A CASE OF PUERPERAL TETANUS

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Cases of tetanus occurring in the mother following child-birth have been recorded in many parts of the world, but after careful study of the literature at our disposal we are unable to find any reference to such in the British Isles. Obstetrical textbooks discuss the possibility of its arising from imperfectly sterilized catgut used in suturing lacerations, and of tetanus neonatorum from infection of the umbilical cord. Because of the above facts we consider the following case should be recorded.

References in the Literature

We find that post-partum tetanus has been described mainly in America, France, China, and Germany. Some interesting points might be cited from various articles.

Milnor (1928) states that tetanus is prevalent in the Hawaiian Islands, and, though difficult to assess, he estimates the mortality to be in the region of 92%. Most cases arise from puncture of the skin, and a few from operative abdominal wounds, but puerperal tetanus is uncommon. He records two cases affecting both mother and infant in which there were no recoveries. Mattson and Starkey (1931) state that tetanus following induced abortion is very rare in America. The mortality is high—91% according to statistics compiled by Schneider. They record the case of a white woman aged 33 who developed tetanus fourteen days after induced abortion and three days after having a splinter in her finger. They consider the abortion the likely aetiological factor, taking into account the shortness of the incubation period from the injury to the finger and the fact that the latter showed no inflammatory reaction. The woman recovered, following treatment with antitetanic serum, 272,000 units being used in ten days by all routes—intrathecal, intravenously, and intramuscularly.

Byrne (1928) describes a case of puerperal tetanus, and states that he could find no record of a similar one in the district of Loyuan, although he knows it to be common in other parts of China. Knight (1933), referring to the appalling hygienic conditions in India attendant on childbirth, remarks that tetanus is a notable complication; the former he attributes to religious custom and superstition, and he recommends the use of patience, tact, and kindness in circumventing the latter. He considers "that the marvel is not that so many die, but that so many live under this Spartan treatment! It is truly a case of survival of the fittest." Rossi (1936) states that tetanus neonatorum is a frequent complication in Dakar, but reports only two cases of tetanus in the mother. Houël, Lesini, and Morand (1928) describe two cases of post-partum tetanus, one having generalized spasms, the other localized spasms confined to the jaw and the cervical and dorsal spine muscles.

Case History

A woman aged 25 was admitted to the North Staffordshire Royal Infirmary on October 16, 1940, complaining of spasms of the masticatory muscles and aching of the neck and back muscles. Fifteen days previously she had been delivered of a normal baby by forceps, and the perineum had been repaired with fine silk-worm-gut sutures. Five days before admission she noticed stiffness of her jaw muscles, with the onset later of definite spasms which gradually increased in severity. On October 15 aching of her neck and back muscles began. The patient could not recall any recent trauma, and she was obviously a woman who took good care of her person.

The patient was well nourished and of healthy appearance, and she was obviously in pain. It was impossible for her

to open her mouth more than a quarter to half an inch; her tongue was swollen and discoloured, and her speech slurred. The masseters were in tonic contraction, entering at intervals into severe spasm of variable duration. She was found to have cervical rigidity.

Central Nervous System.—Cranial nerves: Nothing abnormal discovered. Limbs: Motor and sensory responses normal, but all reflexes exaggerated; muscle tone not abnormal, plantar responses flexor. Abdominal reflexes were not elicited.

Cardiovascular System.—Pulse: Good volume and tension, regular; rate 90, rising to 130 during the paroxysmal spasms. Heart: Normal position and sounds.

Respiratory System.—Lungs: No impairment of percussion note; broncho-vesicular breath sounds; no adventitious sounds.

Alimentary System.—Abdomen: Lineae atrophicae; fundus of uterus 2 inches above symphysis pubis; liver and spleen both palpated 2 inches below costal margin.

Genito-urinary System.—No discharge per vaginam.

