Two fatal cases of chronic D.D.T. poisoning in dogs are described, with a histological picture of centrolobular necrosis of liver and tubular degeneration of kidney with marked calcification.

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OBSERVATIONS ON KERATOCONJUNCTIVITIS (CASES SEEN IN MILITARY HOSPITALS)

BY

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This paper concerns 42 cases of keratoconjunctivitis seen in various military hospitals between Oct., 1943, and Feb., 1945. Details of the clinical features, investigations, course, and treatment are recorded; an endeavour has been made to demonstrate a dental or an ear, nose, or throat toxic focus as a causal factor in a portion of the cases.

Clinical Features

Previous Attacks.—Four patients reported earlier attacks in one or both eyes; the number would probably have been higher with further questioning, but care was taken to exclude previous attacks of other external ocular diseases with similar symptoms.

Onset.—The onset was usually acute, with lacrimation, photophobia, blepharospasm, and conjunctival discharge. Sometimes it coincided with another disease—e.g., malaria, tonsillitis, antritis. Disturbance of vision was unusual.

Lesion.—A varying degree of involvement of the cornea occurred in every case. With simple conjunctivitis there may be oedema of the epithelium and Bowman's membrane. Although such oedema sometimes occurred, it was typical of the cases under review to find punctate marginal corneal lesions. These varied from a spot just visible to the naked eye to one which was 1 mm. in diameter. They were commonly 1 to 2 mm. from the limbus, but could be up to 3 mm. away. They involved the epithelium, Bowman's membrane, and the superficial layers of the substantia propria. Loss of epithelium with the formation of shallow ulcers did occur, but this was unusual. Phlyctenular keratoconjunctivitis, superficial punctate keratitis, and conjunctivitis with marginal corneal ulcers should not be confused with this condition. Cases of keratitis with lesions scattered over the cornea were similar, and the dividing lines between such a keratitis, conjunctivitis with marginal ulcers, and cases of keratoconjunctivitis were difficult, if not impossible, to draw; the conjunctival discharge in the early stages and the lack of visual disturbances were distinguishing features. Both eyes were affected in four cases.

Associated Lesions.—Six cases had associated blepharitis, and skin conditions such as impetigo, external otitis, and dermatitis of face also occurred.

Investigations

Pathological Tests.—The white blood count varied between 9,850 and 13,000 per c.mm., with some increase in the polymorphs. The blood sedimentation rate was usually normal, and rarely rose above 4. Cultures from the conjunctival sac were sterile as a rule, but streptococci and staphylococci have occasionally been grown. It was noticeable what different results were obtained from different laboratories. I have discussed this with several pathologists, and it seems that certain points in connexion with conjunctival swabs should be emphasized. The swab may contain few organisms; it soon becomes dry and the organisms may get chilled and die. In taking the swab excess of tears should be removed, and the stick should be given a twist as the swab passes along the lower fornix. A culture plate should be inoculated and placed in the incubator at the earliest possible moment. Attention to these points should give the organisms the best opportunity to survive and grow.

E.N.T. Examination.—All cases were examined to exclude any ear, nose, or throat focus or sepsis. If such was discovered the next step was to decide what, if any, relation it had to the eye condition. In 17 cases some kind of toxic focus was found. These consisted of tonsillar infection (12 cases), antral infection (1 case), laryngitis (1 case), myringitis (1 case), and rhinitis (2 cases). In some of these, other parts were simultaneously inflamed to a mild degree—e.g., a subacute rhinitis with a septic tonsil. Tonsillar infection was not only present with obviously septic tonsils but, to an equal degree of importance, with small flat tonsils, tonsils which looked normal but from which pus could be expressed, and tonsillar remnants after a previous tonsillectomy; but if the patient had had recurrent attacks of keratoconjunctivitis, or attacks following tonsillitis, then, in the absence of another toxic focus, tonsillectomy was seriously considered. A controversial point should be mentioned here—the existence or otherwise of a quiet sinusitis, with neither symptoms nor positive findings, and a normal x-ray appearance. It is possible that such does occur, and, if so, it is relevant to this discussion as a possible toxic focus. Also, at times when x-ray facilities were limited, an ethmoidal or sphenoidal infection could not be definitely excluded.

