

AN UNUSUAL CASE OF POSTOPERATIVE TETANUS*

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It is not well recognized that in some tropical areas tetanus is among the 10 principal causes of death.¹ While known injuries and accidents account for the maximum number of cases of tetanus, approximately 20-30% of cases give no history of an injury which could have been a site of entry for *Clostridium tetani*.² Tetanus is a calamitous postoperative complication and its rarity in the western world may be inferred from a report by Christensen and Thurber, who described 91 cases of tetanus treated at the Mayo Clinic before 1957, of which only 3 occurred postoperatively, and none had undergone intestinal surgery.³

As long ago as 1909 Matas found that 5% of the population generally, and 20% of those working with horses, carried the organism in their intestine. He pointed out that tetanus infection in wounds exposed to faecal contamination was not rare and also reported a patient who developed fatal tetanus after haemorrhoidectomy.⁴ Meyer and Spector⁵ found that stools of 10% of Chicago patients who were admitted for hernia repair contained this organism. Bunch and Quattlebaum,⁶ in 1943, reported 8 cases of postoperative tetanus without bacteriological studies and it was notable that 6 of the patients had undergone appendectomy at the time of hysterectomy. Nine years later Hebraud and Sauvet⁷ reported 2 fatal cases of tetanus after gastrectomy for ulcer, in one of which tetanus organisms were recovered from the area of the duodenal stump at autopsy. They reviewed 10 other reported cases of tetanus after gastric surgery and believed that the infection arose from organisms in the gastroduodenal lumen rather than from unsterile material used at operation. Wohlgenuth,⁸ in 1923, reported 2 cases of fatal tetanus after resection of gangrenous small intestine; and in 1942 Calvet⁹ reported a case of a 57-year-old woman who died of tetanus following volvulus of the terminal ileum with gangrene, tetanus organisms having been subsequently isolated from the contents of the resected specimen of ileum. In 1964 Clay and Bolton¹⁰ reported a similar case of tetanus arising from gangrenous and perforated small intestine.

CASE REPORT

In March 1967 a 55-year-old woman presented with the passage of blood in her stool. This symptom had been present for approximately 2 months. Sigmoidoscopic examination revealed a large adenomatous polyp situated on the anterior wall of the rectum, 15 cm. from the anal margin. A biopsy proved the polyp to be benign and she was advised that an attempt would be made to snare it

through a sigmoidoscope under a general anaesthetic. If this procedure failed, abdominal operation and colotomy would be performed.

After 5 days of sulphathalidine and oral streptomycin treatment she was admitted to the nursing home and on 14 March 1967, under a general anaesthetic, the polyp was successfully snared by means of wire loop attached to an electric cautery. The base of the polyp was cauterized, leaving an area of approximately 1 cm. denuded of mucous membrane. She remained in hospital until 17 March 1967, when she was discharged and advised to return some time later to that the area could be reviewed through a sigmoidoscope.

On 24 March 1967 she returned to her general practitioner complaining of lassitude and weakness. General examination revealed no abnormality and 2 days later she had to return from work because her chest felt tight and she could not breathe. She was seen by a second practitioner who diagnosed hyperventilation and when seen later an ECG examination revealed no abnormality. On 29 March 1967 the patient still complained of attacks of tightness in the chest and a feeling that her tongue was thick. She felt she was unable to swallow tablets or solid food. Examination was again negative and a repeat ECG was normal. On 1 April 1967 the attacks of tightness in the chest and thickness of the tongue had increased and for the first time she developed trismus. She was seen by a physician and an ear, nose and throat surgeon and was admitted to a private nursing home for investigation. Various laboratory and X-ray examinations were done and all findings were within normal limits.

On 3 April 1967 the patient looked ill and her tongue was still thick. Trismus was increasing. X-rays of the mandible and the temporomandibular joints were negative and she was referred for a barium swallow and meal. By this stage the patient was very weak and only able to swallow with some difficulty. The barium meal showed no abnormality. However, during the barium-meal investigation she appeared to have some difficulty with respiration and a surgeon was asked to see her. He diagnosed tetanus. The patient began to twitch soon afterwards and suffered a minor convulsion. She was transferred to hospital and on admission examination revealed that she had clenched jaws and much difficulty in breathing and in talking. Her blood pressure was 150/100 mm.Hg, her temperature 99°F and pulse rate 120/min. The abdominal musculature was tense and reflexes were brisk. All other investigations gave normal results except for a blood urea concentration which was 60 mg./100 ml. A definite diagnosis of tetanus was made and treatment was com-

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menced with intramuscular Valium, 20 mg. every 4 hours, penicillin 2,500,000 units every 6 hours by intramuscular injection, and penicillin 5,000,000 units intravenously in 5% dextrose and water every 12 hours. She was given Vesperax for sleep, as well as Librium.

The following day more severe twitching was noted and the dosage of Valium was increased. Intravenous therapy was continued and the patient was kept sedated for a further 10 days until she was sufficiently improved so that she was able to take fluids on her own. The spasm of the muscles decreased slowly and after 3 weeks she was completely free of muscular spasm. She was discharged on Librium, 10 mg. *t.d.s.*, 24 days after admission, when a complete recovery had been made. At no time was anti-tetanus serum or antitetanus toxoid given, and she had not undergone active immunization against the disease in her youth.

DISCUSSION

Since 1940, immunization campaigns against tetanus have been conducted in South Africa and very few children born after that time have escaped the customary triple injection protecting them against tetanus, whooping cough and diphtheria. A reasonable inference can be drawn from the combined studies of many authors, including that of Gottlieb *et al.*,¹¹ that active immunity to tetanus is of long duration after 3 injections of toxoid and may be restored to high titre by a single booster injection. Thus, a large proportion of the younger population of the country have immunity to tetanus but a vast number of the middle and older age-groups of the population have never undergone active immunization and are therefore potential victims of the disease. Since it has been shown that between 5 and 20% of the general population harbour tetanus germs in their bowels, consideration must be given to whether active immunization should be carried out on patients before they undergo surgery on the gastro-intestinal tract.

Recognition must also be given to the fact that the denuding of mucous membrane frequently occurs at the anus due to haemorrhoids and fissure, both conditions being extremely common, and the passage of faecal matter across these areas presents a source of infection from which tetanus could arise. It must therefore be

assumed that the possibility of a patient acquiring tetanus from the gastro-intestinal tract is very real. What, therefore, should the approach be when surgery is contemplated in an area where infection is so rare? It might seem remarkable that the subject of tetanus should be given so much prominence in the recent medical literature when the disease, in all western communities, is one of extreme rarity.

Recent literature indicates that a break with the traditional practice of freely using equine antitoxin or ATS is clearly evident. There is growing awareness that this agent is a potentially dangerous allergen and that a charge of negligence could be brought against a doctor, not because it was withheld but because it was used.¹² It would appear that the most practical way to avoid unnecessary morbidity and mortality from this disease is for general, active immunization to take place and although the future will envisage a population who have been actively immunized at least on one occasion in their youth, publicity should be given to this fact so that the present non-immunized groups may undergo active immunization.

SUMMARY

A patient having undergone removal of a polyp from the upper reaches of the recto-sigmoid developed tetanus during the late postoperative period. Tetanus organisms were not recovered from the cultures but active treatment of the patient with sedation and antibiotics resulted in recovery. The events in this case emphasize the advisability of active immunization of all persons against tetanus.

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