

was the usual fluid used, it was decided to test its bactericidal powers. This was done by adding *Staph. pyogenes* (Oxford H strain), *Strep. hæmolyticus* group A, and *Bact. coli* to separate 10 c.cm. amounts of 1 in 3 glycerinum thymol co. (this is the strength dispensed here, but varying dilution occurs on the wards). These were allowed to stand at room temperature and after 1/4, 1, 4, and 24 hours samples were taken and poured with nutrient agar (in the case of streptococci with sterile serum added at the time of the pouring). By this means the numbers of viable organisms were estimated (table II).

TABLE II—BACTERICIDAL POWERS OF GLYCERINUM THYMOL CO.

Organisms	Original no. per c.cm. of glyc. thymol co.	After			
		1/4 hr.	1 hr.	4 hr.	24 hr.
<i>Staph. pyogenes</i> ..	6000	6000	550	4	0
<i>Strep. hæmolyticus</i>	56,000	8000	30	0	0
<i>Bact. coli</i> .. ..	3500	3000	3000	2300	240

Phenol has long been known as a powerful antiseptic, and table I shows that diluted 1 in 20 it is much superior to glycerinum thymol co. as an antiseptic, though it may not be effective in the very short time in which thermometers remain in it during a round. Table II shows that glycerinum thymol co. is useless as a bactericidal agent for sterilising thermometers.

#### DISCUSSION

If the above-described method of taking temperatures is used, thermometers remain in the "sterilising" fluid only a few seconds between one patient and the next. The thermometers are returned repeatedly to this fluid and after each ward round remain there. Thus the fluid in the jars is frequently contaminated and diluted with saliva and the water on the thermometer tray. With an efficient antiseptic, such as 1/20 phenol, the fluid will probably be sterilised between the rounds, but with an inefficient antiseptic, such as glycerinum thymol co., there will be little or no sterilising of the fluid. The passage of bacteria from one patient to the next during a round must depend on the care, efficiency, and knowledge of the nurse and on the potency of the "sterilising" fluid.

Though some antiseptics are bactericidal in a few seconds, these would almost certainly be harmful to the mucosa of the mouth or noxious to the patient. For example, Gardner and Seddon<sup>2</sup> have shown that clean unwashed skin is virtually sterilised with 2% iodine in 70% alcohol in 15–20 sec., but such a solution could hardly be used to sterilise thermometers, because in spite of all possible care a patient would sooner or later have his temperature taken with the fluid still on the thermometer. The use of inefficient antiseptics such as glycerinum thymol co. gives a false feeling of security, and even efficient antiseptics would have their limitations under the present method of taking ward temperatures.

#### CONCLUSIONS

We suggest that, if ward temperatures are to be taken in the mouth, each patient must be supplied with a separate thermometer which he keeps to himself as long as he stays in hospital. This can be left by the patient's bed in a small jar containing an antiseptic solution. When he leaves hospital, his thermometer must be properly sterilised before being used again. This can be done by washing the thermometer in running cold water, drying it, and placing it in some effective antiseptic for a time long enough to allow the antiseptic to act.

## HORMONAL TREATMENT OF DEFICIENT LACTATION

### RESULTS WITH CRUDE ANTERIOR-PITUITARY EXTRACT

MARGARET ROBINSON \*

M.D. Belf., D.P.H.

RESEARCH ASSISTANT, MEDICAL RESEARCH COUNCIL

IN an extensive study of failing lactation in women (Robinson 1943) no obvious reason was found for the failure in at least 40% of the cases examined. It seemed that an endocrine dysfunction might be responsible, but no clinical signs of this were discovered. On the suggestion of Prof. F. G. Young and with the support of the Medical Research Council and the clinical advice of Mr. J. M. Wyatt, the influence of various hormone preparations on failing lactation was investigated. The present report deals with the results of treatment, during the puerperium, with crude anterior-pituitary extract, administered either alone or with other substances.

#### METHOD

*Assessment of Milk Yield.*—From the fifth to the thirteenth day of the puerperium the infants were test-fed at every feed. The sum of all the test-feeds done in one day gave the total daily output of milk and was calculated for each day of the puerperium. After discharge from hospital the mothers reported for test-feeding when their infants were four weeks, six weeks, twelve weeks, and six months old. Two consecutive test-feeds were done on each of these days. The times of the feeds were either 10 A.M. and 2 P.M., or 12 NOON and 3 P.M. The average of these two test-feeds was multiplied by five or six, according to whether the infant was being fed four-hourly or three-hourly. This gave the total daily output of milk in the fourth, sixth, and twelfth weeks and sixth month of lactation.

