

the head is turned gently to one side immediately sleep is induced, and the chin is supported; the tongue does not tend to fall back, and the breathing, which formerly may have been oral, now becomes quiet and entirely nasal in most cases. The prop itself is in no sense an airway, but it has a central oval aperture which will admit any of the flat-type rubber or metal pharyngeal airways. As explained before, the introduction of any such airway is inadvisable. If an airway is used it should be greased with a stiff ointment containing one of the surface-acting local analgesics. A thick pad of sorbo rubber introduced between the chin and the clavicle is very suitable as a chin support.

Results

Pentothal gives good results in 2½% solution. In this strength accidental paravenous injection has not caused irritation to the tissues. Only once has thrombosis occurred with this solution. In this patient thrombosis was at the bend of the elbow, the injection having been given at the wrist. Solutions keep well, and no clinical differences have been noted when using solutions 48 hours old. As a test, a 2½% solution in ordinary tap-water in a non-sterile tube was kept open on the laboratory bench for 72 hours. Subsequent cultures were sterile. To part of this same solution were added two strains of staphylococci and one of streptococci from routine laboratory specimens. No growth was obtained after culture for 48 hours.

Respiratory depression is lessened and all-round improvement in results obtained by the use of some form of gaseous inhalation in combination with intravenous pentothal. In most of the cases oxygen alone or gas and oxygen have been used. Cyclopropane was available late in the series. The administration of a gas-oxygen mixture facilitates maintenance of anaesthesia, aids relaxation, and lessens the total amount of pentothal necessary. Enough oxygen must be used to avoid cyanosis. By this method the retardation in rate and the shallowness of respiration commonly seen in anaesthesia with pentothal alone are avoided. Early spasm, if slight, can be abolished by introduction of carbon dioxide or by an increase in the pressure of the inhaled gases. In a few cases mild spasm or irritative cough may persist despite these measures. This is of small significance in operations on the limbs, and the anaesthesia should not be deepened unless the symptoms interfere with the surgeon, provided always that there is no evidence of lack of oxygenation of the patient.

Adequate premedication with morphine 1/8 to 1/4 gr., combined with scopolamine 1/150 to 1/100 gr. or atropine 1/100 to 1/75 gr., decreases the tendency to spasm and also the total dosage of pentothal required. A warning is essential in acute war surgery—at least in this theatre of war. From the point of view of the anaesthetist, the battle casualty usually arrives in the operating room over-morphinized. In most cases this appears to be due to somewhat lavish use of morphine, but in the debilitated state of many severe casualties even moderate morphine dosage may have a profound effect. It has been found wiser to omit any morphine pre-operatively unless the patient has been under local observation for some hours. A very small pupil is the commonest eye sign in battle casualties reaching operation, and the size does not alter throughout the anaesthesia with pentothal.

In many cases deep anaesthesia is unnecessary. In the toilet of most wounds, using the combined method, 0.3 to 0.75 g. is sufficient. In the major surgery of multiple compound fractures and in amputations it has not been necessary to exceed a dose of 1.5 g. Three disarticulations at the hip for gas gangrene—one of 70 minutes' duration—were carried out with a dosage of 0.75 g. each; there were no untoward symptoms, and all recovered well.

In a sudden military emergency with influx of wounded in large numbers, nursing facilities are strained and patients must return to bed from the operating theatre in a state in which they will need little or no immediate post-anaesthetic care. It has been found that most patients arouse in the theatre after provision of all anaesthesia necessary for their surgical needs. Vomiting has been conspicuously absent, and there has been no anxiety as to maintenance of free airway after return to the ward. Most of the men can take fluid and nourishment soon after their return to bed. They are encouraged to drink water in plenty up to 20 minutes before operation.

Sulphonamides have not been regarded as a contraindication to the use of pentothal. In the presence of sepsis and debility, caution and a much-decreased dosage of pentothal are essential. In this series no state of toxæmia or exhaustion has been an absolute bar to its use. It has not been employed in jaundiced patients. Although working in adverse tropical conditions and with patients debilitated by infective states, no case of delayed recovery of consciousness has been seen, despite the probability of latent liver deficiencies. Shock is not always a contraindication to pentothal anaesthesia. Some casualties arrive pale, restless, and confused, and in these the intravenous injection of a few cubic centimetres of solution facilitates the introduction of plasma or other fluids and the use of a face-mask for inhalation of oxygen. These patients are kept only just asleep, and operation is not begun until recovery from shock is evident. If ether or high cyclopropane percentages are thought necessary a few cubic centimetres of pentothal are used merely as a single-dose pre-hypnotic, but ether is avoided wherever possible.