Dental Examination.—All cases were examined to exclude a possible dental focus of sepsis. The following conditions were suspicious on clinical examination and confirmed by radiographs: (1) chronic pyorrhoea, with associated pus formation around tooth roots; (2) chronic granuloma, with or without a discharging sinus; (3) chronic sclerosis of tooth roots and surrounding bone, found in association with root fillings and heavily filled teeth. A mouth was often apparently healthy but on radiographic examination revealed hidden sepsis—e.g.: (1) a tooth root remaining after extractions—these often had apices projecting into the antrum; (2) granuloma of tooth root; (3) common dental cyst. The upper premolar and first molar teeth probably caused most of the trouble, their slender roots often extending to the antral floor. Eleven cases had dental lesions severe enough to be, in each case, a likely focus; 2 other cases needed dental treatment other than fillings of cavities, but simultaneously each had an E.N.T. focus which was considered a more probable cause. No cases of severe dental caries were seen, and mouths only needing odd fillings were not suspected; similarly, a limited degree of pyorrhoea did not cause trouble.

Treatment

Proflavine lotion 1/2000, penicillin drops (1000 units to 1 c.cm.), penicillin cream (500 units to 1 g.), penicillin powder, 10% protargol, 20% argyrol, 1/2000 and 1/1000 proflavine, 1/8% zinc sulphate, 1/2% atropine drops (in severe cases), painting the lids with 1% silver nitrate, hot bathings, have all been used. Although it seemed that the conjunctival discharge subsided more quickly with treatment, none of these drugs appeared to have any noticeable effect in shortening the course of the malady. When the cornea is much involved atropine helps to relieve pain and hasten resolution.

Course of the Disease

The duration varied between 3 and 64 days, with a mean of 16.8 days. Conjunctival discharge was usually present for 2 to 8 days, leaving hyperaemia only. This hyperaemia remained while the cornea continued to be inflamed, and traces could be seen for some time after. The corneal lesions were replaced by minute nebulae or disappeared altogether.

Several patients underwent tonsillectomy, and in some cases the eye condition showed an immediate improvement, and subsided more quickly than in the ordinary course of the disease. Occasionally there was an exacerbation of the ocular inflammation—possibly an allergic manifestation from a bacteraemia; blepharitis also occurred after tonsillectomy. Similar improvement and occasional exacerbations were noticed after dental treatment—e.g., extraction of tooth root, dental extractions for apical abscess or pyorrhoea.

Conclusions

A scientific paper written under active service conditions must often be incomplete. The lack of a slit-lamp for corneal examination was keenly felt, colleagues for special examinations and laboratory facilities were not always available, cases could not

be followed up for more than a brief period, the clinical entity of the disease is not always easy to recognize, and a reference library is not available. A noticeable proportion of the patients had an ear, nose, or throat toxic focus, 40% of sufficient severity to be suspected as the cause, and a similar proportion (26%) had a dental focus.

Final proof as to the cause could not be obtained, but the results were striking enough to justify investigation and treatment of toxic foci in all cases of the disease. If such is not done, it is probable that many cases will be insufficiently treated and may relapse, causing an unnecessary wastage of man-power from the need for further in-patient treatment. A possible cause having been found, it is not always a simple matter to decide how much mischief it is causing, and whether it needs drastic treatment, or any treatment at all.

My thanks are due to Capt. A. Smith, A.D. Corps, for his valuable co-operation on the dental aspect of the subject.

Medical Memoranda

A Case of Tick Typhus in the Sudan

Below is the history of the first case of tick typhus to be reported in the Sudan.

CASE REPORT

The patient, an English school-teacher aged 32, was admitted to Juba Civil Hospital on Sept. 16, 1941, complaining of fever and frontal headache of 7 days' duration. He was in good health until the evening of Sept. 9, when after a somewhat busy day he felt "rather weary and a trifle under the weather." On Sept. 10 he motored 100 miles over a bad road, and that night slept badly, awakening next day with a slight headache, but was still able to carry on with his work of inspecting bush schools. That evening he had abdominal pain and slight diarrhoea, and spent another restless and disturbed night. On the 12th he still felt ill, but was able to do his work. At the end of the day he felt "dead beat and really rotten." He took his own temperature at 8 a.m., and found it to be just over 102° F. On Sept. 13 the morning temperature was 103.6° F., and he felt too ill to leave his bed. He was seen by a doctor, who diagnosed malaria and treated him with mepacrine; the blood film was, however, negative. On the 14th and 15th he felt much the same, and on the 16th was transferred to Juba Civil Hospital. On arrival (11 a.m.) his temperature was 103° F., pulse rate 64, and respiration rate 21. He looked well nourished and had a sallow complexion (normal for the patient), but was obviously ill. The skin of both forearms, anteriorly and posteriorly, was covered with a dull pink maculo-papular rash, some of the papules showing vesication. The rash was also present on the trunk and abdomen, but was much more scanty; it was not present on the face. The macules faded on pressure. The rash was first noticed by the patient that day. Below the right internal malleolus was a small sore (tache noire) about 2 cm. in diameter, covered with a thin scale; this was first noticed about the end of August, and had been dressed by the patient himself, who thought it was probably a

mosquito bite. Both tonsils were slightly injected, there was conjunctivitis, and the patient seemed to be a little deaf. He had been constipated for two days.