*Criteria of Failure to Establish Lactation in the Puerperium.*—In 500 untreated lactations the infants were test-fed each day during the puerperium and were followed up during the next six months. Failure before the sixth month of lactation was rare where the milk output on the fifth day of the puerperium had been at least 10 oz., and on the tenth day at least 16 oz., whereas nearly all the failures occurring in the first three months of lactation had had a milk output of less than 10 oz. on the fifth day of the puerperium, or of less than 16 oz. on the tenth day. Therefore an output of at least 10 oz. on the fifth day of the puerperium and of 16 oz. on the tenth day was taken as the standard of establishment of lactation in the puerperium.

#### TREATMENT

Four different types of hormone treatment were used and three different types of non-hormonal treatment were used to provide controls. As a further control, an eighth group of patients was left untreated. In all, 126 patients were investigated, this number being randomly distributed among the eight groups indicated above. To avoid reactions to the protein in the crude ox anterior-pituitary extract, injections of this material were not given to patients with a family history of allergy.

All infants were test-fed on their fifth and tenth days. If, according to the criteria mentioned above, there was a failure to establish lactation on either of these days, experimental or control treatment was given daily until the thirteenth day, except in the case of injections, which were only given for five consecutive days. On the average, treatment began on the seventh day of the puerperium\* and ended on the thirteenth day. The milk

2. Gardner, A. D., Seddon, H. J. *Lancet*, 1946, i, 683.

\* Working with a full-time grant from the Medical Research Council at St. Thomas's Hospital, London.

yield was determined daily by test-feeds. The test-feeding began on the fifth day, or on the tenth day, and continued until the fourteenth day. The subsequent course of each lactation was followed up by assessing the daily milk yield from test-feeds done at the end of the fourth, sixth, and twelfth weeks and sixth month of lactation.

Hormone preparations were given as follows:

- (1) Injections of crude ox anterior-pituitary extract.
- (2) Injections of crude ox anterior-pituitary extract plus oestrogens by mouth.
- (3) Injections of crude ox anterior-pituitary extract plus dried thyroid gland *B.P.* 1932 by mouth.
- (4) Injections of crude ox anterior-pituitary extract plus oestrogens and dried thyroid gland *B.P.* 1932 by mouth.

The control treatments were as follows:

- (1) Breast massage as advocated by Randall (1945).
- (2) Injections of physiological saline.
- (3) Administration by mouth of a proprietary galactagogue.

*Crude Ox Anterior-pituitary Extract.*—This was a clear sterile extract prepared as described by Young (1938) and supplied by Glaxo Laboratories Ltd. Its concentration was such that 1 c.cm. contained the material extracted from 250 mg. of fresh ox anterior-pituitary tissue. Each c.cm. possessed prolactin activity (pigeon crop-gland assay) equivalent to about 20 i.u. Folley and Young (1940) showed that this extract was much more highly effective than prolactin in enhancing the milk yield of cows in declining lactation. Folley and Young (1941) suggested that trials of this material should be made in women with failing lactation. Once a day the extract was injected intramuscularly into alternate buttocks in diminishing amounts as follows: 5 c.cm., 5 c.cm., 2 c.cm., 2 c.cm., 1 c.cm. Reactions to the injections were few and were localised at the site of injection.

*Oestrogens.*—The synthetic material hexoestrol (Boots Ltd.) was used, 1 mg. tablets being given by mouth four times daily during the period of pituitary treatment in two of the groups of patients.

*Dried Thyroid Gland.*—Tablets gr. 1, made by the pharmacist at St. Thomas's Hospital from powdered thyroid gland *B.P.* 1932, were given by mouth four times daily during the period of pituitary treatment to two groups of patients.

#### RESULTS

The accompanying table shows the results obtained in the treated cases and in controls. The mean daily milk output before treatment was practically the same in the treated cases and the controls. The increase was also the same during treatment and continued to be the same up to the twenty-eighth day of lactation. Then in the controls the mean daily milk output began to fall, and by the sixth month of lactation it had fallen to 50% below the original level. In the treated cases the fall in the mean daily milk output was delayed until after the sixth week of lactation, and by the sixth month of lactation it was still slightly above the original level. The percentage of infants who were still being breast-fed at six months was almost twice as high among the treated cases as it was among the controls. The reason for this can be seen when the mean daily milk output for each group of cases is examined separately. The controls contain the group with the worst results, whereas the treated cases contain the group with the best results.

Where no treatment was given, the breast-milk had completely dried up in every patient by the third month. The 21 infants were entirely bottle-fed before they were three months old. These were the worst results. Where crude ox anterior-pituitary extract plus dried thyroid gland were given, 38% of the infants were still being breast-fed at six months. These were the best results. It is noteworthy that any form of treatment is better than no treatment at all.

