for forty-eight hours. Improvement was rapid, and in four days after the onset of the rash the patient was feeling quite well and able to get out of bed. The cough was almost gone and indeed was less intense than it had been before her attack of measles.

In view of this result, which confirmed Loewenthal's findings, I decided to make further investigations, and administered amidopyrin in twenty-six cases. The drug was given in the form of pyramidon crystals, the appropriate dose being administered in a teaspoon with a little water. In all cases twelve powders were given at four-hourly intervals during the day and night. Even infants took the drug easily. Comparatively large doses were used according to the formula:

$$\text{Dose (to nearest grain)} = \frac{\text{Age}}{\text{Age} + 12} \times \text{maximum dose of drug (gr. 15)}.$$

The doses given were 2 to 5 grains.

Results.

It must be stated at the outset that it was impossible to obtain accurate statistics in general practice, especially in the poorer districts of London, where this work was carried out. In some cases a doctor is called in only to make a diagnosis and in other cases only when the patient does not seem to be progressing well. In view of the special treatment patients were visited more often than is usual in such cases, though a number of parents had to be persuaded to allow this to be done. In the series of cases reported six were seen twice a day during the course of the illness, fifteen were seen once daily, and five only twice with an interval of a few days. It follows that the results can only be recorded in general terms, but, even so, the results are remarkable.

It may be taken that an average case of measles as seen in general practice is quite well and able to get out of bed in ten to twelve days, a slight cough usually persisting even for a week or two longer. This will be taken as a standard with which to compare these cases treated with amidopyrin. These are divided into three groups, according to the time of administration of the drug in relation to the onset of the disease.

Group 1 consists of five cases, contacts from another member of the family, who were specially watched for the onset of the disease, and were treated during the invasion stage on the appearance of Koplik's spots. The measles did not develop in these cases; in only two was there a suspicion of a rash. The children were put to bed as a precaution, but were quite well in two days.

Group 2 consists of sixteen cases seen at the onset of the rash. This is the largest group, the stage at which most cases are first seen in general practice. The administration of amidopyrin caused immediate reduction of temperature, and all symptoms cleared rapidly. The patients were quite well in three or four days.

Group 3 consists of five cases seen at various late stages of the disease in which the drug had a beneficial but less striking effect.

A marked feature of the drug treatment was the fall in temperature within the first day and the complete clearing up of the cough. No complications were observed. The impression conveyed by these results was that the drug must be given early in the disease, and if given early enough in the "Koplik's spot" stage the disease is even aborted.

Criticism.

These results are open to criticism in several directions. It may be argued that the cases treated were mild cases of measles which would have shown almost the same results had no special treatment been given, for it is well known that epidemics of measles vary much in intensity and such mild cases are not uncommon. It might also be argued that many of the cases were not measles, but were diagnosed in error.

This investigation was carried out in the borough of Stepney, where it is interesting to note there were sixteen deaths from measles in February, 1930. In order to obtain a full investigation, necessitating observations at regular short intervals, and confirmation of diagnoses by fever specialists, the medical superintendent of the Eastern Fever Hospital was approached on the subject. Dr. Ronaldson of the staff of this hospital agreed to carry out treatment in six cases of measles on the lines described.

Cases at various stages of the disease were chosen, and

these were treated and re-examined three days later. The results were considered so satisfactory that it was decided to try the method on a large scale with observations at four-hourly intervals. The results of this investigation will be published in due course. It should, however, be pointed out that measles is not isolated in hospital. The cases are usually treated at home and only sent to hospital when complications are setting in. It follows that hospital cases of measles are usually late cases.

Conclusion.

Amidopyrin has a striking curative effect on the course of measles. The disease may be completely aborted if treatment is given early enough. This treatment is specially suited to general practice, where the disease is seen at its earliest stage.

I am indebted to Dr. Ronaldson of the Eastern Fever Hospital for his help and suggestions in this paper.

REFERENCE.

¹ *British Medical Journal*, July 12th, 1924.

DESTRUCTION OF TONSILS BY DIATHERMY.

