Pregnancy Dermatoses

Basic Dermatology Curriculum

Updated September 4, 2011
Goals and Objectives

The purpose of this module is to help medical students develop a clinical approach to the evaluation and initial management of patients presenting with specific dermatoses of pregnancy.

By completing this module, the learner will be able to:

- Identify and describe the morphology of specific dermatoses of pregnancy
- List which dermatoses of pregnancy carry risks for the mother and the fetus
- Explain basic principles in the diagnosis and treatment of specific pregnancy dermatoses
There are four specific dermatoses of pregnancy, according to the most recent proposed classification:

1. Pemphigoid gestationis
2. Pruritic urticarial papules and plaques of pregnancy (PUPPP)
3. Atopic eruption of pregnancy
4. Intrahepatic cholestasis of pregnancy
Pregnancy Dermatoses

- Each pregnancy dermatosis is distinct and carries different risks for the mother and the fetus.
- A distinction must be made between dermatological diseases that happen to occur while the patient is pregnant versus specific dermatoses that occur only during pregnancy.
- Pregnant patients with dermatologic conditions requiring treatment should be co-managed with an obstetrician.
Case One

Mrs. Smith
Case One: History

- Mrs. Smith is a 34-year-old woman who presents with a one-month history of a skin eruption.
- She is 31 weeks pregnant with her first child.
- She says that she first noticed the eruption after she swam in a lake. The rash started on her abdomen and rapidly spread to her arms and legs.
- The eruption is very pruritic and sometimes forms blisters.
- She tried applying calamine lotion, which provided temporary relief. The lesions, however, continue to progress.
- She is otherwise healthy and is on prenatal multivitamins.
Case One: Skin Exam
Case One, Question 1

What is the most important piece of information in Mrs. Smith’s history?

a. She describes blisters
b. She is in her third trimester of pregnancy
c. The eruption started on her abdomen
d. The rash appeared after swimming in a lake
Case One, Question 1

Answer: a

What is the most important piece of information in Mrs. Smith’s history?

a. She describes blisters
b. She is in her third trimester of pregnancy
c. The eruption started on her abdomen
d. The rash appeared after swimming in a lake

The fact that Mrs. Smith reports blisters points to a diagnosis of **pemphigoid gestationis**.
Diagnosis: Pemphigoid gestationis

- Autoimmune blistering disease
- Incidence: 1 in 10,000-50,000 pregnancies
- Starts in 2\textsuperscript{nd} or 3\textsuperscript{rd} trimester (mean onset = 21 weeks)
- Presents as pruritic papules and vesicles/bullae
- Involves the umbilicus in fifty percent of cases
Case One, Question 2

What would be the next best step(s) in making a diagnosis?

a. Order serum IgE level
b. Skin biopsy for H & E
c. Skin biopsy for immunofluorescence
d. Treatment trial of topical steroids
Case One, Question 2

**Answer: b & c**

What would be the next best step(s) in making a diagnosis?

a. Order serum IgE level *(not useful in the diagnosis of this condition)*

b. **Skin biopsy for H & E**

c. **Skin biopsy for immunofluorescence**

d. Treatment trial of topical steroids *(not diagnostic)*
Pemphigoid gestationis

- Histopathology often helps with the diagnosis. Findings include a subepidermal blister with eosinophils.
- Immunofluorescence provides a definitive diagnosis with findings of a linear band of C3 +/- IgG at the basement membrane zone.
Mrs. Smith was diagnosed with pemphigoid gestationis based on her clinical picture, histopathology and immunofluorescence. Which of the following is the most appropriate treatment option?

a. Methotrexate  

b. Mycophenolate mofetil  

c. Oral steroids  

d. Topical steroids
Case One, Question 3

Answer: c

Which of the following is the most appropriate treatment option?

a. Methotrexate
b. Mycophenolate mofetil
c. Oral steroids
d. Topical steroids
Pemphigoid gestationis: Treatment

- Topical steroids can be helpful in mild disease.
- Patients with widespread disease should be referred to a dermatologist.
- With widespread disease, patients will often benefit from oral steroids, which are safe to use in pregnancy (category B drug).
Mrs. Smith is worried about the implications for her child. Which of the following is a complication of pemphigoid gestationis?

