high as a point two inches below the elbow-joint. The limb is elevated for several days in order to minimize tissue oedema. Active exercises are instituted for the fingers after 48 hours, together with active exercises at the elbow- and shoulder-joints.

In the case of burns of the foot a similar technique is employed. The glove is left in position for a period of two to three weeks. Other regions of the body have been treated by the proflavine-plaster technique, including the leg, thigh, forearm, arm, shoulder, chest wall, and abdominal wall. In the case of large joints such as the knee and elbow, bandages are applied, with plaster above and below, in order that active exercises may be carried out. There are several advantages in the plaster technique. The dressing is comfortable and is held firmly in position. If evacuation of the patient is necessary, travelling in plaster is comfortable. In tropical and subtropical countries, where flies are numerous, the plaster forms a barrier against maggot infestation.

In order to illustrate the results obtained reference is made to the following typical cases among those we have treated by the powder. It is our practice to investigate the bacterial flora present in the wound from its inception until healing occurs. On account of the necessity for evacuation it was not possible to hold every patient until healing was established. Nevertheless we have investigated sufficient cases treated by this method to be very impressed with the end-results.

Illustrative Cases

Case 1.—Trooper aged 30. Admitted with major burns—second and third degrees—involving face, neck, forearms, hands, right chest wall, anterior abdominal wall lower half, penis, scrotum, right buttock, and both thighs. Treated with proflavine powder as described. Plasma transfusion 1,350 c.cm. Bacteriology of burns showed coliform organisms. Four days after admission, plasma transfusion 1,350 c.cm. Seven days later re-dressed. Coliform organisms present. He was re-dressed at intervals, and bacteriological examinations showed *B. proteus*, *Staph. aureus*, and coliform organisms. Thirty-six days after the first treatment the wounds were clean, sloughs had separated, and healthy granulation tissue had formed. All areas not healed were skin-grafted, using split-thickness grafts. There was a good "take," and in 69 days the patient was evacuated in good general condition, walking well, and all wounds had healed save a small patch on the right thigh which was in process of healing.

Case 2.—Fireman aged 38. Admitted with major burns—second and third degrees—involving both lower extremities, buttocks, penis, and lower part of the back. The patient had been treated at another hospital, the injury having occurred 18 days before we saw him. He had received sulphathiazole orally, 45 g., and sulphanilamide powder locally. His general condition was very poor and secondary anaemia was present—Hb 68%. Two pints of blood were transfused and routine proflavine treatment given for the burns, which were very infected. A second blood transfusion, one pint, was given 12 days later and again on the 47th day. Dressings were changed at intervals, and bacteriological investigations showed *B. proteus*, *Staph. aureus*, coliforms, and diphtheroids. Patient was evacuated 67 days after admission in good general condition, walking well, and with wounds healed.

Comment

It is of interest to compare Cases 1 and 2, as these burns were of comparable severity. In Case 1, treated with proflavine powder, the general condition did not show the marked toxicity of Case 2, and no blood transfusions were required as in the latter. The lengths of stay in hospital before healing was achieved were 69 and 67 days respectively. The haemolytic streptococcus was absent in all cases, and we believe that such infection can be prevented by the use of this method. Bacteria met with in our cases were *Staph. aureus* and *albus*, *B. proteus*, coliforms, diphtheroids, and *B. pyocyaneus*. In the past it has been stated that the acridine compounds retard the healing process in a wound. This has not been our experience using powdered proflavine in burns and also in other types of wounds. On the contrary, healing is usually rapid and there is a noticeable absence of scarring, the resulting skin being supple and of excellent quality. The hands we have treated are functioning normally and no contractions have developed. It is recognized that a burn of the hand may be of such severity that a deformity will result no matter what treatment is given. There has been no instance of a deleterious general effect from absorption of proflavine at the wound surface.

Summary

In the treatment of burns the patient as a whole must be carefully considered, and the salient features in his management are here discussed. Powdered proflavine has been used in the treatment of the wound and the results achieved are described. This chemical substance is of proved value, and we employ it as a routine. Attention is called to the use of plaster-of-Paris as a covering for the dressings, and in particular to the "plaster glove" in burns of the hand. Proflavine powder does not retard the process of healing, and the resulting healed area showed a remarkable freedom from scarring, the skin being supple and of excellent quality.

I am indebted to Major T. Day, R.A.M.C., for carrying out bacteriological examinations on a large series of patients. Col. W. A. Y. Knight, A.M.S., commanding the hospital, has kindly allowed me to publish the case histories.

REFERENCE

Elman, R., and Lischer, C. E. (1943). *Surg. Gynec. Obstet.*, **76**, Int. Abst. Surg., 503.

Medical Memoranda

Enucleation of Six Ovarian Dermoid Cysts from one Woman, with Conservation of the Ovaries

The following case record illustrates the scope of conservative surgery on the ovaries.

