The appearance of this woman after recovery was very striking. She was plump and smiling and looked at least 20 years younger. Six months after operation she became pregnant and in due course was delivered of a normal baby, whose advent seemed to round off her happy story.

It is the contemplation of such cases as these that emphasizes the debt we owe to the pioneers of abdominal surgery. A condition that presented an insoluble problem less than a century ago is now a commonplace of routine work, and one is apt to forget that it has been made possible in our generation only on the foundations laid by Lister and the men who came after him.

Medical Memoranda

Aschheim-Zondek Test with Urines from Non-pregnant Tuberculous Women

It has been suggested that false positive Aschheim-Zondek and Friedman tests for pregnancy may be associated with pulmonary and genital tuberculosis in non-pregnant women (Allen *et al.*, 1939; Heynemann, 1940; Siegler, 1944; Grollman, 1947).

It seems possible that tuberculosis of the pelvic region, involving the adnexae and, in particular, the ovaries, may cause pathological ovarian dysfunction similar in its effect to physiological dysfunction at the menopause. If so, the subsequent appearance of excessive follicle-stimulating hormone (F.S.H.) in the urine might result in a positive A.-Z. reaction. Such an explanation cannot, however, be accepted for the positive results observed by some workers with urines from non-pregnant women with pulmonary tuberculosis. Genital tuberculosis is invariably a secondary infection (Curtis, 1946), and the recorded positive reactions from pulmonary cases may be due either to non-detection of a secondary infection involving the adnexae or to the patients being at the menopause. So any positive reactions that appear would most likely occur as a result of F.S.H. excretion.

Material and Methods

It has been found that females of *Xenopus laevis* are relatively insensitive to F.S.H. (Landgrebe and Samson, 1944). This fact, coupled with the extraction technique (Scott, 1940), probably accounts for the negative Hogben results obtained in cases of excessive F.S.H. excretion.

The A.-Z. test, on the other hand, may give a positive result with excessive F.S.H. excretion, and pregnancy can almost certainly be discounted if the Hogben test is negative. It was therefore decided to carry out parallel A.-Z. and Hogben tests, according to the modifications of Landgrebe and Hobson (1949), on first morning specimens of urine from 110 non-pregnant women with pulmonary tuberculosis whose ages ranged from 16 to 44 years; 36 women with histories of genital tuberculous lesions and 124 men with pulmonary tuberculosis acted as controls. The results are shown in the Table. If other possible causes of increased F.S.H. excretion can be eliminated (McCullagh and Cuyler, 1940), it was hoped in this way to develop a simple diagnostic test for genital tuberculosis.

Patients	No. of Urines Examined	Aschheim-Zondek		Hogben	
		+	-	+	-
Women with pulmonary tuberculosis ..	110	2	108	0	110
Women with genital tuberculosis ..	36	0	36	0	36
Men with pulmonary tuberculosis ..	124	0	124	0	124
Total ..	270	2	268	0	270

While, however, the Hogben test did not give a single positive, a positive A.-Z. result was obtained from only two pulmonary cases. One of these was extremely weak, the ovary of one mouse had two haemorrhagic follicles, and in the three other test animals no result was found. Repeated tests on this patient failed to produce a further positive.

The second positive result—haemorrhagic follicles in all four mice—was obtained from an unmarried girl aged 18 who had been a bed patient for more than two years. Before admission she had some dysmenorrhoea and an occasional missed period; since admittance her periods, except for a short interval, have been regular. A week later a follow-up test was negative; daily tests were done between periods, and in one, performed two days after menstruation, two of the test animals had enlarged follicles and no blood spots, the other mice being negative. This might occur with urine from normal non-pregnant women.

The mice used in the A.-Z. test are supplied by dealers as 3-weeks-old immature females. In order to obtain some idea of the percentage of false positive results attributable to the test animal, due to spontaneous maturation of their ovaries, examinations of small batches of animals from each delivery were made. In all, some 500 untreated animals were examined, and two of them had ovaries containing haemorrhagic follicles. Therefore, both the positive results obtained might easily have been due to this.

Conclusions

Positive A.-Z. reactions are not usually obtained from urines of non-pregnant tuberculous women. Cases yielding positive reactions reported by other workers are probably due to associated endocrine disorders, menopausal urine, and/or maturity of the test animal. No positive results were obtained with the Hogben test, and it is suggested that this test be used when urines from tuberculous patients are sent for "pregnancy test."

B. M. HOBSON, B.Sc.,

Department of Public Health and
Social Medicine, University of Edinburgh.

REFERENCES

- Allen, E., *et al.* (1939). *Sex and Internal Secretion*. Baillière, Tindall and Cox, London.
- Curtis, A. H. (1946). *A Textbook of Gynaecology*. Saunders, London.
- Grollman, A. (1947). *Essentials of Endocrinology*. Lippincott, Philadelphia.
- Heynemann, T. (1940). *Geburts. u. Frauenheilk.*, **2**, 337.
- Landgrebe, F. W., and Hobson, B. M. (1949). *British Medical Journal*, **2**, 17.
- and Samson, L. (1944). *J. Obstet. Gynaec., Brit. Emp.*, **51**, 133.
- McCullagh, E. P., and Cuyler, W. K. (1940). *Amer. J. clin. Path.*, **10**, 593.
- Scott, L. D. (1940). *Brit. J. exp. Path.*, **21**, 320.
- Siegler, S. L. (1944). *Fertility in Women*. Heinemann, London.