BY

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It is well known that many patients with diseased tonsils cannot be subjected to surgical treatment on account of fear or age, or some condition rendering them more liable than the average person to surgical shock. Until treatment by diathermy was introduced the only forms of physical therapy for these patients were by x rays, radium, or the simple electric cautery. X rays and radium cause the tonsils and lymphoid tissue to diminish in size, but the remaining shrunken fibrous tonsil may continue to serve as a focus of infection. Haemolytic streptococci and other pathogenic organisms have repeatedly been found in tonsils that have been subjected to treatment by x rays and radium. Moreover, such treatment may produce dermatitis, and damage to the thyroid and parathyroid glands or neighbouring structures. The effects of the simple electric cautery do not reach the depths of the tonsil, and the hot metal moving through the tissues may damage blood vessels enough to bring about the possibility of secondary haemorrhage.

The inadequateness of other methods affords special reason for examining the possibilities of treatment by diathermy. Diathermy apparatus has undergone steady improvement in design, and side by side with this improvement has accumulated a considerable experience of its use. In this country, in America, and on the Continent, the value of diathermy as a technique for the treatment of lesions of the throat is now pretty generally accepted. During the past four years I have combined true diathermy with fulguration. The tonsil is first killed by the production in its substance of heat, which almost immediately causes coagulation of the proteins and boiling of the tissue fluids. This is true diathermy coagulation. Next I deliberately arc from the tonsil with the active ball electrode, in order to seal the smaller blood vessels and lymphatics, and this process is as efficient as surgical ligation. As a preliminary measure it is often advisable to estimate the blood coagulation time and to consider whether the patient is in a fit state for tonsillectomy. I mention this precaution as I once escaped disaster by refusing to treat a patient who some hours later developed influenzal pneumonia. A general anaesthetic is not required; the use of ether would be dangerous, as a mixture of ether and air might easily be exploded by the sparking of the machine. I prefer cocaine spray anaesthesia, using $1\frac{1}{2}$ to 2 grains of the hydrochloride dissolved in 2 drachms of water.

It is necessary to work with a temperature between 60°C . and 100°C ., and this is a predetermined constant for the particular controls of the machine when an indifferent lead electrode $8 \times 6 \times 1/16$ in. is used. This electrode, bearing a suitable terminal, is covered with four

thicknesses of lint, saturated in 20 per cent. saline and strapped securely to one wrist. There is no advantage to be gained from multiplying the number of indifferent electrodes. The active electrode is usually a small metal ball mounted on a curved ebonite holder, through which the insulated current is carried. It is well to keep a variety of electrodes for special sizes and situations of the tonsils. A diathermy current of two amperes is adequate, the frequency of oscillations being about 500,000 per second. The surgeon depresses the patient's tongue with a glass spatula, and uses a forehead spotlight illumination; he should not switch on the current until the active ball electrode is in contact with the tonsil tissue. The operation is rapidly effected with the patient sitting in a comfortable chair. During the operation the tonsil becomes rapidly hotter and a coagulation area spreads from the point of application of the ball electrode to the outer surface generally. The entire operation takes but a few seconds, and the ball electrode is withdrawn to allow sufficient arcing effectively to seal the smaller blood vessels. After the operation the patient is told to use an antiseptic mouthwash three times a day, and not to gargle. A suitable throat tablet—for example, of benzoic acid, cocaine, eucalyptol, and menthol—is prescribed, and for three days the patient should take a light diet. During the first twenty-four or forty-eight hours the tissue round the tonsil becomes oedematous. The patient has only slight discomfort, but as in some cases there is a rise of temperature I think it is advisable to order rest in bed for forty-eight hours. Surgical shock does not occur. Coagulated tissue starts to separate as a slough in about three days, and the process continues for a week or a fortnight. The odour of the slough, though slightly disagreeable, does not trouble the patient, and it disappears when the slough has separated. Infection has not occurred in any of my cases. The formation of scar tissue is accompanied by an ingrowth of epithelium, and the resulting scar is soft and glossy, and shows practically no sign of contraction. I know of no case in which secondary haemorrhage has occurred.

In diathermy the heat is generated within the tonsil and surrounding tissue; in contrast, therefore, with treatment by means of the electric cauter, where the effect is limited to a narrow zone around the hot metal, the tonsil is treated as a unit. In tissue subjected to cauter treatment the proteins are broken down into products responsible for causing toxic shock; the coagulated protein produced by diathermy has no such effect.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CYST OF THE EPIGLOTTIS.

THE following case of dysphagia associated with cyst of the epiglottis is interesting, because the dysphagia persisted after the cyst had been removed.

