noise, sudden cold, bright light, etc., may cause convulsions.

Every effort must be made to reassure the patient and to prevent aggravation of symptoms, and to this end a skilled nurse of the right mentality and temperament is absolutely essential—the value of the *right kind* of nursing cannot be over-emphasised.

Drugs.—These include morphia, chloroform or ether inhalation, chloral hydrate and bromide of potassium in very large doses, and, later, oxygen inhalation. These drugs are to help to relieve pain and to carry over the time during which the toxin of disease is being excreted.

Local treatment.—This will vary with the particular surgeon and the type of wound. As the germ does not like oxygen, hydrogen peroxide compresses are frequently ordered, also saline irrigations, and treatment given gently, to avoid added pain. Where the limbs are involved, amputation may be resorted to, but is seldom useful, as the poison is too rapidly spread, the peripheral nerves getting involved with great rapidity. Bedsores, made probable by super-sensitive skin, must be guarded against. Pain is relieved and sleeplessness made less unbearable by all the little untiring efforts known only to the real nurse. Nourishment must be persevered with; it should be highly concentrated and supplemented with nasal or rectal feeding where necessary.

The nurse will have made herself acquainted with the doctor's exact wishes for emergency treatment. Convalescence will call for sea air, happy surroundings, tonics, and good nourishment.

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