Special Examinations.—Vaginal swab: Direct smear and culture—no tetanus bacilli. Stool: Direct smear and culture—no tetanus bacilli. Urine: Trace of albumin; 1.7% sugar (lactose). Cerebrospinal fluid: Fluid clear, under pressure of 225 mm. of H₂O, rising during spasms; a few lymphocytes and red blood corpuscles; sugar 166, chlorides 693, proteins 30 mg. per 100 c.c.m.; no increase in globulin content. Serum calcium: 9 mg. per 100 c.c.m. Blood count: R.B.C., 4,500,000; Hb 75%; slight anisocytosis; W.B.C. 15,000—polymorphs 79%, lymphocytes 18%, eosinophils 1%, basophils 2%.

Progress of Case

Admitted one evening, the next day is taken as the first in this description.

1st Day.—Severe and frequent spasms of masseters, on an average at quarter-hour intervals; cervical rigidity, complaining of backache.

2nd Day.—Marked cervical rigidity, occasional spasm of back, patient developing opisthotonos position; facial expression typical risus sardonius. Onset of foul-smelling sanguineous discharge from vagina.

3rd Day.—Marked cyanosis. Severe and frequent spasms of the back muscles; also of the jaws, causing the tongue to become extremely swollen and discoloured.

4th Day.—No change.

5th Day.—Spasms more severe than they had ever been before. Complaining of right-sided earache. Auriscopic examination—nothing abnormal.

6th Day.—Spasms less severe than yesterday, but frequent.

7th Day.—No change.

8th Day.—Spasms still severe. Vaginal discharge much less.

9th Day.—No change.

10th Day.—Urticarial serum rash developed; itching intense, aggravating the spasms. Discharge from vagina had almost ceased.

11th Day.—Rash still present, itching less intense following treatment with lotion. Spasms less severe and frequent—on an average at half-hourly intervals.

12th Day.—Rash disappeared. Spasms only of jaw muscles; aching of neck and back muscles. Taking semisolid diet.

13th Day.—Slight and infrequent jaw spasms.

14th Day.—Occasional jaw spasms. Tenderness of neck and back muscles on palpation.

15th Day.—No spasms. Tongue swollen and discoloured.

18th Day.—Patient put into general ward. Sitting up in bed; taking almost full diet; tongue almost normal.

19th Day.—Massage instituted.

21st Day.—Allowed up a little.

24th Day.—Discharged from hospital.

Special Points

Pulse: Volume and tension never gave cause for worry; the rhythm was constantly regular, the rate 90, rising to 130 during the spasms. Blood pressure 130/75, rising during spasms.

Temperature rose to 99° F. on the third day, remaining for four days at that level, and then dropping to normal. The woman was an ideal patient; her morale was at all times high, and her

mind was lucid throughout the illness. She could always put the spatula in her mouth during the spasms to prevent damage to her tongue.

Treatment

General.—Special points to be emphasized: separate and darkened room; quiet enforced; special day and night nurses.

Specific.—Serum: 200,000 units concentrated A.T.S. intravenously the first day; 40,000 units intramuscularly the second, repeated on the third and fourth days.

Sulphonamide Chemotherapy.—Soluseptasine 10 c.cm. 5% solution four-hourly from admission for twenty-four hours, then 1 gramme sulphapyridine by mouth with an occasional injection of the former if the tablets could not be taken. Sulphonamide therapy stopped on the third day owing to the patient being markedly cyanosed.

Sedatives.—(1) Evipan sodium 0.5 to 0.75 gramme; intravenous and intramuscular injections enabled the patient to obtain four to five hours' repose. (2) Avertin, given in a dosage of 0.1 gramme per kg. body weight, provided lengthy and adequate rest. (3) Paraldehyde, 5 to 6 drachms rectally, was of little value. (4) Nembutal, 4½ grains by oral and rectal routes, gave very short periods of rest. (5) Chloral hydrate, 60 grains orally, gave much comfort during the day, two doses usually being sufficient. (6) Hypodermic injection of morphine 1/3 grain appeared a beneficial substitute for the chloral hydrate.

Diet.—We were always able to feed the patient by mouth with fluids, small and frequent quantities being taken through a straw. Fluids given: Horlick's, ovaltine, glucose fruit drinks, meat broths, bovril; egg, milk, and brandy beaten up together; also cream brought in by the patient's relatives. From the eleventh day she was able to take soft solids such as fish and vegetable purées, jellies, etc.

