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Pityriasis rosea in pregnancy: report of a spousal occurrence and craniosynostosis in the healthy newborn

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Key words: conjugal, craniosynostosis, newborn, pityriasis, pregnancy, rosea, sagittal, spouse

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ABSTRACT

Background: Pityriasis rosea is a papulosquamous disease. It may occur during pregnancy; in this setting, it has occasionally been associated with adverse outcomes.

Purpose: A woman who developed pityriasis rosea at the beginning of her eighth week of gestation is described. The outcomes in newborns delivered by pregnant women who developed pityriasis rosea during gestation are summarized.

Method: A 28-year-old woman developed pityriasis rosea during her eighth week of pregnancy. Her husband had pityriasis rosea two months earlier. PubMed was searched for the following terms: conjugal, craniosynostosis, newborn, pityriasis, pregnancy, rosea, sagittal, spouse. The papers were reviewed and the references cited were evaluated.

Results: Our patient delivered a healthy male infant after 41 weeks of gestation. He had normal weight, height, and Apgar scores. Isolated sagittal craniosynostosis was diagnosed and was successfully treated at nine weeks after birth without complications.

Conclusion: Several retrospective studies have investigated the possibility of adverse outcomes in infants born to women who developed pityriasis rosea during pregnancy, such as stillbirth, low gestational weight, hypotonia, and premature delivery. However, there are also reports of healthy newborns in women who have had pityriasis rosea during gestation. Our patient carried the fetus one week post-term and delivered a healthy boy via C-section; isolated sagittal craniosynostosis was later diagnosed and successfully repaired. The occurrence of craniosynostosis in a woman who developed pityriasis rosea during her first trimester of pregnancy may be two coincidental events.