Conclusions

Pentothal in 2½% solution by the continuous method, preferably combined with inhalation of oxygen, gas-oxygen, or cyclopropane mixtures under slight pressure, is an anaesthetic of wide and satisfactory application in the treatment of acute battle casualties. A syringe-holding clamp, which facilitates administration, is described, also a mouth-prop. It is recommended that no artificial airway should be introduced, owing to the likelihood of cough and spasm. Intubation necessitating the maintenance of deeper anaesthesia was reserved for special indications.

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The syringe, tap, and two-way adapter shown in Fig. 1 are made by Messrs. Becton Dickinson, but suitable apparatus is obtainable from Medical and Industrial Equipment Ltd., 12, New Cavendish Street, London, W.1.

TREATMENT OF SOFT WARTS WITH PODOPHYLLIN

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A treatment for condylomata acuminata which deserves to be widely known because of its simplicity and high rate of success has been described by Culp, Magid, and Kaplin (1944). From their results in a series of 100 cases treated with podophyllin they claim that:

"(i) Podophyllin has been found to be unusually successful in producing prompt and complete disappearance of condylomata acuminata regardless of the size, number, location, or duration of the growths. . . (ii) Podophyllin may be applied locally to the lesions as a 25% suspension in mineral oil or as a paste composed of the powdered drug and water. Anaesthesia is not required. (iii) Treatment is simple, the convalescence usually is painless, and the lesions disappear within two or three days after a single application, leaving no ulceration or scarring. Repeated applications of the drug may be necessary in a few instances. . . (iv) The surrounding normal tissue is unaffected by the drug, but in isolated cases of extensive application under tight prepuces some balanitis may result. . . (v) The dramatic results obtained in this series of 100 cases and the simplicity of the treatment with podophyllin prompt us to recommend more widespread application of this type of therapy."

I have treated a series of 25 cases of condylomata acuminata and have confirmed the success achieved in the U.S.A. In addition one case of extensive warts of the face has responded equally well to podophyllin treatment.

Method

A suspension of podophyllin resin B.P. 25% in liquid paraffin B.P. was shaken and then applied liberally to the affected area, care being taken to ensure that the numerous crevices of a profuse crop of warts were penetrated and no attempt being

made to confine the preparation to the lesion itself. The suspension must remain in contact with the warts for at least six to eight hours, and clothing must be prevented from absorbing it or rubbing it off. Hard crusts remaining from previous treatment must first be removed before a further application is made. The crusts can be softened with the podophyllin oil and left to soak in for a few minutes, after which they are easy to detach. After six to eight hours the oil should be washed off with soap and water, and the parts dried carefully, and kept dry with a powder such as pulv. zinci co. If this is not done inflammation may occur. An ordinary orange stick proved useful, the blunt end being used to apply the oil and the sharpened end to remove crusts and open up fissures between multiple warts to assist penetration.

Results

Twenty-five cases consisted of single or multiple condylomata acuminata of the penis or anus. Isolated warts shrivelled up and became yellow within 24 hours and dropped off in a few days, leaving no ulceration or scarring. Profuse growths usually required two or three applications. Treatment is painless. Normal tissue is substantially unaffected, in contrast to the action of the usual caustics. There is, however, a risk of inflammation, especially balanitis; but this may be obviated if precautions are taken as described.

One of these cases needs special mention. The man had been under treatment for penile warts for a year before I saw him. Treatment had consisted of (i) circumcision and cauterizing of warts with the galvano-cautery; (ii) application of a diathermy cautery three times; and (iii) two courses of small doses of x rays six and seven months previously. But after each treatment the warts recurred. On examination there was a most profuse cauliflower growth of warts covering and hiding the end of the penis. The warts were growing from the urinary meatus, glans penis, coronary sulcus, and along the line of the circumcision scar. Secondary infection had occurred, with the production of a profuse purulent offensive discharge. Compresses of flavine were used to combat the infection. Podophyllin in oil was applied to small areas at a time, so that in five weeks some 15 applications had been made. At the end of this period the penis was substantially normal except for scarring from previous treatment. One month later a few warts began to recur, but two applications in a week led to their complete disappearance.

After success in this case with the meatal warts other cases of single meatal warts were treated successfully without apparent ill effect on the mucous membrane of the urethra. In these cases the urine should be held for six to eight hours, so that the podophyllin is not washed away.

Another case is in a different category. It was a profuse eruption of warts of the face, chiefly in the beard area, maximal over the chin. The onset had been 18 months previously. In the interval treatment had been with (a) chemical caustics, (b) curetting, and (c) small doses of x rays. During four weeks 15 applications were made. Single warts dried up and fell off after one application, small bunches of warts responded to two applications, whereas the thickened and deformed skin of the chin required 10 applications.

