TREATMENT OF ACUTE PUERPERAL MASTITIS *

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THE acutely engorged, tender, inflamed breast, occurring in the nursing mother during the first two weeks of the puerperium, depends for its pathology on two features: firstly, retention of milk in one or more lobules owing to obstruction of the corresponding ducts by clotted milk; and secondly, infection gaining access through a cracked nipple or simply along a duct lumen. Clotting is encouraged or initiated by infection, but usually begins in the stagnation of a faultily emptied breast. The acute mastitis, occurring usually about the ninth day of the puerperium, is an infective cellulitis; but the condition may be an aseptic inflammation when it appears earlier about the third day.

It follows that treatment must be along two lines: (1) To promote emptying of the breast by continuing suckling, or manually; or in some cases to suppress lactation altogether by synthetic œstrogens. (2) To prevent or combat infection. In 90 per cent. of cases the infection is due to staphylococcus aureus, and therefore this part of the problem resolves itself into the best method of using penicillin in this condition. Local penicillin is not indicated, and the circumstances are ideal for systemic therapy for there is an excellent blood supply to all parts of the inflamed closed lesion. It is therefore only necessary to determine the best time-dose relationship for the penicillin.

Two series of cases of acute puerperal mastitis treated with systemic penicillin have recently been reported. Hodgkinson and Nelson in America used a scheme of 25,000 units 3-hourly for three days; then 15,000 units 3-hourly for two days. Their 24 cases all resolved without abscess formation. Taylor and Way in Newcastle used 12,000-20,000 units for 3-10 days. Of their 10 cases, one went on to an abscess.

Present Series.—In the Simpson Maternity Pavilion of the Edinburgh Royal Infirmary in 1946 we were able to compare different methods of treatment. Altogether there were 50 cases of acute puerperal mastitis from 3500 deliveries (incidence 1·4 per cent.). Breast feeding was continued in all cases.

50 *Cases*:—

Penicillin, 40; all settled down.

Sulphathiazole, 5; 3 satisfactory: one where penicillin was apparently failing. Two unsatisfactory: one going on to abscess requiring incision; one not settling until given penicillin.

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Fomentations alone, 5; 4 satisfactory: 3 being in third day and possibly aseptic engorgement; one unsatisfactory, but responding to penicillin.

The penicillin cases, all of which settled, were in two contrasting series:—

30 *Cases*: 25,000 units 3-hourly for 48 hours-7 days (*i.e.* 200,000 units in 24 hours).

10 *Cases*: 100,000 units twice daily (12-hourly) for 48 hours-7 days (*i.e.* 200,000 units in 24 hours).

These series are too small to permit drawing significant conclusions, but as regards the two penicillin groups it was noted that equally good results were obtained with the less laborious method of two injections in the 24 hours. This appears to bear out the original contention of Florey, Turton and Duthie that for focal infections (as distinct from an active blood stream infection) 100,000 units 12-hourly should suffice. The drug is present in the local tissue fluids always for 8 hours, and for 12 hours in 50 per cent. of cases.

Penicillin treatment should be continued for at least 3 days, and until the temperature has settled below 98·2 F. for 48 hours. Sulphonamides need not be given concomitantly, but if the cellulitis does not rapidly settle, the possibility of a resistant staphylococcus should be remembered and a sulphonamide exhibited.

Fomentations are not advisable for they may macerate the nipple. The only local treatment needed is firm support in the form of a many-tailed binder with shoulder bands. It will be noted that suckling was maintained in this Edinburgh series. In the American series quoted lactation was inhibited; in the Newcastle series it was usually kept going. On the principle of putting an inflamed part at rest I personally favour inhibition of lactation by synthetic œstrogens.

The conclusion is that we should be quick to recognise the onset of puerperal mastitis—pain in the breast, headache, and slight elevation of temperature; and if penicillin is given promptly, then 100,000 units 12-hourly should abort the process.

I am grateful to Dr W. F. T. Haultain for letting me co-operate in the treatment of his patients; and to Dr Eileen Munn and Sister Somerville for carrying out the treatment.

