Managing the skin in pregnancy

Part 2. Pre-existing, new and postpartum skin conditions

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Management of pre-existing skin conditions, such as acne, psoriasis and atopic eczema, and new conditions such as skin cancer may need to be modified during pregnancy, when many of the usual treatments are contraindicated. Management of postpartum nipple and breast problems can be helped by a simplified diagnostic approach and knowledge of medication safety during breastfeeding.

Pregnancy has unpredictable effects on pre-existing skin diseases such as acne, psoriasis and atopic eczema, and increases the need for caution in treatment because of the need to consider medication safety for the fetus as well as the mother. GPs are at the forefront of managing these problems. Many drugs are contraindicated during pregnancy and lactation, and should be ceased before conception. However, options exist for treating pregnant women with these skin conditions. In addition, as growing numbers of women have children in their 30s and 40s, the need to manage melanoma and nonmelanoma skin cancer (NMSC) in pregnancy is increasing. Postpartum, many women present to their GPs with problems of the nipple, areola or breast during breastfeeding. Other common postpartum concerns include sagging abdominal or breast tissue and unsightly, painful or itchy caesarean scars.

KEY POINTS

- Pregnancy has an unpredictable effect on pre-existing skin conditions such as acne, psoriasis and atopic eczema; options exist for treatment during pregnancy, but optimising control before conception is recommended.
- Surgical procedures are best performed in the second trimester or delayed until after the birth if possible.
- Management of certain types of new melanoma is not necessarily altered by pregnancy.
- In pregnant women with superficial nonurgent nonmelanoma skin cancer, monitoring the cancer and postponing treatment until after the birth may be considered in some cases.
- Management of postpartum nipple and breast problems can be helped by a simplified diagnostic approach and a confident understanding of the safety of skin medications during breastfeeding.

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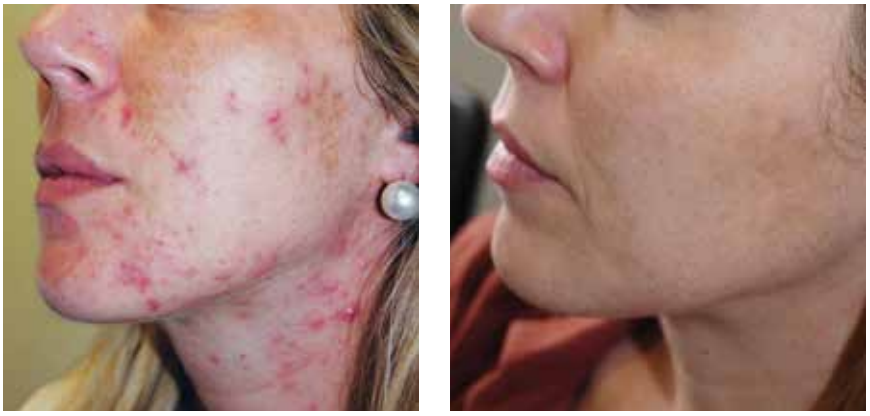


Figures 1a and b. Acne during pregnancy. a (left). A patient with acne and melasma during the first trimester of pregnancy. Before the pregnancy she had almost no acne and had not received acne treatments. During the pregnancy, she was treated with antibiotics and topical creams. b (right). The same patient four weeks after the birth, showing clearing of the acne.

This is the second in a two-part series on managing skin conditions during pregnancy. Part 1 focused on the management of pregnancy-related skin diseases (published in the July 2016 issue of *Medicine Today*).[1] This article outlines the management of pre-existing skin diseases and skin cancers that develop during pregnancy as well as postpartum skin problems.

Management of pre-existing skin diseases in pregnancy

Pregnancy can have unpredictable effects on pre-existing skin disorders. These effects are mainly caused by changes to the immune system to prevent fetal rejection.