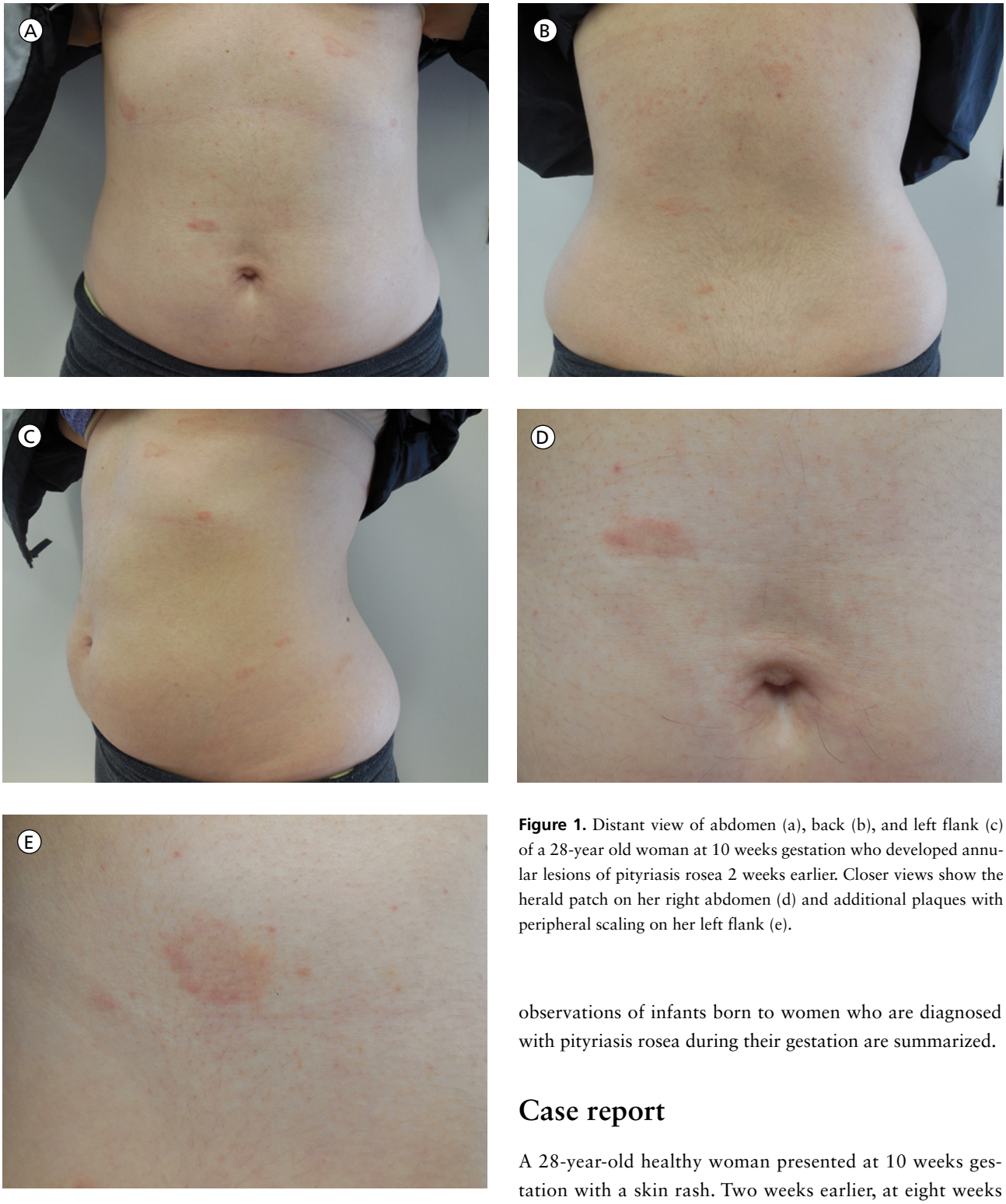

Figure 1. Distant view of abdomen (a), back (b), and left flank (c) of a 28-year old woman at 10 weeks gestation who developed annular lesions of pityriasis rosea 2 weeks earlier. Closer views show the herald patch on her right abdomen (d) and additional plaques with peripheral scaling on her left flank (e).

Introduction

Pityriasis rosea is considered to be a benign cutaneous condition [1-4]. However, in the setting of pregnancy, adverse effects on the newborn may be observed [5,6]. Craniosynostosis is a congenital abnormality, which can occur as an isolated finding or as part of a syndrome with other associated features [7,8]. A woman who developed pityriasis rosea during her first trimester of pregnancy and who subsequently delivered a healthy baby with craniosynostosis is described, and observations of infants born to women who are diagnosed with pityriasis rosea during their gestation are summarized.

Case report

A 28-year-old healthy woman presented at 10 weeks gestation with a skin rash. Two weeks earlier, at eight weeks gestation, she had noticed an initial skin lesion on her abdomen (Figure 1). Shortly thereafter, she began to develop new lesions on her abdomen and back.

Her husband, a 29-year-old man, had presented two months earlier with similar-appearing annular lesions on his neck (Figure 2). A larger lesion had initially appeared on his left neck. Within the next five days, additional lesions appeared on the remainder of his neck and subsequently, a few lesions appeared on his distal upper extremities. A diagnosis of inverse pityriasis rosea was established based on the clinical history and lesion morphology. His lesions resolved