The mean daily milk output was increased by over 100% in the 21 cases treated with crude ox anterior-pituitary extract plus dried thyroid gland. The rate of increase in daily output was no greater than it was among the controls and the other treated cases. The mean daily milk output continued to rise until after the third month of lactation, whereas among the controls and the other treated cases the increase in mean daily milk output ceased about the sixth week of lactation, and the total increase therefore never became as high as 100%. At the sixth month of lactation the cases treated with crude ox anterior-pituitary extract plus dried thyroid gland gave a mean daily milk output well above the mean daily yield before treatment. At the sixth month of lactation most of the controls and the other treated cases gave a mean daily yield of less than the mean daily yield before treatment.

In 7 of the 21 cases treated with crude ox anterior-pituitary extract plus dried thyroid gland, the dried thyroid gland alone was continued after discharge from hospital. Dried thyroid-gland tablets gr. 1 were given daily by mouth until lactation had failed, or until the fifth month of lactation. The results were no better than among the patients whose pills had been discontinued on discharge from hospital. In the group of patients given hexoestrol besides crude ox anterior-pituitary extract plus dried thyroid gland the results were no better than in the controls.

MILK YIELD OF WOMEN WITH FAILING LACTATION

Treatment	No. of cases	Mean daily output of milk (oz.) before, during, and after treatment						No. of infants breast-fed 6 months
		5th day	10th day	4th week	6th week	12th week	24th week	
Crude anterior-pituitary extract	16	6	8	8	6	6	5	3 (18%)
Crude anterior-pituitary extract plus hexoestrol	13	7	8	7	8	6	4	2 (15%)
Crude anterior-pituitary extract plus thyroid	21	6	9	12	13	13	11	8 (38%)
Crude anterior-pituitary extract plus hexoestrol plus thyroid	17	5	6	8	7	3	3	2 (11%)
Mean for 67 women ..	..	6	8	9	9	7	6	15 (22%)
Massage .. ..	11	7	9	11	12	9	8	3 (27%)
Proprietary galactagogue	15	7	8	9	9	8	2	2 (13%)
Saline injections ..	19	5	7	9	9	5	5	4 (21%)
No treatment .. ..	21	5	7	7	2	0	0	0
Mean for 66 controls ..	..	6	8	9	8	5	4	9 (13%)

Further investigations will need to be carried out with dried thyroid gland alone and in combination with hexoestrol, to find out whether the 100% increase in output was caused by the dried thyroid gland, and whether hexoestrol can counteract this effect. From the results shown in the table it seems unlikely that crude ox anterior-pituitary extract is of any value in stimulating deficient lactation in puerperal women.

#### SUMMARY

In puerperal women with deficient lactation daily injections of crude ox anterior-pituitary extract alone gave no better results than those obtained in controls.

When the crude ox anterior-pituitary extract was reinforced by dried thyroid gland gr. 4 daily by mouth, the increase in output was twice that obtained in the controls, and the increase continued longer.

When hexoestrol was given at the same time as the crude ox anterior-pituitary extract plus dried thyroid

gland, the results were no better than those shown by the controls.

It is therefore possible that dried thyroid gland may stimulate lactation in the puerperium, and that hexoestrol may counteract its action.

In the cases treated with crude oxoanterior-pituitary extract plus dried thyroid gland the full effect of the stimulation of lactation seemed to be obtained by treatment in the puerperium only.

The continuation of the dried thyroid gland alone, after discharge from hospital, seems to be unnecessary.

I wish to thank Mr. J. M. Wyatt, F.R.C.S., F.R.C.O.G.; Mr. A. J. Wrigley, F.R.C.S., and Prof. F. G. Young, D.Sc., for their help and criticism; and the nursing staff of St. Thomas's Hospital for their coöperation. I am indebted to the Medical Research Council for their support and to Glaxo Laboratories Ltd. for the materials used in some of the experiments.

#### REFERENCES

- Folley, S. J., Young, F. G. (1940) *J. Endocrinol.* 2, 226.  
 — — (1941) *Lancet*, i, 380.  
 Randall, M. (1945) *Training for Childbirth*, London, p. 87.  
 Robinson, M. (1943) *Lancet*, i, 66.  
 Young, F. G. (1938) *Biochem. J.* 32, 513, 524.

## A SWALLOWED PIN RETAINED IN THE APPENDIX

J. SCHOLEFIELD

M.B. Leeds, F.R.C.S.

SURGEON, WEST MIDDLESEX COUNTY HOSPITAL

A COMMON history at any large hospital is that the patient has swallowed a foreign body. If this reaches the stomach it is usually passed spontaneously without need of operation. The pylorus, the "hairpin" bends of the duodenum, and the ileocæcal region are the most commonly reported points of impaction.