Acne

It is not uncommon for acne to worsen in early pregnancy and then to improve as the pregnancy progresses (Figures 1a and b).[1] Patients with acne who are planning a pregnancy should be advised to optimise acne control before conception. Topical retinoids (adapalene, tretinoin and isotretinoin), oral tetracyclines and oral isotretinoin are contraindicated in pregnancy.[2,3]

When assessing acne it is helpful to grade the severity (mild, moderate or severe) and assess the psychological impact on the patient. For mild acne during pregnancy, commence topical therapy. Topical azelaic acid or benzoyl peroxide are recommended as baseline therapy.[2] Slow introduction of benzoyl peroxide with a moisturiser every second day helps reduce irritation and improve compliance. Always remember to inform the patient that this product can bleach clothing and sheets. A combination of topical erythromycin or clindamycin with benzoyl peroxide is best for inflammatory acne.[2] Topical and oral antibiotics should not be used as monotherapy but combined with topical benzoyl peroxide to decrease bacterial resistance.[2] Topical salicylic acid is considered safe in pregnancy, given that low-dose aspirin is used to treat pre-eclampsia in pregnant women.[2] It should be used at a low concentration (e.g. 2%) and over a limited body surface area.

For moderate-to-severe acne, oral erythromycin or cefalexin is safe for a few weeks. After the first trimester, nodulocystic or scarring acne can be managed in most cases with oral prednisone 0.5 mg/kg combined with a systemic antibiotic, in collaboration with a dermatologist and obstetrician when possible.

Over-the-counter washes and moisturisers containing salicylic acid or glycolic acid are generally considered safe, are well tolerated and complement treatment.[2,3] Pre-treatment photos (front, oblique left and right views) are useful to monitor progress.

Psoriasis

Pregnancy has a variable effect on psoriasis, causing improvement in about 50% of women, worsening in 20% and no change in 20%. About 65% of women with psoriasis experience a flare after delivery.[4] Optimising control of the condition before conception is desirable.

Women (and men) planning a pregnancy should cease methotrexate three months before conception. Women should cease acitretin two years before conception; in fact, acitretin should be avoided by women of child-bearing age unless there are no alternatives.[3] Biologic drugs should be ceased at least six months before conception (adalimumab, infliximab and ustekinumab) or one month before conception (etanercept). There is no need to terminate the pregnancy if a woman becomes pregnant while taking a biologic, but cessation of treatment and referral to an experienced obstetrician and dermatologist is warranted.

There are several options for treatment of psoriasis during pregnancy. Moisturising creams help to reduce itch. Topical corticosteroids and vitamin D analogues are relatively safe, but women should avoid using large quantities for long periods.[4] Ultraviolet B (UVB) light therapy is also safe during pregnancy, although cumulative UVB treatment reduces folic acid levels, and folic acid supplementation is therefore recommended during treatment.[5] Topical tar, tacrolimus and pimecrolimus are not recommended during pregnancy.[3] Most systemic medications (methotrexate, acitretin, mycophenolate mofetil) are contraindicated in pregnancy.

When all other options are ineffective or impractical, referral to a dermatologist for consideration of treatment with oral corticosteroids, immunomodulatory or biologic treatment is recommended. In rare cases of very severe psoriasis in pregnancy, the balance of evidence suggests that the use of tumour necrosis factor alpha inhibitor biologics (etanercept, adalimumab and infliximab) is acceptable when other options have been ineffective

and the benefit outweighs the risk.[4,6] Infliximab can be detected in the infant for up to six months after delivery. It is very important not to administer live vaccines to the mother or infant for up to seven months postpartum if the mother has received biologic therapy during pregnancy.[4]

Atopic dermatitis and eczema

Eczema is the most common dermatosis of pregnancy. Eczema in pregnancy is now termed 'atopic eruption of pregnancy', and was covered in Part 1 of this series. Pregnancy has a variable effect on eczema; in 25% of patients the eczema improves but in more than 50% it worsens. Pre-existing eczema may deteriorate at any stage of the pregnancy, especially during the second trimester. In 10% of cases it flares in the postpartum period.[7]

Advice for women with eczema planning pregnancy should include strategies to minimise disease activity at baseline including:

- avoiding irritants and allergens
- encouraging the use of emollients
- optimising topical treatment.