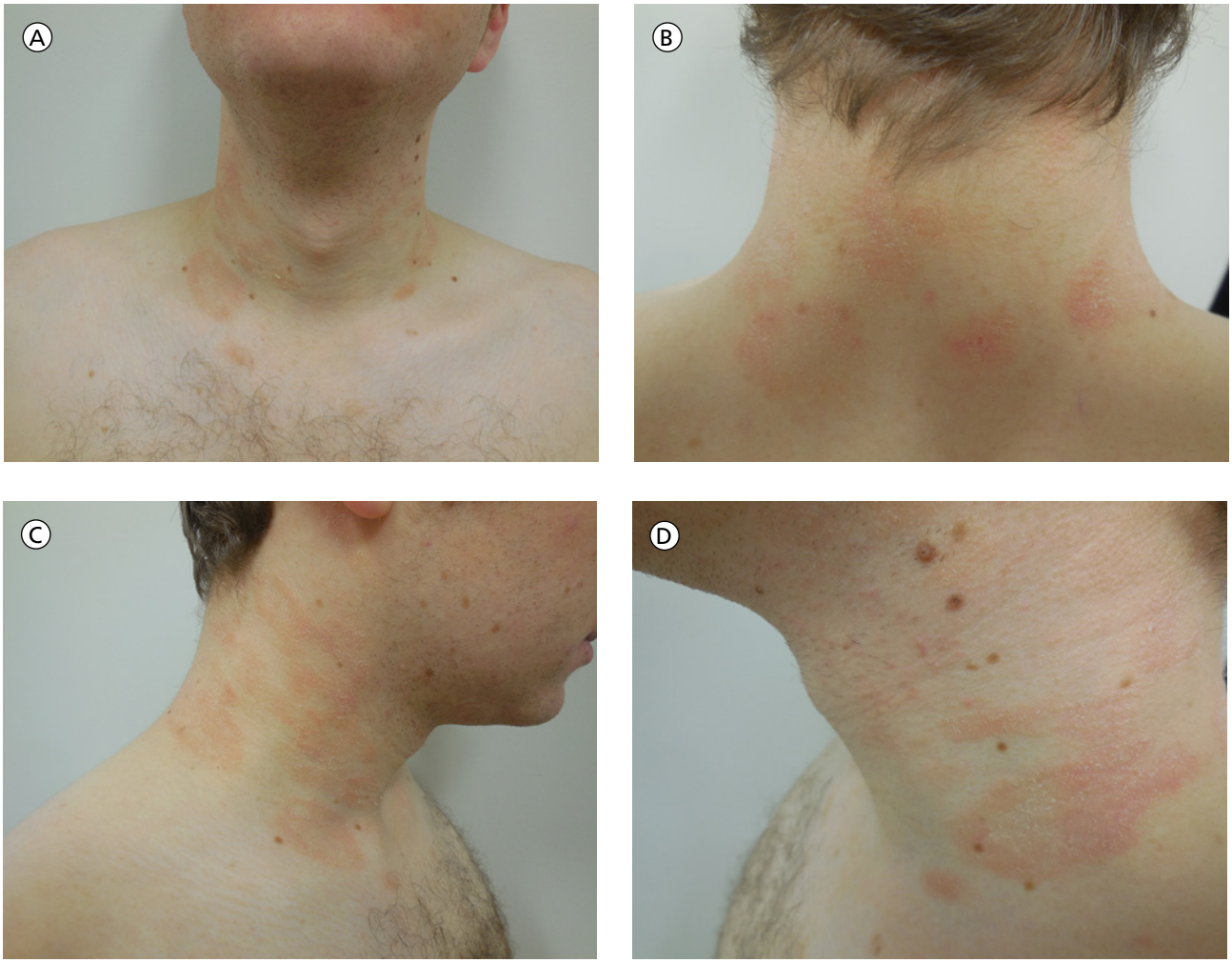

Figure 2. Anterior (a), posterior (b), and lateral (c and d) views of the neck of a 29-year old man, who is the husband of the woman in figure 1, show annular plaques with peripheral scaling of pityriasis rosea that had developed 2 months prior to those of his wife. The right (**c**) and left (**d**) neck show pityriasis rosea lesions, including the herald patch on his left neck (**d**).

over the next two weeks after treatment with triamcinolone 0.1% cream twice daily.

Cutaneous examination of the patient's lesions showed multiple annular plaques with peripheral scaling on the abdomen and back (Figure 1). Her lesions were similar in morphology to those of her husband. She declined skin biopsy. A diagnosis of pityriasis rosea was established based on the appearance of the lesions and history.

Cetaphil® cream was applied twice daily to the patient's lesions; the lesions resolved during the next eight weeks. Her obstetrician was contacted. She was classified as a high-risk pregnancy and was followed closely for the remainder of her gestation.

The patient went into labor at 40 weeks and 6 days. After 15 hours of labor, the baby had not descended into the pelvis; there was no fetal distress, and a decision for C-section was made. His Apgar scores at one and five minutes were 9/9, weight 3827.1 g, and height 50.8 cm. Prior to discharge from the hospital, it was noted that the infant had a curved head. X-ray revealed a sagittal craniosynostosis. Neurosurgery consultation confirmed the diagnosis; at 9 weeks postpartum, endoscopic repair was performed successfully with no adverse sequelae.