CASE HISTORY

Miss J., aged 21 (No. 24703). During a routine examination a swelling was found in this girl's abdomen. At the West London Hospital a provisional diagnosis of ovarian cyst was made, and her name was placed on their waiting list. As a result of the air raids in London in the early months of 1944 she came to Oxford and was admitted to the Radcliffe Infirmary. On the previous diagnosis, with which I had no reason to disagree, the abdomen was opened. The operative details are as follows:

Left lower paramedian incision. A bluish cystic swelling arising from the left ovary was immediately apparent; it was about 9 in. long, and had the appearance of a multilocular ovarian cyst with an extension running up towards the left. The uterus was normal in size and position. The right ovary was about 5 in. long, and clearly contained two separate cysts, one at each pole. Each cyst in the right ovary was a little smaller than a golf ball, and was yellowish in colour, as if filled with sebaceous material such as is commonly present in dermoid cysts.

These two cysts in the right ovary were both enucleated easily and bloodlessly, and the ovary was repaired. Because of the findings in the right ovary the localized swelling of the left ovary was re-examined. Though each locule was obviously filled with watery fluid, there were in addition a few fat globules to be seen through the capsule. On the supposition that the left-sided cyst was also a dermoid, enucleation was proceeded with. Surprisingly, the cyst turned out to be not one but four quite separate ovarian dermoids. Three were enucleated without difficulty, though one was accidentally punctured; the fourth was removed along with a piece of thinned-out ovary. The ovary was repaired and the abdomen closed.

Convalescence was uninterrupted. Before operation the patient menstruated every two months; subsequently she reported her periods as "regular every month."

All six cysts contained hair. The two on the right side were largely filled with sebaceous material; the four on the left side with watery fluid. Histological examination confirmed the clinical diagnosis of benign cystic ovarian dermoids; a great variety of tissue elements were identified.

COMMENT

Dermoid cysts of the ovaries are not infrequently bilateral, so it is especially important that the scope of conservative surgery should be realized. Furthermore, they often occur in young women who have their child-bearing future ahead. Enucleation of such cysts is the operation of choice in young women. The operation is easy, tidy, and surprisingly bloodless. I have found diathermy helpful in stopping any slight oozing from the tumour bed.

Bonney (1937) has recorded cases similar to the above, and has emphasized that there are many ovarian conditions which, as a general rule, should be treated by conservative surgery.

Oxford.

C. SCOTT RUSSELL, F.R.C.S.Ed., M.R.C.O.G.

REFERENCE

Bonney, Victor (1937). *J. Obstet. Gynaec. Brit. Emp.*, **44**, 1.

Estimation of Bromide in Body Fluids

The necessity may arise at intervals to check the administration of bromides or their mixtures to patients during a course of treatment. Particularly is this the case in a mental hospital. A suitable and easily worked process would therefore be an advantage, and the one described below is by no means complicated and gives fair results.

Not much work has been undertaken on this subject recently. Only one process for blood bromide could be found. This was by Barbour, Pilkington, and Sargent (*British Medical Journal*, 1936, **2**, 957). When testing this method in the hospital laboratory very poor results were obtained, although standard bromide solutions were employed. It was found that traces of serum protein unprecipitated from the first stage prevented the formation of the gold colour-combine. Further, sodium chloride in concentration equal to that obtained in blood serum similarly prevented the colour formation. Iodides gave exactly the same colour-combine as bromides when treated with the gold chloride solution.

It will thus be seen that these distracting features had to be eliminated before any reliance could be placed upon the results. The following process was therefore instituted.

1. URINE

A 24-hour sample of urine is collected and measured. 100 c.cm. of urine is evaporated to dryness in a silica basin on a water-bath. The urine is previously made slightly alkaline with 5% NaOH. Ignite slowly until all organic matter is decomposed, but do not continue heating to drive off all the carbon. Cool, and add about 10 c.cm. of distilled water and a few drops of 5% HCl till slightly acid; heat to almost boiling-point and filter. Wash with warm distilled water at least three times. Keep bulk of fluid as low as possible, if necessary by further evaporation. Transfer filtrate to a separator and cool. Add 10 c.cm. of chloroform (CHCl_3) and 5 c.cm. of freshly prepared chlorine water, shake vigorously, and allow $\text{CHCl}_3 + \text{Br}$ to settle for a few minutes. Run the CHCl_3 layer into another separator under 10 c.cm. of distilled water. Treat the original solution with a little more CHCl_3 , shake, and add to first CHCl_3 extract. Wash quickly with distilled water. Run the total $\text{CHCl}_3 + \text{Br}$ extract into a separator, add 10 c.cm. distilled water, and slowly add just enough anhydrous Na_2CO_3 , shaking the while until the red colour of the bromine in the chloroform disappears and the whole becomes water-clear. Shake well and allow to settle. The aqueous layer now contains NaBr in solution. Run off the CHCl_3 carefully. To the aqueous layer 1.5 c.cm. of a 1% gold chloride (HAuCl_4) solution is now added, and drop by drop 5% HCl until the orange-red colour is fully formed. Three or four drops of the acid solution should suffice. This colour is then compared in a colorimeter with a standard NaBr solution of known strength (2 or 4 mg.). The appropriate quantity of standard should be diluted to the same volume as the final aqueous solution of the material under test, made slightly acid with dilute HCl, and 1.5 c.cm. of the gold solution added.