A clinical diagnosis of typhus fever was made and mepacrine treatment was stopped. This diagnosis was confirmed by the pathological report received on Sept. 24. The blood culture was negative, but the Weil-Felix reaction was positive OX2 1 in 500, OX19 negative—a report diagnostic of African tick typhus. On the 17th and 18th his condition showed slight improvement, but he felt very tired and worn out. The rash now began to fade. On the evening of the 19th

his temperature fell to 99° F. and was normal next morning. The pulse rate was never above 76, and was relatively slow for the degree of pyrexia—e.g., when the temperature was 103° F. the pulse rate was only 64. During the next fortnight he felt very weak and tired, but subsequent to returning to his home in Yei, on Oct. 3, he made a rapid and complete recovery.

The diagnosis was suggested to me by the typical appearance of the rash and the sore on the ankle, and was confirmed by the Weil-Felix reaction.

COMMENT

It is impossible to say where the patient acquired the disease, as he was on tour when he fell ill. He remembers being bitten on the ankle by an insect in Yei about the end of August; he also thinks he may have been bitten while staying in Juba on Sept. 4 and 5; after that time until his illness he was on tour on the east bank of the Nile, and sometimes had to walk through long grass, in which he might have collected a tick.

The main interest in the case is that it suggests tick typhus as a possible cause of some of the cases of undiagnosed pyrexia which are admitted to hospitals in this province, and emphasizes the importance of carrying out the Weil-Felix test in cases of pyrexia in which the diagnosis is in doubt. The diagnosis would probably not have been made had the disease occurred in a native of the Sudan; the rash would have been missed, and the case would have been called "clinical malaria" or "P.U.O."

My thanks are due to the Director, S.M.S., for permission to publish this case, and to Drs. Horgan and Kirk for the pathological findings and interpretation.

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Ligature of Anterior Ethmoidal Artery for Arrest of Profuse Epistaxis

The case recorded below may be of interest as an unusual exercise in applied anatomy. For the arrest of profuse and intractable epistaxis, arterial ligation is occasionally indicated, and the great importance of the branches of the external carotid artery in the supply of the nasal cavity should not blind one to the fact that the upper and more inaccessible part of the cavity draws its arterial blood from the internal carotid by way of the anterior ethmoidal and its smaller companion, the posterior ethmoidal artery. For further amplification of these and other anatomical points I would refer to the instructive article by E. D. D. Davis (1939), which gave me the necessary inspiration to cope with this difficult case.

CASE HISTORY

On April 9, 1945, a man aged 44 was admitted for epistaxis. The bleeding had been severe and had lasted for five days. He had been admitted to another hospital, where the nose had been repeatedly packed and various styptics applied. A transfusion of two pints of blood had also been given. As the bleeding was not arrested he was transferred to this hospital.

On admission, though the patient looked pale and distressed, the bleeding had stopped. His haemoglobin was found to be 38%. The stale and offensive packing was removed from the right nostril. The nose was cocaineized, and anterior rhinoscopy revealed a granular and inflamed mucous membrane, with many small abrasions, presumably the result of previous attempts at haemostasis. One small bleeding spot in the floor of the nose was touched with the cautery, though subsequent events showed that this was not the real source of the trouble. The nose was left unpacked, and two pints of blood were transfused.

No further bleeding was seen till four days later, when a copious flow occurred from the right nostril. This was controlled temporarily by firm packing with ribbon gauze soaked in liquid paraffin. Further severe bleeding followed an attempt, a few hours later, to remove the pack and deal locally with the source. The patient now showed all the signs of a severe loss of blood, and a fatal termination appeared imminent. A transfusion was begun and was maintained for 18 hours, five pints of blood being given. Under local analgesia, the bifurcation of the right common carotid was exposed, and the external carotid artery was doubly ligatured close above the origin of the superior thyroid artery. At the same time a loop of catgut was placed loosely round the internal carotid artery and the ends were brought out through the lips of the cervical skin incision, which was sutured. This catgut loop was not tied, and in no way obstructed the flow of blood through the internal carotid, but traction on the loop would act as a temporary ligature if the need should arise.

For two days the patient made good progress, but on the morning of the third day further severe epistaxis occurred from the right nostril. Gentle traction on the catgut loop stopped the bleeding at once. On releasing the tension on the loop, blood could be seen to well from the upper recesses of the right nasal cavity. With sufficient gentle traction maintained to stop the bleeding temporarily, the anterior ethmoidal artery was tied through an incision on the