Discussion

Pityriasis rosea classically presents as annular plaques with peripheral scale, typically located between the neck and the groin, and may be seasonal in occurrence [2,3,9]. Less commonly, it can present with lesions on the neck and extremities (inverse pityriasis rosea) [10-11] or during pregnancy [5,6,12,13].

The pathogenesis of pityriasis rosea remains to be definitively established. However, associations with human herpes virus (HSV)-6 and HSV-7 have been observed [14-18]. Several studies have found that patients with pityriasis rosea have higher levels of HSV-6 and HSV-7 detected in their skin, suggesting that infection by these viruses may have a causal effect on the development of pityriasis rosea.

Occasionally, pityriasis rosea has been documented in siblings or in spouses (Table 1) [19-21]. In these circumstances,

TABLE 1. Pityriasis rosea in spouses: summary of patient features. [Copyright: ©2016 Loh et al.]

Ca	FOI	OIS	HA	HL	HDur	WA	WL	WDur	Recur	Ref
1	H	7 d	40	4x2 cm oval patch on RLQ abdomen	10 d; Tx ND	36	• 30x10 cm patch R flank • bilateral axilla • 2x1 cm oval lesion L arm extensor surface	3 wk; Tx ND	No	20
2	ND	ND	ND	Neck, upper limbs	4 wk, no Tx	28	Neck, chest, thighs, upper limbs	4 wk, no Tx	No	19
3	H	1 y	ND	Trunk	ND	34	Upper trunk, ribs [a]	Maximum 6 wk per episode	Yes [b]	21
4	H	2 mo	29	Neck, distal upper limbs	2 wk, TAC BID	28	Abdomen, back	10 wk, cetaphil cream	No	CR

BID=twice daily; C=couples; Ca=case; CR=current report; d=days; FOI=first occurred in; H=husband; HA= husband's age in years at onset of pityriasis rosea; HDur=duration in husband; HL=husband's location of lesion(s); mo=months; ND=not described; OIS=onset in spouse; Recur=recurrence of pityriasis rosea; RLQ=right lower quadrant; TAC=triamcinolone cream 0.1%; Tx=treatment; WA=wife's age in years at onset of pitryiasis rosea; WL=wife's location of pityriasis rosea lesion(s); WDur=duration in wife; wk=weeks; y=years

[a] Distribution of the lesions was only described for the last recurrence

[b] The woman had 4 recurrences, one per year; each recurrence occurred in the spring

the skin eruption may occur sequentially. Our patient's husband developed and cleared inverse pityriasis rosea two months prior to his wife developing classic pityriasis rosea. Similar to our patient, in the majority of cases of pityriasis rosea occurring in couples, the lesions appeared in the husband prior to the wife (Table 1). The interval between onset of pityriasis rosea in the wife after occurrence in the husband ranged from seven days to one year (median: 2 months). One woman had recurrence of pityriasis rosea each sequential year in the spring [21].

Our review of the literature, including the patient in this report, discovered 54 women who developed pityriasis rosea during their pregnancy (Table 2 [6,14,22] and Table 3 [6,12-14,23,24]). The onset of pityriasis rosea ranged from week 8 of gestation (3 patients: cases 7 and 8 in Table 2 and case 14 in Table 3) to week 32 (1 patient: case 7 in Table 3). The median number of weeks of pregnancy at the onset of pityriasis rosea was 19.

An equal number of women were either uniparous or multiparous. Twenty-five women—ages 24 to 34 (median age 29)—had no prior pregnancies. However, pityriasis rosea occurred during either the second (20 women) or the third pregnancy (6 women) for the other women.

Most of the women (66%, n=35) developed pityriasis rosea during the second trimester of gestation (13-28 weeks). Nineteen percent (10 women) had the onset of their dermatosis during the first trimester (0-12 weeks). Only 10% (5 women) experienced it in the third trimester (29-40 weeks).