Commentary

Single soft warts may be removed with success by several methods—e.g., caustics, curetting, ligature, and galvano- and diathermy cauteries. Most of these are painful. Multiple warts are more difficult to cure, and require either special skill or special apparatus. They present particular difficulty to x-ray therapy by reason of their situation and multiplicity, and also, in hairy regions, because of fear of epilation and permanent skin changes.

Podophyllin in oil is easy to obtain, simple in use, and successful in the more awkward kind of case—warts of the urinary meatus, and multiple warts of the penis, vulva, anus, and face.

To obtain success with podophyllin thorough and prolonged application is necessary. The case of warts of the face and two cases of warts of the anus had been treated by a colleague with podophyllin, on my recommendation, without success. Failure is thought to have been due to the podophyllin being

absorbed into dry gauze dressings in the first instance and into underclothing in the second. Complete success was later obtained by ensuring that the oil remained in contact with the warts.

Summary

The results of treatment of warts with podophyllin reported by Culp, Magid, and Kaplin have been confirmed.

The preparation used was podophyllin resin *B.P.* 25% in liquid paraffin *B.P.* This is easy to obtain.

The treatment is simple and requires no special skill or apparatus, but the application should be thorough and prolonged.

It is suitable not only for single soft warts but also for more difficult cases, such as warts of the urinary meatus and multiple warts of the penis, vulva, and anus.

In addition multiple warts of the face disappeared under this treatment.

Two cases that had failed to respond to x-ray therapy were treated successfully.

The excellent results justify a wider acquaintance with podophyllin treatment and a trial in cases other than condylomata acuminata.

REFERENCE

Culp, O. S., Magid, M. A., and Kaplin, J. W. (1944). *J. Urol.*, **51**, 655.

Medical Memoranda

Treatment of Chronic Otitis Media

Recruits are referred to specialists by Army medical boards if they have puzzling ear conditions. Most men have perforated tympanic membranes, the perforation usually being located centrally or antero-inferiorly, and so they are easy to cure. Some have attic perforations and some a polypus, and these are more difficult, yet usually possible, to cure. Most men have had the discharge lasting over many years, and the only treatment they have had has been hydrogen peroxide or glycerin of carbolic drops, no attempt being made to clean the ear before using these. The object of this note is to condemn all treatment that does not first involve dry cleaning of a discharging ear, and to give the family physician an easy method of cure. The treatment I adopt is as follows:

METHOD

I give each man 24 "peerless wood applicators," which can be repeatedly boiled, or, if the meatus is small, a fine metal probe; an ounce packet of long-fibre cotton-wool; freshly prepared boric-iodine powder (Lederman, 1917) and, if the perforation is small, a Fowler auto-insufflator, which acts like a Politzer bag; a powder-blower; and a bottle of liquid paraffin and an eye-dropper. I spend some time teaching each man to lay a thin transparent plaque of cotton-wool 3 in. long on the first and second fingers of the left hand, to lay the stick or probe on the cotton, and then to place his thumb, touching the first and second finger-tips, over the stick, so that the two fingers and thumb encircle two inches of the cotton and stick; and, finally, grasping the proximal inch of cotton with his right fingers and thumb, to rotate the cotton and stick, not moving his left fingers. The method of preparing boric-iodine powder is described by Carruthers (1943), while the method of preparing the cotton-covered stick is illustrated in five pictures in the same book.

I then teach the man how to straighten the external auditory meatus. If the right ear is affected I tell him to put his left hand over (not behind) his head and grasp the tip of the right ear with the first finger and thumb of the left hand, and pull the ear upwards, keeping the ear in contact with the skull, and then slightly backwards. The man is then told to rest his right hand on his cheek, and, holding the cotton-covered stick with his fingers, to worm it gently two inches into the ear, and repeat this cleansing process until the cotton returns clean or covered with blood. If the perforation is small the patient then uses Fowler's auto-insufflator—which blows the pus out of the middle ear—and repeats the cleaning process. He next takes up a powder-spoonful of boric-iodine powder, and, still keeping the meatus straight, blows the powder into the ear.

The above treatment is carried out three times a day. The patient is instructed never to let water enter the ear, and so before he immerses his head under water he fills the ear with liquid paraffin and plugs it with cotton-wool. He is also told never to turn his ear into an incubating-tube by wearing cotton-wool in it. This treatment usually cures a chronic otitis media in two or three weeks.

As an alternative treatment one can fill the ear with a suspension of sulphamylamide (1 g. to 30 c.cm.). This method is especially good with young children who will not tolerate the ear being cleaned, as they can lie on the bad ear for 15 minutes to empty it, and have this treatment done, after which cotton-wool can be applied.

Banham (1944) has recently published two prescriptions as an alternative to boric-iodine powder; one contains sulphapyridine as well as boric-iodine powder, while the other has