REFERENCES

HODGKINSON, C. P., and NELSON, R. E. (1945), *Journ. Amer. Med. Assoc.*, **129**, 269.
TAYLOR, M. D., and WAY, S. (1946), *Brit. Med. Journ.*, **2**, 731.
FLOREY, M. E., TURTON, E. C., and DUTHIE, E. S. (1946), *Lancet*, **2**, 405.

DISCUSSION

Dr Fahmy congratulated Miss Thomas on the work she was doing at the Simpson Maternity Pavilion in regard to the preparation of the breasts for satisfactory infant feeding. It seemed a sensible and practical plan to employ

the emptying of the ducts of the breast by gentle manipulation during the last weeks of pregnancy.

In regard to acute mastitis it was by no means rare for this condition to develop in the absence of any visible sign of cracking of the nipple, even though the most diligent search was made for such a possible source of infection. The women, however, frequently complained of pain in the nipple itself in the first few days of lactation, even when cracking was absent. If the nipples were very sore, then breast feeding should be stopped for a couple of days and the nipple treated. Dr Fahmy had found penicillin cream a very useful application to tender nipples whether cracking was present or not. In acute mastitis temporary arrest of breast feeding for a short period was probably a wise procedure. When headache was associated with a tender and painful breast, it was almost the rule to find a degree of pyrexia at the onset of the symptoms.

Sister Myles spoke of her three years' experience in a large maternity hospital in Detroit where they did not have one breast abscess. The patients were nearly all looked after by their own doctors before they came into hospital, so that they had no idea what ante-natal care they had had. Their care in hospital was the simplest Sister Myles had ever seen. The breasts were merely washed once a day, not before or after each feed. The breasts were supported by a suitable brassière and a soothing ointment used from the first day. The prevention of mastitis required careful attention to comparatively simple measures, such as helping the baby to " fix " properly so as to avoid trauma of the nipple and to facilitate emptying of the ducts. More ordinary cleanliness of mothers' hands and clothing rather than asepsis on the part of the nurse, hot bathing and regulation of fluid if acute engorgement developed were desirable.

Dr Betty Sturrock said that if breast feeding were going to be a success, hospitals should have the management of establishing it, and she thought that what Sister Thomas had told them was very important. She would like to see the expectant mother being taught a great deal more about breast feeding, for example, how to know if she had got enough milk or not. Complementary feeding by bottle should be avoided, and, if necessary, should be given by means of a spoon. Mothers on breast suckling rarely pleased a baby who had become accustomed to a bottle. In Edinburgh there existed a most hopeful field for co-operation between the hospitals and municipal health visitors in regard to the continuance of breast feeding.

Dr Morris agreed with Sister Thomas that a busy obstetrician was not the best person to inculcate ante-natal preparation of the nipples, but he could not agree with her when she said that the busy pædiatrician was any better. As ante-natal clinics were carried on at present, the medical officer in charge of the clinic had no time to look after these matters of education which must be made the responsibility of a midwife who was looking after only a certain number of patients at one time. He said he hoped they were going to hear from general practitioners about the incidence of mastitis. In the Ayrshire Central Hospital he had found an incidence of mastitis of between 4 and 5 per cent., and in domiciliary practice in the whole of Ayrshire the figure was but 2·5 per cent. However, many general practitioners had told him that his figures of 4 to 5 per cent. did not present the whole picture as they

found that in patients who had come home from hospital breast abscesses subsequently developed in an appalling percentage of cases.

Dr Morris said that in his experience it was rare to get mastitis without a previous eroded nipple. The importance of a cracked nipple was one which allowed ingress of the golden staphylococcus, not necessarily a gross crack but a tiny little thing, sometimes a little blister requiring a lens for its detection. Mastitis in hospitals came in epidemics, usually preceded by an outbreak of staphylococcal skin eruptions in the babies, followed by a run of cases of mastitis.

Dr Ludlam said that if the ward sister could get into direct contact with the health visitor she felt the latter would be able to help the patients with their breast feeding difficulties more than she could at present.

Mr A. I. S. Macpherson said that the paper he had published in 1943 dealt with cases of puerperal breast abscess admitted to a surgical ward, and the data regarding the incidence of cracked nipple were obtained by directly questioning the patients. A history of sore feeding and " the doctor said there was a crack " were alike accepted. In Dr Haultain's wards 80 cases of cracked nipple were followed up, all sore nipples being examined and all cracks graded according to depth, and in only two cases did actual breast infection supervene.

