The ease with which fluids injected distally from the groin level pass into the femoral veins suggests that high injection of the thigh segment is unwise. There is much less risk below the knee. The large perforating vein immediately below the knee shown in one phlebogram appears to be inconstant. The remaining deep communications are small.

In our opinion operative treatment of varicose veins should consist of adequate ligation with, if necessary, distal injection from knee level of not more than 5 ml. of sclerosing solution.

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PENICILLIN BY INTRA-ORAL DRIP

BY

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This short paper describes a method for the continuous local application of penicillin to the mouth and fauces, together with some clinical impressions.

Penicillin has been used for the treatment of various pharyngeal infections by local applications in the form of sprays (Woodward and Holt, 1945), pastilles (MacGregor and Long, 1944, 1945a, 1945b), lozenges (Woodward and Holt, 1945), snuff (Meadley and Barnard, 1946), and swabbing (Schallenberger *et al.*, 1945), and by intramuscular injection (Schallenberger *et al.*, 1945; Schwartz, 1945; Bronstein, 1946) and injection of the pharyngeal tissues (Cone, 1945). Results have been encouraging for Vincent's infections (Woodward and Holt, 1945; MacGregor and Long, 1944; Schwartz, 1945). MacGregor and Long (1945a, 1945b), using pastilles containing methylene blue on healthy volunteers, were able to stain the uvula, anterior pillars of the fauces, and the tonsils and tonsillar fossae satisfactorily, but were unable to stain the posterior pharyngeal wall. These experiments gave some measure of support to the belief that when pastilles are allowed to dissolve in the mouth the therapeutic substance incorporated in them would reach the fauces and tonsillar areas. Treatment by pastilles, however, tends to be irregular during the day and necessarily ceases during sleep. State and Hart-Mercer (1945) in their work on acute ulcerative gingivitis found a distinct inverse correlation between the length of time penicillin persisted in effective concentration in the saliva after local application and the length of time elapsing before clinical cure. To overcome these difficulties penicillin has been administered by means of a continuous drip into the mouth, thus providing continuous contact between the penicillin and the infected tissues throughout the 24 hours.

The method previously described by Royston and Deverell (1945) had originally been used on about 70 patients. A further 20 have now been treated.

Method

The apparatus is quite simple (see Diagram), consisting of a standard drip-transfusion set, with the needle replaced by a piece of soft thin rubber tubing 8 in. (20 cm.) long bent into the form of a J on a piece of dental wire in its lumen. The tubing is led into the mouth with the short limb of the J lying in the bucco-gingival sulcus and the long limb lying along the outside of the cheek, to which it is attached by a piece of strapping. The delivery tubing is then led over the side of the nose to the forehead and thence to the bottle suspended over the head of the bed. This arrangement enables the patient to lie comfortably on either side and to turn over in bed without disturbing the tubing,

thus not interfering with sleep. The solution used is made up from the impure calcium penicillin normally used for application to the skin, to contain 50,000 units to 1 pint (568 ml.) of normal or half-normal saline. The drip rate is adjusted to deliver 1 pint of the solution in 24 hours.

Patients tolerated the drip well and, except for two, did not find it interfered with sleep. A few were conscious of having to swallow more often than usual, but not to an uncomfortable degree, and while they were asleep the solution trickled down the pharynx, there being no leakage on to the pillow. Only one patient complained of nausea. There was no need to remove the drip while eating or drinking, and the patients were instructed not to remove the tube from the mouth except when cleaning the teeth.

Diagram showing the apparatus in position.

Results

It is not intended to discuss the clinical results in detail, because adequate control, notoriously difficult from both the clinical and the bacteriological standpoint, was not carried out. Certain clinical impressions were definite enough to warrant description.

1. Patients liked the treatment and stated that should they have a recurrence of their trouble they would prefer to have it again.

2. Patients suffering from infection of the tonsils and fauces by Vincent's organisms (18 cases) responded well, losing their pain and the foul taste in their mouths. This subjective improvement was well marked within six hours of beginning the drip, and compared favourably with 13 cases of similar severity treated by local applications of a weak solution of iodine and by gargles.

3. Two patients with glandular fever of anginous type and six with acute tonsillitis, peritonsillar swelling, oedema, and gross dysphagia who could scarcely articulate were made more comfortable within a few hours and enabled to get a good night's sleep.

4. Diphtheria carriers of three weeks' duration (seven cases) were rendered swab-negative after 72 hours of the drip, but all became swab-positive again within three days of cessation of treatment.

Conclusions

It was noted that about a quarter of the patients developed a dark-brown fur on their tongues, associated in some cases with a metallic taste and in others with headache. No other toxic symptoms were observed. This is of interest, as Bedford (1946), Ellinger and Shattock (1946), and MacGregor (1947) have reported a similar condition of the tongue when using penicillin pastilles, but in their cases there were no

symptoms associated with the tongue lesion. Mutch (1947) found it also when using inhalations of a nebulized aqueous solution of penicillin. The pastille base has been blamed for the condition. In my cases, however, the only vehicle used was saline, and still the black tongue developed. I tried the method on myself and developed a typical tongue after running the drip for three successive nights (a total of 50,000 units of penicillin), but failed to produce any such change with saline alone. This suggests that penicillin itself, or some contained impurity, is responsible and may act by causing an alteration to the normal flora of the mouth.