The patient, a very emaciated woman aged 64, had been seen once by Dr. Masterman-Wood, who sent her to me with the following report: She had come to him complaining that in the past twelve months she had had difficulty and increasing pain in swallowing; regurgitation of food, an associated symptom, produced cough and dyspnoea. By indirect laryngoscopy Dr. Masterman-Wood had recognized an abnormality of the epiglottis, and on account of this he referred the patient to me at the Torbay Hospital. I made a laryngeal examination on January 8th, and found a large globular swelling with blood vessels passing over its surface, situated in front of the left half of the epiglottis and obscuring the left vallecula.

The patient was admitted to hospital on January 23rd, and on the following day, using general anaesthesia, I passed a Jackson's direct laryngoscope, and found that the swelling had a narrow base and was attached to the anterior surface of the left half of the epiglottis. By means of Paterson's laryngeal forceps I grasped the swelling, but being cystic it ruptured, and thick viscid secretion escaped. The site of the cyst was then mopped dry, and I removed all visible remains of the cyst wall by means of the forceps. A diathermy terminal was now passed through the laryngoscope down to the raw area from which the cyst had been removed and the current was applied by Dr. B. Halliwell.

The pathologist's report on the cyst wall was as follows:

"The tissue consists of squamous epithelium forming a layer over young fibrous tissue. The histological appearances are quite consistent with the cyst being dermoid. There is no suggestion of any malignant growth."

The patient was discharged from hospital on January 29th. She still complained of difficulty in swallowing, and the site of origin of the cyst was incompletely healed. On February 10th she came to the out-patient department; the difficulty in swallowing was still present. Indirect laryngoscopy showed that the affected area was completely healed, and that there was some contraction of the left lateral glosso-epiglottic fold. The patient was instructed to return to the hospital if the dysphagia persisted, but so far she has not appeared. She showed no relief at being told that the condition was non-malignant. It is difficult to explain the continuance of the dysphagia after the site of the cyst had healed.

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ACUTE DILATATION OF THE STOMACH.

THE following details of a case of acute dilatation of the stomach seem to be worth recording in view of the rarity of such a rapidly fatal termination after taking a single large meal.

I was called early one morning to see an Indian labourer, aged about 28. The history was that he became suddenly ill some time during the previous night, about six hours before my arrival. He said he had attended a dinner that night, and had eaten a large quantity of food. He was vomiting enormous quantities of yellow fluid, was in great pain, and could not swallow anything. On examination, he was found to have a subnormal temperature and a distended abdomen, and he exhibited all the signs of collapse. On percussing the stomach, its lower border could easily be made out about three fingerbreadths above the pubis, and the stomach note could also be elicited for about the same distance to the right of the middle line. He also had intense pain all over the abdomen, but no rigidity could be made out. The vomited matter had a sour smell; it contained a few grains of rice, of which article the patient had partaken liberally. He was very restless and, though placed in the knee-elbow position, he obtained no relief. He was ordered to hospital, but died on the way.

The patient was well nourished and muscular, and no evidence of any organic disease was discovered at the necropsy. The stomach was found to extend as low down as two inches from the symphysis pubis, and was very congested. The arteries stood out prominently, and the duodenum was also dilated. On slitting open the organ it was found to contain only some bile-stained fluid. Death was undoubtedly due to the acute dilatation of the stomach.

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THIRD NERVE PARALYSIS AFTER MUMPS AND CHICKEN-POX.

PARALYSIS of the intrinsic muscles of the eye after diphtheria is sufficiently common, but it is not often that a similar condition is seen following other infective diseases.

Some three years ago a child was admitted to the eye ward of the Coventry Hospital suffering from paralysis of the sphincter of both irides and from loss of accommodation. Her food returned through her nose, showing that the palatal muscles were paralysed. In fact, the child showed the complete picture of post-diphtheritic paralysis. There was no history of a sore throat, and a swab from nose and fauces was negative. After some questioning a history of mumps was obtained, which had affected several members of the family. The patient was transferred to the medical wards and rapidly made a complete recovery. Unfortunately I have lost sight of the case and cannot trace the notes.

Recently Dr. O'Connor of Leamington asked me to see a girl, aged 15, who was just recovering from varicella. She still had pustules on her face and body. I found that she had a complete paralysis of the sphincter iridis of both eyes, causing the pupils to be fully dilated. Accommodation was also paralysed. In this case the palatal muscles were not affected. Six weeks later she could read ordinary print without glasses, there was no paralysis of accommodation, and the pupils were nearly normal in size and reacted to light and accommodation.

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