With regard to the treatment of mastitis, Mr Macpherson said he was sure that Mr Jeffrey would agree with him that the true effectiveness of penicillin was very difficult to assess. If the first stage in the pathology was stasis and engorgement, and it was only afterwards that the infection occurred, the very marked effect of administration of œstrogen on engorgement of the breast might well be calculated to abort an early mastitis, and the particular field for penicillin should be when œstrogens failed. He agreed with Mr Jeffrey that the twice daily administration of 100,000 units of penicillin was entirely satisfactory.

Dr John Sturrock said he agreed with Sister Myles that the answer to the question of prevention of mastitis was probably a simple one. Many experienced midwives of his acquaintance employing simple methods of instituting lactation produced admirable results. In the absence of rush or hurry, mother and baby had the best possible chance of mutual adjustment and breast troubles were minimised. Again the healthy environment of private practice probably rendered easier the uncomplicated healing of a cracked nipple. Regarding when to give penicillin, his own feeling was that it should be administered at the very first suggestion of a mastitis. Since using it he had been very satisfied with the results, and he agreed with Mr Jeffrey that it should be continued for at least two days after all clinical evidence of mastitis had disappeared. He still thought there was a place for hot applications in the initial stages of mastitis, if only for their symptomatic relief. As to the use of stilbœstrol in promoting sudden arrest of established lactation, Dr Sturrock said his experience had been occasionally disquieting. Stilbœstrol used in this way sometimes seemed to precipitate mastitis where there had been no evidence of it before deciding to stop breast secretion. It was, however, always perfectly satisfactory to prevent the establishment of lactation in a patient who was not to breast-feed.

Dr Somerville said he had enjoyed the papers read, and that he was a very strong advocate of breast feeding. In any epidemic it was the bottle babies that died, not the breast-fed babies. In general practice he had had satisfactory results in the treatment of mastitis by 12-hourly injections of penicillin 100,000 units.

Dr Kennedy agreed that mastitis arose without the previous existence of cracked nipple, and that it would be inadvisable to ask the pædiatrician to take over the care of the breasts.

The President thanked both speakers, and complimented Sister Thomas upon her lucid exposition of nursing technique and views. He would have wished that she could have been a little more explicit with regard to some details. For example, she had said she rubbed the nipples with oil, but what kind could one get these days? Perhaps she would mention this point when she replied.

Mr Jeffrey was one of the recognised experts on penicillin, and the President was glad now to have the opportunity of thanking Mr Jeffrey very much for his care of the cases of mastitis which had occurred in Ward 52 during the past year. He would like to ask one question: In what proportion of the cases in the wards was lactation stopped, and for how long?

The question as to who was to look after the breast seemed to be a very vexed one, and he thought it might be different in hospital and private practice because in the latter one had to look after the patient oneself, and the nurse in charge of the patient would look after the nursing under one's guidance. In hospital practice it was rather a different matter. Everybody was very busy, but he thought it might be best if the pædiatric sister was to supervise the breast feeding along with the ward sister.

Mastitis had always given rise to considerable worry not only in hospital but particularly after the patients had left hospital.

It would seem that a number of cases went to the surgical department three to four weeks after they had had their babies. These patients left hospital perfectly well, and he did not think the fault lay with the hospital. Between the time a patient left hospital and the time the health visitor took over there was often a hiatus, and he thought there should be some liaison between the ward sister and the health visitor so that the patient could be visited at once by the health visitor and nursing could be supervised exactly as it had been done in hospital.

He thought Dr Sturrock had been singularly unfortunate with stilbœstrol. His own experience had been quite satisfactory. He was very glad to hear Dr Betty Sturrock warning against unnecessary supplementary feeding and especially against the use of the bottle for this purpose. He had been preaching this for many years, but had had little success in persuading his pædiatric and nursing colleagues that it was one of the principal causes of early weaning.

Sister Thomas, in reply to discussion, said that the oil she had mentioned was "pale nut oil" or liquid paraffin. Briefly, the methods of prevention were—to express colostrum, advise the use of shields, and to keep the breasts clean.

Mr Jeffrey replied to the discussion.