a. Cleft lip and palate
b. Hydrops fetalis
c. Patent ductus arteriosus
d. Preterm delivery
Case One, Question 4

Answer: d

Which of the following is a complication of pemphigoid gestationis?

a. Cleft lip and palate
b. Hydrops fetalis
c. Patent ductus arteriosus
d. Preterm delivery
Complications

- Aside from preterm delivery, other risks include small-for-gestational age infants and blisters (10% risk) in the neonate secondary to maternal transfer of antibodies.
- Pemphigoid gestationis carries a small risk of autoimmune thyroiditis for the mother.
Prognosis

- There is often a flare at the time of delivery (75% of cases).
- Pemphigoid gestationis can start postpartum (20% of cases).
- Recurrence with menses or OCP use has been reported but is rare.
Case Two

Mrs. Richards
Case Two: History

- Mrs. Richards is a healthy 28-year-old primigravid.
- She is in her 34\textsuperscript{th} week of gestation.
- Two weeks ago, she developed a pruritic eruption on her abdomen and thighs.
Case Two: Skin Exam
Case Two, Question 1

What is the most likely diagnosis?

a. Allergic contact dermatitis
b. Atopic dermatitis
c. Pemphigoid gestationis
d. PUPPP
Case Two, Question 1

**Answer:** d

What is the most likely diagnosis?

- a. Allergic contact dermatitis
- b. Atopic dermatitis
- c. Pemphigoid gestationis
- d. PUPPP
This is a case of pruritic urticarial papules and plaques of pregnancy (PUPPP)

- Common dermatosis of pregnancy
- Incidence: 1 in 300 pregnancies
- Onset during 3rd trimester (mean = 35 weeks)
- Predominantly affects primigravids
Pathogenesis

The pathogenesis is unclear.

- One leading theory is abdominal wall distention, especially since PUPPP is more common in primigravids and multiple gestation pregnancies.
- Hormonal, immunological, and paternal factors may also play a role.
Case Two, Question 2

Which of the following is the most important physical exam finding?

a. Absence of blisters
b. Limited to the abdomen
c. Involvement of striae
d. Sparing of the umbilicus
Case Two, Question 2

Answer: c

Which of the following is the most important physical exam finding?

a. Absence of blisters (helps to distinguish from pemphigoid gestationis, but in PUPPP blisters can occur)

b. Limited to the abdomen (PUPPP may spread beyond the abdomen)

c. Involvement of striae (unique to PUPPP)

d. Sparing of the umbilicus (Both PG and PUPPP can involve the umbilicus)
PUPPP: Clinical Findings

- Typical lesions are erythematous urticarial papules surrounded by a pale halo.
- In the vast majority of cases, the eruption starts within the abdominal striae (with periumbilical sparing) and progresses from there.
- Less commonly, PUPPP can present with blisters and the umbilicus may be involved.
Evaluation

- The diagnosis is made based on the history and the clinical picture.
- A biopsy is rarely helpful in diagnosing PUPPP. It does, however, rule out pemphigoid gestationis, which is an important differential diagnosis.
  - If the patient has an atypical presentation, or if you are concerned about pemphigoid gestationis, consider referral to a dermatologist or a skin biopsy with immunofluorescence.
  - A skin biopsy of PUPPP would reveal non-specific findings
Mrs. Richards heard of a friend who had PUPPP as well. Her friend’s baby was born prematurely. She asks you if you think there was a connection. What do you tell her?

a. Likely not. This association has not been shown.

b. Probably. After all, there is an increased risk with pemphigoid gestationis.
Mrs. Richards heard of a friend who had PUPPP as well. Her friend’s baby was born prematurely. She asks you if you think there was a connection. What do you tell her?

a. Likely not. This association has not been shown.

b. Probably. After all, there is an increased risk with pemphigoid gestationis.
PUPPP: Prognosis

- Has not been shown to have increased maternal or fetal risks
- Excellent prognosis
- Generally resolves within days postpartum
- No reports of recurrence postpartum, with menses, or with use of oral contraceptives
PUPPP: Treatment

- Therapeutic options are aimed at symptomatic relief:
  - Topical steroids
  - Oral prednisone
  - Non-sedating oral antihistamines

- If symptoms persist after delivery, consider referral to a dermatologist.
## PG versus PUPPP