Several retrospective studies have observed adverse events affecting the newborn in women who develop pityriasis rosea during pregnancy (Table 2) [6,14,22]. In these individuals, the dermatosis lasted 3 to 13 weeks. The adverse events predominantly included stillbirth at 11 to 28 weeks (median 16 weeks), premature delivery (<37 weeks), hypotonia, weak motion, and low birth weight. Less common adverse effects were hydramnios and foramen ovale. Apgar scores ranged from 6 to 9.

Some investigators have discovered that pityriasis rosea occurring earlier in pregnancy, such as in the first trimester, have been more often associated with a poorer prognosis, compared to women who developed the dermatosis during the second or third trimesters [6]. However, our review of the literature showed that the majority of women (16/25, 64%) who experienced adverse events had the onset of pityriasis rosea that occurred during the second trimester. The onset of pityriasis rosea occurred during the first trimester in 9 women (36%) and none in the third trimester.

Additional studies looking at the association between HSV-6 and HSV-7 DNA and the occurrence of pityriasis rosea in pregnancy have also been performed [13,14,17,18]. Some of the studies found reactivation of HSV-6 during pregnancy. However, a positive correlation between viral infection and clinical features of pityriasis rosea was not established [17,18].

Individual case reports, including the patient in this report, have described 29 women who developed pityriasis

TABLE 2. Adverse outcomes in infants born to women who developed gestational pityriasis rosea during pregnancy [Copyright: ©2016 Loh et al.]

Case	A	#PP	O	Dur	Symptoms*	Loc	Del*	Newborn weight (g)#	Apgar score	OAE	Ref
1	24	1	6	3	ND	Thorax, scattered over body	28	Stillbirth, 2325 at autopsy	ND		22
2	25	0	18	5	No	Lower L, T(<50%)	36	3000	7	Weak motion	14
3	25	0	19	6	No	L, T (<50%)	35	2700	7	Hypotonia	14
4	26	0	25	5	Yes	T (<50%)	36	2950	8		6
5	27	0	19	8	Yes	L, T (>70%)	32	1900	8	Hypotonia	14
6	27	0	19	5	No	Lower L, T (<50%)	34	2600	6	Hypotonia, weak motion	14
7	28	0	8	9	Yes	L, T	11	Abortion	NA		6
8	28	0	8	11	Yes	L, T	11	Stillborn	NA		14
9	28	0	9	10	Yes	L, T	17	Stillborn	NA		14
10	28	1	10	6	Yes	L, T	12	Stillborn	NA		14
11	29	1	12	11	Yes	L, T	16	Stillborn	NA		14
12	29	1	16	4	No	T (<50%)	36	2950	7	Hypotonia	14
13	29	0	15	9	No	L, T	34	2100	8	Weak motion	14
14	30	1	11	10	Yes	L, T (>70%)	18	Stillborn	NA		14
15	30	1	11	13	Yes	L, T	12	Stillborn	NA		14
16	30	0	16	9	Yes	L, T	38	3100	9	Hydramnios	14
17	31	1	15	6	No	T (<50%)	38	2800	8	Hypotonia, foramen ovale	14
18	31	2	19	4	No	Lower L, T (<50%)	36	3100	8	Foramen ovale	14
19	31	1	20	5	No	Lower L, T (<50%)	35	2900	6	Hypotonia	14
20	32	0	10	11	Yes	L, T (>70%)	16	Stillborn	NA		14
21	32	2	15	8	Yes	L, T (>80%)	17	Stillborn	NA		14
22	32	2	18	8	Yes	L, T	39	2900	9	Hydramnios	14
23	33	1	14	9	No	L, T	33	2100	7	Hypotonia	14
24	34	1	14	9	No	T	38	3000	8	Hypotonia, hydramnios	14
25	34	1	18	8	No	Upper L, T (<50%)	34	2650	8		6

*Constitutional symptoms (i.e., other than cutaneous symptoms) including fatigue, headache, insomnia, gastrointestinal disturbance, inability to concentrate.