I think this method of applying penicillin has a place in the treatment of faucial infections caused by Vincent's organisms and in certain other severe throat infections, including the first day or two of severe faucial diphtheria. Also, it may well be applicable to surgical conditions of the throat.

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Medical Memoranda

Impaction of Gentian Pill in Larynx of Child Aged 2

The following case is of interest in that the ability of a child of 2 years to swallow either an enteric-coated capsule or an oval pill is difficult to assess, but there is certainly a danger, since the reflexes controlling deglutition are imperfectly developed at this age.

CASE HISTORY

A child aged 2 years was being treated with gentian violet pills for threadworms. On the evening of Dec. 20, 1946, she put a pill into her mouth and was then given a drink of milk, which was swallowed successfully. She was then given a piece of bread, but began to choke and became cyanosed and her breathing stertorous. Attempts to make her sick by placing a finger down her throat were unsuccessful. The father immediately carried the child to the doctor, who lived on the opposite side of the road. On arrival the child's breathing had ceased and the pulse could not be felt at the wrist. The doctor laid the child on a table and started artificial respiration, having previously smacked her back to try to dislodge the pill. Breathing restarted after about 30 seconds and was accompanied by a good deal of stridor. By the time the child reached hospital (accompanied by the doctor) the breathing was normal apart from a stridor. Cyanosis was present but not pronounced.

On admission to hospital the patient was suffering from stridor and cyanosis, and at each respiration the pill could be heard rattling in the larynx as it moved upwards and downwards. The child was taken to the operating theatre and chloroform anaesthesia was administered. By use of a direct laryngoscope the pill was seen to be travelling up and down the inside of the larynx between the cricoid and the true cords at inspiration and expiration. At expiration the pill could be clearly seen lying between the two cords. The pill was grasped from above with a pair of foreign-body forceps, but could not be pulled through the cords as these went into spasm directly they were irritated, and it was found impossible to remove the foreign body from above without damaging the cords. Tracheotomy was then performed, but the pill could not be removed from below, owing to its impaction in the cricoid ring. The question

then arose whether a laryngofissure should be performed, but it was decided to try to push the pill from above through the cricoid ring to the tracheotomy opening. This was successful and the pill was removed. The tracheotomy tube was left in position for twenty-four hours and the patient was given 30,000 units of penicillin at once and 15,000 units three-hourly. After another twenty-four hours the tube was removed and the patient made an uninterrupted recovery.

COMMENTS

In your issue of Dec. 21, 1946 (p. 973), the reply to a query in the "Any Questions?" column in respect of threadworm therapy for a child of 2 years ran thus: "The best drug to date is gentian violet. It is given in enteric-coated capsules, the dose being 1/6 gr. (11 mg.) per year of apparent age, for each day for about a week."

The above case illustrates that there is a certain danger in giving a large capsule or pill to young children until the swallowing reflex is well developed, since it may be inhaled or forced through the cords, as may have happened in this case, and so cause laryngeal occlusion and immediate death. If the pill had not been oval in shape the larynx would have been completely occluded and death would have resulted. By smacking the child's back the doctor had dislodged the pill from lying with the long axis in the horizontal plane. This allowed air to pass the pill as it lay with the long axis in the antero-posterior plane and enabled enough air to pass into the lungs to keep the child alive.

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Expectoration of Shell Fragment after 29 Years

The long interval between the injury and the expectoration of the shell fragment in the following case is of considerable interest, but no support for the "conservative" treatment of foreign bodies in the lungs is inferred.

CASE HISTORY

A soldier aged 18, while standing at the entrance of a dug-out in 1917, was hit by a fragment of metal from a high-explosive shell which dropped on a near-by road. The fragment entered his chest in the second left intercostal space, 2 in. (5 cm.) from the sternum; there was no point of exit. The site of entry healed in two weeks, but a left empyema developed which was satisfactorily cured by rib resection a month after the injury.

He was subsequently quite well, apart from a slight cough with up to 1/2 oz. (14 ml.) of inoffensive sputum daily, until 1932, when he had a haemoptysis of 5 oz. (142 ml.). After this, haemoptyses of not more than 1 dr. (3.5 ml.) occurred every month or two. In 1937, on his first visit to the Brompton Hospital, a radiograph showed a fragment of metal in the lower part of the left hilum, with some surrounding fibrosis; bronchograms revealed a filling defect of the bronchus to the lingular process just below its point of origin and adjacent to the fragment, all other bronchi being normal.

In April, 1946, he developed a sharp pain between the scapulae, particularly on coughing, which steadily became more severe for three days and terminated with the expectoration of the fragment, which measured 1.7 by 1 cm., together with a haemoptysis of 1/2 oz.

During the past year he has remained perfectly well; his sputum has never been more than a trace daily, and it has contained a streak of blood on two occasions only. Radiographs show no change compared with 1937, except that the shell fragment is no longer visible; bronchograms were not repeated owing to his sensitivity to iodine.

My thanks are due to Dr. F. H. Young for permission to publish.

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Breast-Feeding is an instructive little pamphlet obtainable from the National Association of Maternity and Child Welfare Centres, 5, Tavistock Place, London, W.C.1 (price 2d. or 1s. 9d. per doz.), which explains to mothers in simple terms the importance and technique of breast-feeding, care of the breast, test weighing, and weaning.