<table>
<thead>
<tr>
<th></th>
<th>Pemphigoid gestationis</th>
<th>PUPPP</th>
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<tr>
<td><strong>ONSET</strong></td>
<td>2(^{\text{nd}}) or 3(^{\text{rd}}) trimester</td>
<td>3(^{\text{rd}}) trimester</td>
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<td><strong>BLISTERS</strong></td>
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<td>rare</td>
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<td><strong>BIOPSY/IF</strong></td>
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<td><strong>FETAL RISKS</strong></td>
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<tr>
<td><strong>RECURRENCE</strong></td>
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<td>no</td>
</tr>
</tbody>
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Case Three

Ms. Wilson
Case Three: History

- Ms. Wilson presents with intense, non-remitting pruritus without skin lesions.
- She is G3P2. Both previous pregnancies were uncomplicated. She is in her 30th week of gestation.
- She says the itch is worse after a hot shower.
- She is healthy, except for a history of eczema as a child and well-controlled hypothyroidism.
Case Three, Question 1

Which of the following is the most likely cause of her pruritus?

a. Aquagenic pruritus
b. Atopic dermatitis
c. Hypothyroidism
d. Intrahepatic cholestasis of pregnancy
Case Three, Question 1

Answer: d

Which of the following is the most likely cause of her pruritus?

a. Aquagenic pruritus
b. Atopic dermatitis
c. Hypothyroidism
d. Intrahepatic cholestasis of pregnancy
Intrahepatic Cholestasis of Pregnancy

- Accounts for 20% of obstetric jaundice
- Presents with
  - Generalized pruritus +/- jaundice
  - Absence of primary lesions
  - Biochemical abnormalities consistent with cholestasis
  - No history of exposure to hepatitis or hepatotoxic drugs
Intrahepatic Cholestasis of Pregnancy

- Pathophysiology
  - Thought to be due to increased levels of estrogen
  - Estrogen
    - Promotes cholestasis in animal models
    - Inhibits reuptake of bile acids into hepatocytes
    - Inhibits bile transport proteins
Case Three, Question 2

Which of the following is the most important abnormal finding in intrahepatic cholestasis of pregnancy?

a. Abnormal hepatobiliary ultrasound
b. Elevated bile acids
c. Elevated bilirubin
d. Elevated transaminases
Case Three, Question 2

**Answer: b**

Which of the following is the most important abnormal finding in intrahepatic cholestasis of pregnancy?

a. Abnormal hepatobiliary ultrasound

b. **Elevated bile acids**

c. Elevated bilirubin

d. Elevated transaminases
Evaluation

Although bilirubin, transaminases, and alkaline phosphatase may be elevated, the hallmark of ICP is elevation of serum bile acids.
Case Three, Question 3

Which of the following is true?

a. ICP is a benign disorder and is self-limited in nature.

b. Patients with ICP need a liver biopsy.

c. The standard of care for ICP is Vitamin K supplementation.

d. Untreated ICP can lead to fetal distress and death.
Case Three, Question 3

Answer: d

Which of the following is true?

a. ICP is a benign disorder and is self-limited in nature.

b. Patients with ICP need a liver biopsy.

c. The standard of care for ICP is Vitamin K supplementation.

d. Untreated ICP can lead to fetal distress and death.
ICP: Complications

- For the mother, risks associated with ICP include bleeding, intestinal malabsorption, and cholelithiasis.
- For the fetus, risks include prematurity, fetal distress, and death.
ICP: Treatment

- Although ICP resolves after delivery, treatment is indicated.
- The goal of treatment is to decrease circulating bile acids.
- Vitamin K supplementation plays a role in management if bleeding parameters become abnormal.
The goal of treatment is to reduce symptoms and to prevent maternal and fetal complications.