Test of Process.—4 mg. of NaBr was added to 50 c.cm. of a normal urine and the entire process carried out. 3.81 mg. of NaBr was recovered. Tests on patients receiving exact quantities of bromide daily showed an excretion of from 60 to 70% of the added salt over that period.

2. BLOOD

The process can be adapted to blood, a small measured quantity of which is incinerated slowly until most of the carbon is driven off. Further steps are then completed as above. It is most advisable here to keep the bulk of the liquid as low as possible. The results may vary slightly owing to the small amount of sample used.

It is not claimed that this process is 100% efficient, but with careful working comparative results will be assured. The chemical reactions made use of are of the simplest nature and, should it be desired, the test could be carried out in any laboratory.

Staffordshire Mental Hospital, Stafford. J. S. SHARPE, M.B., Ch.B.

Gaucher's Disease: Diagnosis by Sternal Puncture

The case reported below was referred to me by the Armed Forces Medical Board on account of splenomegaly. The diagnosis of Gaucher's disease was made by sternal puncture. In view of the rarity of the condition and the fact that this case was revealed by the routine examination of recruits it is felt that a brief clinical memorandum would be of interest.

CASE HISTORY

The patient, a youth aged 19, is of British nationality and is not of Jewish ancestry. There is no familial history of splenomegaly. One brother died at birth. The father is at present on active service in the Royal Navy. The mother is alive and well, and apparently healthy. He has had no serious illness apart from an attack of bronchitis at the age of 10, though there have been occasional mild attacks of "influenza." During these attacks the patient feels a creaking sensation over the spleen.

Eighteen months ago the spleen was found to be enlarged when he was examined by his doctor during an attack of "influenza." Since then an increase in the size of the spleen has been noted. His general health is good and he has played rugby and water-polo without difficulty.

Examination revealed a tall, well-built youth of healthy appearance, with no conjunctival pingueculae or abnormal pigmentation. There was no abnormality of the nasopharynx or chest. The blood pressure was 130/85 mm. Hg. The spleen was enormously enlarged, with a firm edge and an easily palpable notch. In the supine position, at a point 2 in. lateral to the umbilicus the lower margin of the spleen was 6 in. from the costal margin. The lower thorax on the left side was visibly bulged forward by the underlying spleen. The liver was not palpable. There were no palpable glands apart from a few small slippery glands in the left axilla.

Investigations.—Blood count:—Hb 110% (Haldane scale); mean diameter of cells (halo method), 6.8 μ ; red cells, 6,120,000 per c.mm.; leucocytes, 6,000 per c.mm.—polymorphs 56%, lymphocytes 40%, monocytes 4%; platelets, 285,600 per c.mm.; red cells stain normally. Bleeding and coagulation times were normal. Urine:—No protein of any nature present. Hippuric acid excretion test for liver function:—In one hour 17.4%, in two hours 47.5%, in four hours 82.6% of ingested sodium benzoate excreted. Red cell fragility to saline normal. Radiographs of skull, scapula, humerus, pelvis, and lower ends of femora showed no abnormality. Marrow smear:—After a prolonged search a typical Gaucher cell was found (see photomicrograph). Otherwise the picture was within normal limits.

Emanuel (1941) reported two cases of Gaucher's disease diagnosed by sternal puncture. In one, that of a man aged 30, the splenomegaly was revealed through the routine examination of recruits.

I am indebted to Prof. S. L. Baker and Dr. C. E. Jenkins for their interest and help, and to Mr. Gooding for his excellent photomicrograph.

M. L. THOMSON, M.D., M.R.C.P.,

Honorary Assistant Physician, Salford Royal Hospital.

REFERENCE

Emanuel, E. (1941). *Edinb. med. J.*, **48**, 843.

There were 25,285 persons on the register of the Pharmaceutical Society of Great Britain at the end of last year, compared with 25,224 the year before. The total includes 4,471 persons known to be serving with H.M. Forces. Since 1900 the number of pharmacists has increased by 10,000 and is now 1 to 1,800 of the population, compared with 1 to 2,700 in 1900. The proportion of women pharmacists is now 10.5%. Last year the number of women entering pharmacy was 52% of the total.