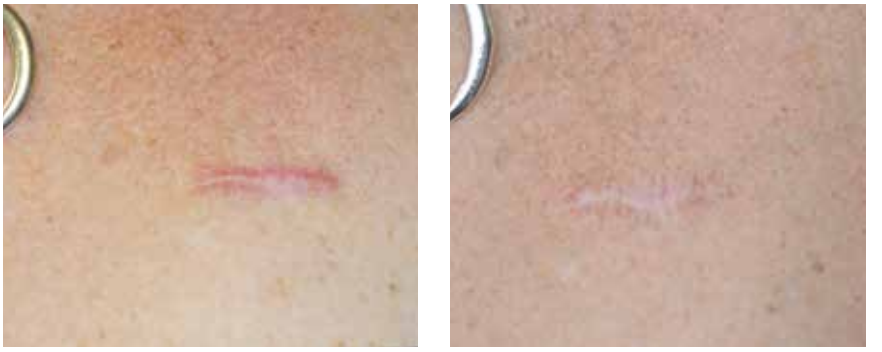
Women who are receiving systemic treatment for eczema should be informed of the minimum time interval between stopping their treatment and safely becoming pregnant without increased risk to the child (see Appendix in Part 1 of this series).[1]

Mild-to-moderate eczema in pregnancy is routinely managed with emollients and moderate-to-strong topical corticosteroids or topical calcineurin inhibitors. Among breastfeeding women, 2% develop eczema of the areola or nipple, and half of these have a history of eczema. Nipple or areolar eczema can be treated with moderate-to-low potency topical corticosteroids and moisturisers, applied after each feed. The medications should be washed off thoroughly before the next feed.

Cosmetic treatments

Despite the widespread use of botulinum toxin A for cosmetic purposes and a range of disorders such as migraine, dystonia, sweating disorders, spasticity and pain, there are few data on its effects on the pregnant woman and the fetus.[8] Botulinum toxin has a high molecular weight and is unlikely to cross the placenta. Nevertheless, use of botulinum toxin for cosmetic purposes is not recommended during pregnancy. There are also no precise data on how long to postpone conception after botulinum toxin injections. In my practice, I advise waiting until the effect of the toxin has completely worn off (usually four months) before trying to conceive. It is unknown whether botulinum toxin passes into breast milk.

There are also no documented studies of the effects of injectable filler in pregnancy. Filler injections can have adverse effects that require the use of a dissolving substance such as hylauronidase, which is contraindicated in pregnancy.



Figures 2a and b. a (left). Hypertrophic scar following excision of a basal cell carcinoma during pregnancy. b (right). The scar three years postpartum, after treatment with intralesional corticosteroids.

Management of skin cancer in pregnancy and breastfeeding

With the trend for women to delay childbearing, GPs increasingly need the skills to manage melanoma and NMSC in pregnancy. One-third of women diagnosed with melanoma are of childbearing age.[9] Melanoma accounts for up to 25% of all malignancies diagnosed during pregnancy.[9] The incidence of NMSC in women in their 30s and 40s in Australia is increasing.[10,11]

Skin surgery

Ultimately, the decision about surgical treatment of a skin concern such as a changing mole or skin cancer during pregnancy must balance the appropriate level of concern for the safety and protection of the mother and the fetus. Nonurgent surgery is best performed in the second trimester or after delivery. Lignocaine does not cross the placenta, and the small amount of epinephrine required for skin procedures is unlikely to be a concern.[3,10] For surgical procedures performed after the beginning of the second trimester, position the patient in the left lateral tilt position with a wedge under the right hip to help prevent aortocaval compression. Prepare the skin with alcohol or chlorhexidine as povidone iodine is associated with fetal hypothyroidism in rare cases.[12] Scarring may be worse in pregnancy, with a higher risk of keloid scarring and recurrence of keloids in pregnancy (Figures 2a and b).[13]