- Most publications recommend early induction of labor, commonly at 37 to 38 weeks.
  - When cholestasis is severe, delivery is considered earlier if fetal lung maturity is established.
- Ursodeoxycholic acid
  - Considered 1\textsuperscript{st}-line treatment
  - Randomized controlled trials (RCTs) demonstrate decreased pruritus and serum bile acids
  - May decrease fetal mortality
Case Four

Ms. Campbell
Case Four: History

- Ms. Campbell is a 25-year-old woman who comes in for an itchy eruption that began two weeks ago.
- She is 20 weeks pregnant with her second child. Her previous pregnancy was unremarkable.
- She is healthy and has no history of atopy.
Case Four: Skin Exam
Case Four, Question 1

The best way to describe her lesions is:

a. deep-seated nodules over the legs
b. lichenified papules over the legs, some of which are excoriated
c. multiple ill-defined scaly plaques
d. well-demarcated, scaly macules scattered over the extremities
Case Four, Question 1

**Answer: b**

The best way to describe her lesions is:

- a. deep-seated nodules over the legs
- b. *lichenified papules over the legs, some of which are excoriated*
- c. multiple ill-defined scaly plaques
- d. well-demarcated, scaly macules scattered over the extremities
Atopic Eruption of Pregnancy

Atopic eruption of pregnancy is a term that encompasses other pruritic inflammatory dermatoses which appear or worsen during pregnancy:

- Atopic dermatitis in pregnancy
- Prurigo of pregnancy (Besnier)
  - Prurigo = intensely itchy papules
- Pruritic folliculitis of pregnancy
  - Pruritic folliculitis = itchy inflammation around the hair follicle
Diagnosis: Atopic Eruption of Pregnancy

- This is an example of an atopic eruption of pregnancy (prurigo type).
- Atopic eruption of pregnancy (AEP):
  - Eczematous in 2/3 and prurigo type in 1/3
  - Starts earlier in pregnancy (mean=18 weeks)
  - 80% of patients have a previous history of atopic dermatitis while 20% do not
Atopic Eruption of Pregnancy

- AEP is a clinical diagnosis.
- Histopathology is non-specific.
- Immunofluorescence is negative.
Ms. Campbell is worried that her baby will be affected by her disease. What do you tell her?

a. She will need to be monitored as a high-risk pregnancy.

b. There have been reports of fetal distress in patients with AEP.

c. There is a risk of small-for-gestational age births in AEP.

d. There is no need to worry. Fetal distress is not increased in patients with AEP.
Case Four, Question 2

Answer: d

Ms. Campbell is worried that her baby will be affected by her disease. What do you tell her?

a. She will need to be monitored as a high-risk pregnancy.

b. There have been reports of fetal distress in patients with AEP.

c. There is a risk of small-for-gestational age births in AEP.

d. There is no need to worry. Fetal distress is not increased in patients with AEP.
AEP: Treatment

- AEP is a benign disease and does not carry increased maternal or fetal risks.
- Treatment is largely dependent on controlling the eruption with topical steroids.
- Oral steroids can be used in recalcitrant cases.
- If the eruption does not respond to topical steroids, referral to dermatology is recommended.
- The eruption may persist after pregnancy as a chronic dermatitis.
Going back to our cases: Review Question 1

Which disease is caused by specific antibodies?

a. Atopic eruption of pregnancy
b. Intrahepatic cholestasis of pregnancy
c. Pemphigoid gestationis
d. Pruritic urticarial papules and plaques of pregnancy
Review Question 1

Answer: c

Which disease is caused by specific antibodies?

a. Atopic eruption of pregnancy
b. Intrahepatic cholestasis of pregnancy
c. Pemphigoid gestationis
d. Pruritic urticarial papules and plaques of pregnancy
Review Question 2

Which of the following is true?

a. Atopic eruption of pregnancy only occurs in patients with a history of atopic dermatitis.
b. Intrahepatic cholestasis of pregnancy can have serious complications for both mother and child.
c. PUPPP and pemphigoid gestationis have identical findings on immunofluorescence.
d. There is a high risk of blisters in the neonate in pemphigoid gestationis.
Review Question 2

Answer: b

Which of the following is true?

a. Atopic eruption of pregnancy only occurs in patients with a history of atopic dermatitis.

b. Intrahepatic cholestasis of pregnancy can have serious complications for both mother and child.

c. PUPPP and pemphigoid gestationis have identical findings on immunofluorescence.

d. There is a high risk of blisters in the neonate in pemphigoid gestationis.
In Summary

- There are specific dermatoses that occur during pregnancy.
- While most of these dermatoses are benign, there are rare instances when serious complications can arise.
- It is important to have a working knowledge of these pregnancy dermatoses to make a proper diagnosis.
Acknowledgements

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End of the Module