

# Oestrogen transdermal patches for *post partum* depression in lactating mothers — a case report

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Oestrogen transdermal patches are now being used in the prophylaxis and treatment of *post partum* depression. Oestrogens are known to have potential adverse effects on breastfed infants. This case describes jaundice and poor weight gain in the child of a lactating mother prescribed oestrogen transdermal patches. There is a need for caution in the use of this therapy in breast feeding mothers and health professionals should be alert for problems.

## Introduction

There have been recent reports regarding the use of oestrogen transdermal patches in the treatment of post partum depression.<sup>1,2</sup> This dosage route is convenient for the mother and lower daily doses are used since this method of administration avoids hepatic first-pass metabolism of the steroid. However, the oestrogen patches still result in "therapeutic" oestrogen levels — they were originally designed

for use in hormone replacement therapy — and they may still be expected to produce many of the effects of the hormone. As a result, they may be expected to reduce milk flow and influence the protein content of breastmilk as has previously been shown for oral oestrogens.<sup>3,4</sup> Although only a small proportion of oestrogen is excreted into breastmilk, there may also be unwanted effects on the infant. These points are illustrated by the following case history taken from the records of a lactation consultancy in Harare, Zimbabwe.

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## Case Report

A 32 year old woman (three previous pregnancies — one a late miscarriage) was pregnant with her third baby. Her first baby had been breast fed for three weeks and then bottle fed (the mother did not attend a lactation consultant for this birth and the reasons for this pattern are not known), and the second successfully breastfed for 11 months before being fully weaned. Severe *post partum* depression had been experienced after the birth of these two children. The patient gave birth to a baby boy after 38 weeks gestation by planned Caesarean section. Birth weight was 3 000 g. From day one *post partum* the mother was prescribed Estraderm TTS® patches (oestradiol 50 µg/d), two per week for four weeks. This was the first time she had been prescribed Estraderm® patches.

Three days *post partum* the mother presented as weepy and complaining of a wakeful baby, sore nipples, and frequent feeding. The frequent feeds were a result of the mother trying to pacify both the gynaecologist (recommended resting the nipples for 24 hours) and the nursing staff (recommended the nipples not be rested) and reducing feed duration to five minutes with frequent feeds to satisfy the baby and prevent engorgement. Examination and history revealed the breasts to be soft and comfortable and the mother practising a good manual expression technique. No breast engorgement was evident. The baby was healthy and alert (weight 3 000g) and had produced six brown/black stools in the previous 24 hours.

Assessment of the infant at the breast showed inadequate sealing during nursing characterised by a “clicking” sound. The mother was trying to create an airway for the baby by depressing the top of the breast, affecting the position of the nipple in the mouth and leading to the nipple abrasion. The right nipple was more affected than the left at this stage. Positioning and attachment techniques were reviewed and corrected. The baby nursed for 20 minutes with multiple let-downs as evidenced by areolar compression and visible/audible swallowing. Subsequent follow ups in the next days and weeks showed good positioning and good milk transfer (multiple let-downs). Manual and pump expression prevented engorgement and the nipple damage did not worsen in spite of frequent feeds. Generally four or more stools were passed per 24 hours, milk ejection reflex was seen during feeds and at times the mother described the urine flow as “drenched nappies”.

On day 11 a routine weight check showed that only 60 g had been gained since birth. This was in spite of there having been no weight loss over the first three days (Table I). In addition to this poor weight gain by day 11, the infant was jaundiced (bilirubin 13.7 mmol/L). Urine and stool output (commonly six stools every 24 hours) showed that there was adequate breastmilk intake by the infant. Follow up on days 12 and 14 found the baby to be thinner, jaundiced and lethargic (Table I).

As a result of the extremely poor weight gain the mother was advised by her paediatrician to increase the frequency of breast feeding and to supplement this with expressed hindmilk and infant formula. Cultures for a urinary tract infection as a possible cause of low weight gain and hyperbilirubinaemia were negative. The feeding with infant formula was not very successful and after two days the mother commenced “force-

Table I: Infant weight and serum bilirubin following delivery.

Days <i>post partum</i>	Weight (g)	Total bilirubin (mmol/L)
0	3000	—
3	3000	—
11	3060	13,7
12	3110	13,4
14	3140	12,2
25	3400	—
38	3900	—
54	4550	—
66	5010	—

(Oestrogen patches [50 µg/d] were prescribed from day 1 to day 28).

feeding” — breast feeding, waiting an hour, breast feeding again — and the baby was exclusively breast fed. The mother continued using the oestrogen patches as prescribed as she felt they were helping to prevent/control her *post partum* depression. By day 25 the baby had gained 400 g over birth weight (average weight gain from day three = 18.2 g/d). The oestrogen was stopped on day 28.

Following the stopping of the drug, the baby showed above average weight gain (Table I) with mean weight gains of 38. g/d over days 25 to 38 *post partum*, 40.6 g/d (days 38 to 54) and 38.3 g/d (days 54 to 66).

## Discussion

Whilst the medical records are not complete for this case, the picture that this infant presented is interesting. Normally, breastfed babies are expected to lose five to 10% of their birth weight by three days of age with this being recovered in 10 to 14 days if the baby is feeding well. Thereafter they should gain about 30 g/d. This baby did not lose weight during the first three days, possibly due to an early onset of Lactogenesis II since it was the mother's fourth pregnancy.<sup>5</sup> In spite of this only 60g were gained over the next eight days and elevated bilirubin levels were present. Breast feeding jaundice<sup>6</sup> — also known as “starvation jaundice” since it results from inadequate breastmilk intake — is unlikely since the infant was consuming milk as evidenced by visible/audible swallowing, multiple milk ejection reflexes during breastfeeding, adequate stool output and “drenched nappies”. Although the time of the first stool was not noted, six stools were passed during day two and bowel obstruction was not considered a real possibility by any of the medical personnel involved. Certainly this could not have been the reason for the elevated bilirubin which was only evident in the second week of life.

Oestrogen is usually contra-indicated in pregnancy and lactation and this led to examination of the drug treatment. Whilst the oestrogen did not appear to affect milk flow as might be expected, probably due to the low dose prescribed, the very poor weight gain in the face of good feeding suggests poor milk quality. Whilst the relationship of plasma oestrogen with depression and breast milk supply/composition is not well understood, oestrogen has been shown to reduce nitrogen (protein) and, to some extent, fat in breast milk in addition to its effect on milk production<sup>3,4</sup> although the effects have not always been consistent. Whilst these studies considered oral

oestrogens, transdermal oestrogen is likely to have similar actions since it still produces "therapeutic" levels in the blood. Oestrogen also competes for albumin binding sites of bilirubin and can give rise to elevated plasma bilirubin levels. Although hyperbilirubinaemia is common in neonates it was present somewhat late in this infant and may have been related to the oestradiol skin patches.

Oestrogens e.g. combined oral contraceptives, are not recommended by paediatricians in lactating mothers due to the potentially serious adverse effects of oestrogen on the suckling infant and the potential for causing jaundice. In addition there is also the possibility that milk quality will be affected and that the infant's growth and general well-being will be affected. In the light of this case which is consistent with the possible effects of oestrogen on a breast fed infant, we suggest that these recommendations should also apply to oestrogen transdermal patches. These should only be used when other alternatives for management of postpartum depression have been considered and the risk to the mother is thought to outweigh the effect which the oestrogen may have on the mother's ability to successfully breastfeed (which may impinge upon any depression). If oestrogen patches are used, infant weight gain and serum bilirubin should be closely monitored and appropriate steps taken if required.

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