Melanoma

Naevi do not undergo significant changes specific to pregnancy but may stretch in locations such as the abdomen and breasts as girth increases.[14] If the appearance of a naevus changes during pregnancy then the naevus should be removed and sent for histopathological examination just as in a nonpregnant woman.[15]

In the past, it was believed that women diagnosed with melanoma in pregnancy have poorer outcomes. This was based on

SKIN MEDICATIONS CONTRAINDICATED IN PREGNANCY (PREGNANCY CATEGORY)[3]

Topical medications
Adapalene (D)
Coal tar (uncategorised)
Isotretinoin (X)
Lindane (teratogen)
Minoxidil (C)
Podophyllotoxin (D)
Tazarotene (X)
Tretinoin (D)

Systemic medications
Acitretin (X)
Azathioprine (D)*
Finasteride (X)
Fluconazole (D)
Hydroxychloroquine (D)
Intravenous immunoglobulin (C)†
Isotretinoin (X)
Methotrexate (D)
Mycophenolate mofetil (D)
Spironolactone (B3)†
Tetracyclines (D)

* Despite being classed as category D, azathioprine is most likely safe in pregnancy and has been widely used by pregnant women.

† Clinical experience with immunoglobulin preparations given during pregnancy suggests that there are no adverse effects on the fetus.

† Use of spironolactone in pregnancy can feminise the male fetus. Its use in pregnancy should be considered only when there are no alternatives and the benefit outweighs the risk (unlikely for dermatological indications).

the assumption that pregnancy is a state of relative immunosuppression, which accelerates the transformation of melanocytic naevi into melanoma and the process of metastasis. However, studies have found no compelling evidence that pregnancy adversely affects the prognosis in patients with clinically localised melanoma.[16]

Treatment of melanoma should follow conventional guidelines relating to tumour thickness, ulceration, mitotic rate and overall stage of disease.[15,11] Wide local excision and, if required, sentinel lymph node mapping can be performed safely in pregnancy.[15] If evaluating for distant metastases then a chest x-ray with appropriate shielding and ultrasound examination are safe. After the first trimester, MRI is preferred over CT scanning.[15] Pregnant women with thicker melanomas and nodal metastases should be treated in consultation with specialised centres when possible.

Malignant melanoma diagnosed during pregnancy rarely metastasises to the placenta or fetus. However, when this metastasis occurs it is typically in women with widespread metastatic disease.[15] If malignant melanoma is detected in the placenta then there is an approximately 25% chance of fetal metastases, and close follow up of the infant is essential.[15,17]

Women who have been diagnosed with a melanoma with poor prognostic factors should be informed that the risk of recurrence is greatest within two to five years of diagnosis, and subsequent pregnancy needs to be considered in this light.[15] The use of the oral contraceptive pill and hormone replacement therapy in a patient previously diagnosed with melanoma does not appear to negatively influence prognosis.[15]

Nonmelanoma skin cancer

To my knowledge, there are no statistics regarding the frequency of diagnosis or the growth rate of NMSC in pregnancy. Nor are there specific treatment guidelines for the management of NMSC in pregnancy.

Nonsurgical treatments such as imiquimod and photodynamic therapy are not recommended for use in pregnancy. Imiquimod is not recommended during breastfeeding, although it is classed as category B1 in pregnancy. Photodynamic therapy (category B2) is an option for breastfeeding mothers with responsive tumours provided that breast milk is expressed and discarded for 48 hours after the application of methyl aminolevulinate.[18]

The safety of monitoring nonurgent superficial basal cell carcinomas and early squamous cell carcinomas in situ (Bowen's disease) in pregnancy is not fully established. However, if the patient undergoes regular monitoring then it may be reasonable to postpone treatment of biopsy-proven nonurgent superficial NMSCs until after the birth. Mohs micrographic surgery offers the highest chance of cure for NMSC and the greatest tissue conservation. If Mohs surgery is available then I tend to refer patients with nonurgent lesions for surgery approximately six weeks postdelivery after careful monitoring of the lesion during pregnancy.

Infiltrating and higher risk lesions need to be excised during pregnancy as per usual management in nonpregnant patients.