Oral hygiene: Mouth cleansed with glycothymolin swabs.

Back: This was treated daily.

Bowels kept open by gentle enema.

Rash: Calamine and carbolic lotion employed for this.

Vaginal discharge: Gentle hydrogen peroxide douches daily.

Differential Diagnosis

The conditions to be excluded in the diagnosis were tetany, strychnine poisoning, and local oral disease. Tetany is distinguished by the presence of hyperexcitability of the motor nerves and typical spasms of the limbs, all of which were absent in our patient. It is interesting to record the case of a woman, admitted two days after the one under discussion, who twenty-four hours after childbirth developed trismus and risus sardonius, associated, however, with carpopedal spasm, and who responded satisfactorily to calcium therapy.

Strychnine poisoning was excluded by the fact that the woman's muscles did not relax between the paroxysmal spasms, and local trismus by the absence of oral sepsis, etc.

Despite our inability to isolate the tetanus bacillus, confirmatory evidence of the diagnosis is implicit in the successful issue of the case following antitoxin therapy.

Discussion

It has been assumed in this case that infection with the *B. tetani* entered via the lacerated vaginal tissues. No positive evidence, however, can be offered to substantiate this assumption, smears and cultures being negative. We believe that we are justified in accepting the patient's statement concerning the absence of any other traumatic lesion that might have given rise to her condition. The presence of a foul sanguineous discharge per vaginam two days after admission is in our opinion strong evidence supporting our theory regarding the site of infection. Should the above conclusion be correct, whence did the offending tetanus bacillus originate? Here again we are faced with the lack of certain evidence.

We have no knowledge as to the asepsis of the obstetrical procedures, and were unable to obtain any of the material

used in suturing the perineal lacerations. What importance can be attached to the fact that the baby did not develop tetanus? It is probable that the mother inoculated herself from the rectum, remembering that the bacterial flora of the human body can include the tetanus bacillus (Gardner, 1938; Mackie and McCartney, 1938). It is strange, therefore, that infection does not occur with greater frequency.

The long incubation period, slow development of symptoms, absence of marked pyrexia, and survival of the patient after ten days from the onset were all favourable points in assessing the prognosis.

Treatment consisted in providing adequate nourishment, assuring sufficient rest with a variety of sedatives, and the institution of tetanus antitoxin therapy, as recommended by Paterson of Australia (Price, 1937), an initial massive dose of 200,000 units being employed intravenously. It is probable that the intramuscular doses were unnecessary. No antitoxin was given intrathecally, one of us (B. M.) having seen cases of aseptic meningitis following the introduction of serum by this route.

Summary

A case of tetanus following childbirth is described, and the possibility of infection via a lacerated vagina or perineum discussed.

The merits of various sedatives employed are noted.

The success of antitoxin therapy along the lines suggested by Paterson of Australia is emphasized.

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SAND-FLY FEVER AND BENIGN LYMPHOCYTIC MENINGITIS

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During my period of service from May, 1940, to February, 1941, as acting medical specialist to the Naval patients at a general military hospital a number of cases of benign lymphocytic meningitis were admitted. It was observed that the symptomatology of this disease closely simulated that of sand-fly fever, and in a certain number of cases the diagnosis was established only after lumbar puncture.

The Army medical specialist—Major E. H. Evans—and I decided to investigate this similarity further. It was considered unreasonable and inadvisable to submit all cases of sand-fly fever to lumbar puncture. This form of investigation and treatment was therefore reserved for (1) cases sent in as meningitis; (2) cases sent in as sand-fly fever or pharyngitis, with a complaint of occipital headache or pain in the neck; (3) cases sent in as sand-fly fever, pharyngitis, or with any other diagnosis in which there was neck rigidity, head retraction, Kernig's sign, or other indication of a possible meningitis. Unfortunately before our investigations were completed I received a fresh appointment. It was therefore decided that I should publish my findings on the cases under my care, and that Major Evans should report his further investigations at a later date.

From August 7 to December 12, 1940, 15 patients were admitted who gave the necessary indications for lumbar