Many different objects small enough to enter from the cæcum have been retained in the appendix; but most of the published reports are concerned with those responsible for acute symptoms, and I can find few instances where operation was necessary for removal of a retained foreign body which did not cause any complications.

At one time foreign bodies were thought to be a common cause of acute appendicitis, but nowadays such a cause is considered rare. They still sometimes cause acute appendicitis from erosion of the mucosa, with entrance of organisms into the appendix wall, or they may act as a nucleus for a fæcolith, with the eventual onset of classical obstructive appendicitis. Sharp-pointed foreign bodies may perforate the wall and cause peritonitis, or a more gradual penetration may lead to a local abscess. They may lie dormant for years, but always remain a potential menace to the host.

#### CASE-RECORD

A boy, aged 13 years, was seen at the West Middlesex County Hospital on Oct. 11, 1942, with a history of having accidentally swallowed a pin at 3.15 that afternoon.

Radiography revealed a large pin in the central abdomen, and the patient was admitted to hospital. Next day radiography showed the pin to be in the right iliac fossa, and repeated radiography in the next six weeks indicated no real progress of the pin, though there were slight variations in its position. The patient during this period had no symptoms, and physical signs were completely lacking.

Retention of the pin at the ileocæcal valve was diagnosed; and, in view of the lack of progress and the danger of slow perforation, I decided to operate.

On Nov. 23 a small right paramedian incision was made, and the first structure to present in the peritoneal cavity was the appendix containing the pin, whose glass head was resting at the tip of the appendix.

A simple appendicectomy completed the operation. When the appendix was opened the pin was found to be  $2\frac{1}{2}$  in.

long, with a glass head the size of a small pea. The mucosa appeared normal.

On reviewing the case after operation, I felt that retention in the appendix should have been surmised. Earlier intervention might also have been considered, but a waiting policy in these cases had, in my previous experience, been invariably successful.

## Medical Societies

### COMMONWEALTH TUBERCULOSIS CONFERENCE

DELEGATES to the Commonwealth and Empire Health and Tuberculosis Conference, convened by the National Association for the Prevention of Tuberculosis in the Central Hall, Westminster, on July 8, 9, and 10, were addressed by Mr. ANEURIN BEVAN, the Minister of Health. Speaking of the National Health Service Act and its effect on tuberculosis work, Mr. Bevan pointed out that the increase in tuberculosis notifications is merely a reflexion of more accurate diagnosis and earlier recognition. The resulting earlier treatment is responsible for the decline in mortality. We could do much more for the early cases but for the many sanatorium beds standing idle because of lack of nurses and domestic staff. We have more nurses than ever before, but a larger number of people are going to hospitals and sanatoria for help; hence the need for still more nurses. In the National Health Service the sanatoria will retain their identities, because there is a great moral reserve in tradition. There will be an integration on the institutional side of all the tuberculosis institutions and the regional boards, but on the personal side responsibility will rest with the local health authority. Some will object to what they will call a dichotomy in the service, but the Ministry hope that the tuberculosis officers will be joint appointments with the local health authority, so there will be a link at the executive point, where the actual work is being done. The winding-up of the poor-law system will have an important bearing on tuberculosis treatment. The benefit paid under National Health Insurance was too low to encourage tuberculous people to undergo treatment in time, and the special allowances introduced during the war had the grave and cruel disadvantage that they were withdrawn if the patient was incurable. Under the new scheme this disability will be removed because the benefits paid will be much higher. The Assistance Board will also give additional help, with special provisions, to tuberculous patients. Patients will then receive help without any stigma attaching to it. We are hoping, by the provision of spacious well-lit homes, by supplying extra nourishment for children, by looking after mothers and babies, by developing social services generally, and by facilitating earlier diagnosis and earlier treatment, to ensure a continued fall in tuberculosis mortality.

On July 9, the second day of the conference, a discussion was held, under the chairmanship of Prof. S. LYLE CUMMINS, on

#### Specific Measures in the Prevention and Treatment of Tuberculosis

In an introductory speech Prof. W. H. TYTLER referred to the proved safety of B.C.G. vaccine; but its efficiency is, he said, less easily ascertained. Vaccination is less effective among populations with a low than in those with a high primitive mortality from tuberculosis; perhaps this is because in low-mortality populations those who, despite vaccination, have persistently poor resistance represent the residue of family stocks with poor natural immunity. The attitude to B.C.G. has been one of apathy, possibly because people have been unconvinced of its real advantage. There is, however, growing enthusiasm for its use among uninfected and exposed young adults. Vaccination with the vole bacillus may offer the advantage of continuing immunity; but B.C.G. has been well tried and should not be discarded until the superiority of the vole-bacillus vaccine has been proved with certainty. It is doubtful if streptomycin will cure advanced tuberculosis; and "I should like to protest against broadcast appeals for streptomycin."