C=case; A=mother's age at onset of pityriasis rosea; #PP=number of previous pregnancies; Loc=location; L=limbs; T=trunk; ND=not described; O=onset of pityriasis (weeks in pregnancy); Dur=duration of pityriasis rosea (weeks); L=location of lesions; Del=delivery (weeks in pregnancy); OAE=other adverse events

* Premature <37 weeks [a]

Low birth weight <2500g [b]

[a] "Preterm birth." World Health Organization. http://www.who.int/mediacentre/factsheets/fs363/en/ Date of access: 13 Dec. 2015.

[b] "Pediatric and Pregnancy Nutrition Surveillance System: PedNSS Health Indicators." Center of Disease and Control. http://www.cdc.gov/pednss/what_is/pednss_health_indicators.htm. Date of access: 13 Dec. 2015.

TABLE 3. Healthy infants born to mothers who developed pityriasis rosea during pregnancy. [Copyright: ©2016 Loh et al.]

Case	A	#PP	O	Dur	Symptoms*	Loc	Del	Newborn weight (g)#	Apgar score	Ref
1	24	1	21	6	No	T (<50%)	38	3900	10	6
2	25	0	24	6	No	Lower L, T (<50%)	38	3250	9	6
3	26	0	24	4	No	(<50%)	40	3850	9	6
4	26	0	26	5	Yes	Lower L, T (<50%()	39	3700	9	6
5	26	0	30	6	No	T (<50%)	41	3800	8	6
6	27	0	24	5	No	T (<50%)	39	3400	10	6
7	27	0	32	5	No	L, T (<50%)	38	3900	10	6
8	28	1	13	5	Yes	T (<50%)	39	3650	9	6
9	28	2	21	5	No	T (<50%)	39	3000	9	6
10	28	0	21	10	No	T, proximal aspects of four extremities	ND, uneventful	ND	ND	12
11	28	0	23	5	No	T (<50%)	38	3100	8	6
12	28	0	26	4	No	T (<50%)	38	3800	10	6
13	28	ND	ND, last trimester	ND	ND	R hip, bilateral thighs	ND, uneventful	ND	ND	13
14	28	0	8	10	No	T	41	3827	9	CR
15	29	0	26	6	Yes	T (<50%)	37	3200	8	6
16	29	1	28	5	No	T (<50%)	41	3600	9	6
17	30	1	26	4	No	L, T 50%	38	3600	9	6
18	30	1	26	4	No	T (<50%)	39	3500	10	6
19	30	1	29	5	No	T (<50%)	37	3000	8	6
20	30	0	29	6	No	Upper L, T (<50%)	37	3100	8	6
21	30	1	30	4	No	Lower L, T (<50%)	38	3400	9	6
22	31	2	14	4	No	T (<50%)	38	3300	10	6
23	31	1	24	5	Yes	Lower L, T (<50%)	38	2750	7	14
24	31	1	26	5	No	Lower L, T (<50%)	38	3300	8	6
25	32	0	26	5	No	T (<50%)	38	3250	8	6
26	33	0	11	8	No	T, proximal aspects of four extremities	ND, full-term	2640	ND	12
27	33	2	23	4	No	T (<50%)	39	3200	9	6
28	ND	ND	ND	ND	ND	ND	ND	ND	ND	23
29	ND	ND	ND	ND	ND	ND	ND	ND	ND	24

*Constitutional symptoms (i.e., other than cutaneous symptoms) including fatigue, headache, insomnia, gastrointestinal disturbance, inability to concentrate.

C=case; A=mother's age at onset of pityriasis rosea; #PP=number of previous pregnancies; Loc=location; L=limbs; T=trunk; ND=not described; O=onset of pityriasis (weeks in pregnancy); Dur=duration of pityriasis rosea (weeks); Loc=location of lesions; Del=delivery (weeks in pregnancy)

Premature <37 weeks [a]

Low birth weight <2500g [b]

[a] "Preterm birth." World Health Organization. http://www.who.int/mediacentre/factsheets/fs363/en/ Date of access: 13 Dec. 2015.

[b] "Pediatric and Pregnancy Nutrition Surveillance System: PedNSS Health Indicators." Center of Disease and Control. http://www.cdc.gov/pednss/what_is/pednss_health_indicators.htm. Date of access: 13 Dec. 2015.