Skin medications contraindicated in pregnancy and breastfeeding

The safety during pregnancy of common medications for skin conditions was covered in detail in Part 1 of this series.[1] A common concern additional to which medications are safe in pregnancy is when to advise cessation before conception. Patients should avoid any topical or oral medications (herbal or medical) or cosmeceuticals with unproven evidence of safety in pregnancy and lactation in the period before conception. Methotrexate should be ceased three months before and acitretin two years before conception. Medications for skin conditions that are contraindicated in pregnancy are listed in the Box.

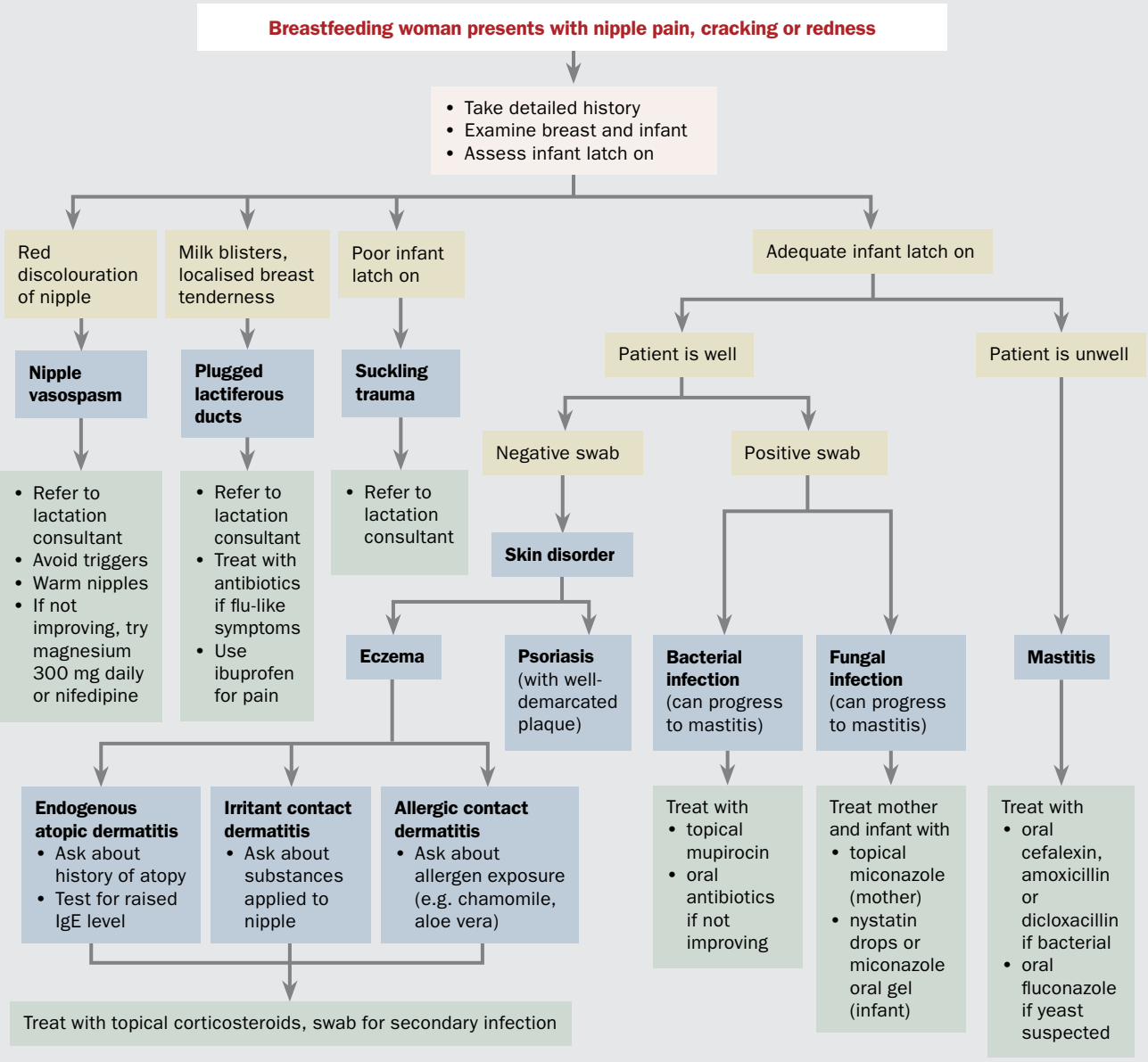
Management of postpartum skin problems

Nipple and breast problems

Many breastfeeding women experience problems of the nipple, areola or breast. A simple algorithm for the diagnosis and management of nipple pain, cracking and redness is shown in the flow chart. Early pain is most likely due to trauma secondary to poor infant latching or a bacterial infection. Review with an experienced lactation consultant is valuable. When this review is not available, evaluate the positioning of the baby during feeding and check the baby's mouth for any palate or oral anomalies. Recommend to the mother that she position the infant's body directly facing her, with ears, shoulders and hips in alignment.

A good history is important as the patient may have an underlying history of atopic eczema or psoriasis. Make sure that agents such as soaps and detergents are not being applied to the breast as they may

A SUGGESTED ALGORITHM FOR MANAGEMENT OF BREASTFEEDING WOMEN WITH NIPPLE PAIN



cause an irritant reaction. Some topical substances, such as aloe vera, may cause true allergic contact dermatitis. Enquire about any risk factors for *Candida* infection, such as recent use of antibiotics or a history of gestational diabetes or vaginal thrush. Nipple candidiasis usually presents with later onset of new nipple pain and generally coincides with oral candidiasis in the breastfeeding infant.[19] Examine the infant for oral thrush and nappy rash. Breast tenderness in association with fevers, malaise, headache and chills suggests mastitis, which is usually caused by a staphylococcal infection. Localised redness of the breast in association with milk blisters may be due to a blocked milk duct.[19] Finally, if the mother experiences cold sensitivity of the hands and feet then consider the rare possibility of Raynaud's phenomenon of the nipple, which may be associated with changes in nipple colour.

If the history and examination suggest an infection then I generally recommend taking swabs and milk samples for microscopy and culture. My preferred samples and sampling technique for breastfeeding women with a suspected breast or nipple infection are outlined in the Table.

Treatment of women with a breast or

TABLE. PREFERRED SAMPLING FOR DIAGNOSIS OF INFECTIONS OF THE BREAST AND NIPPLE IN BREASTFEEDING WOMEN

Sample source	Sampling technique	
	For bacterial culture	For fungal culture*
Infant's mouth	Bacterial culture not required	Swab tongue, buccal mucosa and palate (avoid saliva as it has antifungal properties)
Mother's skin (nipple and mammary folds)	Sample for bacterial culture before fungal culture	Clean skin with an alcohol swab before sampling for fungal culture to avoid bacterial contamination
Mother's milk	Hand express milk; discard first 1 mL to avoid bacterial contamination from skin	Fungal cultures are available for milk, but check with local pathology services

* For fungal culture, moisten sample with saline before processing and process within 24 hours.

nipple infection or nipple eczema or psoriasis is outlined below. In addition, breastfeeding should be encouraged as much as possible. Advise the mother to start with the nonpainful side, feed for 10 minutes and then switch to the painful side. If pain precludes feeding then advise her to use a breast pump, on a low setting if necessary. If pain is significant then oral ibuprofen is beneficial.[19]

Infection of the nipple or breast

If a superficial bacterial infection of the nipple or breast is confirmed then the treatment of choice is topical mupirocin cream applied twice daily.[19] *Staphylococcus aureus* is the most likely cause.

If either the mother or baby has signs of *Candida* infection then both should be treated simultaneously. Topical miconazole cream applied to the nipple after each feed is recommended. The infant can be treated with cautious use of nystatin drops or a small amount of miconazole oral gel applied to the front of the mouth. Miconazole gel is thought to be more effective than nystatin, but too much gel may be hazardous, causing throat or airway blockage.[20] *Candida* nappy rash should also be treated with topical miconazole.