TABLE 4. Syndromes associated with carniosynostosis [25,26]

Syndrome [a]	Features/Comment
Apert syndrome	Brachycephaly, flat nasal bridge, syndactyly of fingers ("mitten fingers"), syndatyly of toes
Crouzon syndrome	Long face with proptosis, maxillary hypoplasia, mandibular prognathism, conductive hearing loss. Associated with increased paternal age. Synostosis may involve the coronal, sagittal, and lambdoid sutures. Can also present with acanthosis nigricans.
Pfeiffer syndrome	Hypertelorism, maxillary hypoplasia, mandibular prognathism, turribrachycephaly. Partial syndactyly of fingers and toes. May have choanal atresia or stenosis or radiohumeral synostosis at elbows
Saethre-Chotzen syndrome	Short stature, brachycephaly, acrocephayly, plagiocephaly, facial asymmetry, hypertelorism, beaked nose, deafness, cardiac defect.
Carpenter syndrome	Brachycephaly with synostosis of coronal, lambdoid, and sagittal sutures. Midface hypoplasia, low-set ears, high arched palate, coxa valgu, genu valgum, polydactyly/ syndactly/clinodactyly/camptodactyly.

[a] These are the syndromes most frequently associated with craniosynostosis. Other less common associated syndromes associated with craniosynostosis include: Antley-Bixler, craniofrontonasal dysplasia, craniosynostosis mental retardation syndrome of Lin and Gettig, cutis gyrate syndrome of Beare and Stevenson, cytochrome P450 oxidoreductase deficiency with Antley-Bixler phenotype, Hunter-McAlpine craniosynostosis, Jackson-Weiss, Muenke, and Baller-Gerold, Opitz trigonocephaly, and Shprintzen-Goldberg craniosynostosis.

rosea during pregnancy and have delivered healthy newborns (Table 3) [6,12-14,23,24]. Indeed, the literature shows a ratio of 6:5 with regards to healthy newborns versus newborns with adverse events being delivered to women with gestational pityriasis rosea. However, the number of publications regarding gestational pityriasis rosea on the outcome of the newborn may not accurately reflect the incidence of normal newborns whose mothers had gestational pityriasis rosea, since clinicians may not report these women or journals may elect not to publish the papers.

Craniosynostosis is a premature fusion of one or more sutures of the skull. It can occur as an isolated incidental event or as part of syndrome (Table 4) [25,26]. As an isolated incidental finding, sagittal craniosynostosis, as observed in our patient's newborn, is the most common form. If left unrepaired, craniosynostosis may lead to a deformed skull, elevation of intracranial pressure, and cognitive impairment [27]. Our patient's infant was evaluated shortly after delivery and had repair of the sagittal craniosynostosis at 9 weeks, with no complications and subsequent normal development.

The incidence of sagittal craniosynostosis is about 1 in 5,000 live births [28]. To the best of our knowledge, isolated craniosynostosis has not been observed in newborns of women who developed pityriasis rosea during their gestation. Indeed, the occurrence in our patient's child may merely be a coincidence and not associated with her episode of pityriasis rosea during her first trimester.

Conclusion

Pityriasis rosea usually occurs as an isolated skin condition. Less commonly, it may be observed in spouses or in siblings. Pityriasis rosea also occasionally occurs in women during pregnancy. However, the true incidence is not known, since gestational pityriasis rosea is not frequently reported. Some researchers noted that pityriasis rosea occurring earlier in pregnancy had a greater probability of resulting in adverse events for the fetus, including stillbirth, low gestational weight, hypotonia, and/or premature delivery. However, there are a similar number of reports of women who developed pityriasis rosea during their gestation and delivered normal newborns. Indeed, the ratio of normal to abnormal newborns was found to be 29:25. Our patient developed pityriasis rosea during her first trimester beginning at 8 weeks gestation and lasting through 18 weeks. Her son was carried to term and delivered at 40 weeks and 6 days with Apgar scores, weight, and height in normal range. Isolated craniosynostosis was discovered and subsequently repaired. Whether the presence of craniosynostosis was associated with our patient's development of pityriasis rosea during her pregnancy remains to be determined.

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