When infection is suspected or confirmed, it is sensible to advise sterilising

Figure 3. Sagging abdominal skin postpartum. Abdominoplasty may be an option if the patient has completed her family. It is recommended to wait at least nine months after the last birth before surgery.

any equipment that comes in contact with breast milk (e.g. breast pumps, pacifers and accessories). I recommend washing bras daily in hot water with one cup of distilled vinegar. Sensible additional advice includes keeping the nipples dry, frequently changing breast pads and avoiding the use of cloth breast pads.

If topical treatments are ineffective or if signs and symptoms of mastitis develop (e.g. ongoing breast tenderness, fever, chills and malaise) then oral treatment should be commenced. Mastitis (inflammation of the breast caused by obstruction to milk flow) may progress to further breast infection and ultimately abscess formation if not managed effectively. Bacteria or yeast may enter the milk ducts via injury to the nipple, which can lead to infective mastitis or a breast abscess. *S. aureus* is the most common cause of infective mastitis.

Women with mastitis caused by a bacterial infection should be treated with cefalexin 1000 to 1500 mg/day, amoxicillin 1000 to 1500 mg/day or dicloxacillin 750 mg/day for two to six weeks.[19] When a yeast infection is clinically suspected, oral fluconazole is an effective treatment.[18] If the patient does not improve within approximately 48 hours after starting oral antibiotics or antifungals then consider the possibility of an abscess or the need for intravenous antibiotic therapy.

Eczema and psoriasis of the nipple

If the nipple appears eczematous or there are features suggesting psoriasis (past history of psoriasis in the mother or a well demarcated red rash) then a potent topical corticosteroid (ointment preferred over cream) applied twice daily after a feed for two weeks is recommended. The nipple should be cleaned before the next feed.

Sagging skin

Women often ask for advice about sagging abdominal or breast tissue following pregnancy and delivery (Figure 3). In my experience, topical or laser treatment does not lead to noticeable improvement. If the patient has completed her family and is very bothered by the appearance of the sagging skin then I recommend referral to a plastic surgeon for consideration of abdominoplasty nine months after delivery. If women are concerned by breast sagging then breast lift or augmentation may help.

Caesarean scars

For women who have completed their family and have hypertrophic or keloid scarring of the caesarean incision, intralesional corticosteroid treatment may be warranted, especially if the scar is painful or itchy. Photographing the scar at baseline helps assess improvement. Realistic expectations should be encouraged by advising that the skin will not return completely to normal, but that the scar will flatten and become less painful and itchy.

My procedure for intralesional corticosteroid treatment is to inject the scar with triamcinolone acetonide 20 mg/mL (prepared by diluting 1 mL of triamcinolone acetonide 40 mg/mL with 1 mL of lignocaine solution in a 3 mL Luer lock syringe). An alternative I sometimes use is to inject the scar with lignocaine first and then wait a few minutes before injecting the diluted corticosteroid, to reduce the pain of injection. I inject along the scar in approximately 1 cm^2 units. The volume injected depends on the size and thickness of the scar, but generally should be enough to create a small bolus of corticosteroid within the scar, avoiding overinjection into surrounding normal tissue. The treatment is repeated every four to six weeks until the scar has flattened. If improvement is minimal then the corticosteroid dose may be increased, but care must be taken to avoid complications such as atrophy.

Conclusion

Pregnancy has an unpredictable effect on pre-existing skin conditions such as acne, psoriasis and atopic eczema. Although many drugs are contraindicated during pregnancy, options exist for treating these conditions. Management of new melanoma is not necessarily altered by pregnancy, but postponing treatment of superficial non-urgent non-melanoma skin cancer until after the birth may be considered in some cases. Management of postpartum breast and skin problems can be helped by a simplified diagnostic approach and a confident understanding of the safety of skin medications during breastfeeding. MT

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A list of references is included in the website version of this article (www.medicinetoday.com.au).

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